



**SYNTEC**  
**TECHNOLOGY CO.,LTD.**

## Driver Alarm Manual.

匯出日期: 2023-05-10  
修改日期: 2023-04-28

**i** 中文文件 Mandarin Document: 驱动器警报说明文件



# SYNTEC

## 1 Driver Alarm - ALARM-1xx

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-024</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Internal Operation Error</b>
<b>Alarm Content</b>	An internal program error occurred in the driver.		
<b>Possible Cause</b>	An internal program error occurred in the driver.		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-025</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Hardware Computation Failure</b>
<b>Alarm Content</b>	Driver Hardware Computation Overflow Or Underflow		
<b>Possible Cause</b>	Either overflow or underflow occurs by hardware computation		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-026</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Handshake Timing Failure</b>
<b>Alarm Content</b>	Driver data sync threshold count setting inappropriate		
<b>Possible Cause</b>	Trigger DataSync before finishing packet receiving state machine		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-100</b>		
<b>1st Single Axis ID</b>	<b>AL-10</b>	<b>Alarm Name</b>	<b>IGBT Overheat</b>

<b>Alarm Content</b>	Generation I single axis drive power module exceeds 90°C IGBT temperature stays above 100°C		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Drive output short-circuit</li> <li>3. Ambient temperature overheat</li> <li>4. Heat source nearby</li> <li>5. Continuous use while exceeding drive's rated load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if fan is functioning normally.</li> <li>2. Check drive's output wiring, refer to "Wiring and Signal" section of manual.</li> <li>3. Check if ambient temperature is below 55°C, refer to "Transportation and Installation" section of manual.</li> <li>4. Check environment, remove external heat source or enhance cooling capacity.</li> <li>5. Check for motor overload or over current.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-101</b>		
<b>1st Single Axis ID</b>	<b>AL-72</b>	<b>Alarm Name</b>	<b>Drive Overload</b>
<b>Alarm Content</b>	Drive senses power module overload		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overload during operation due to mechanical factors</li> <li>2. Overload</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder failure</li> <li>5. Current gain mismatch while running encoder test, magnetic encoder correction or induction motor parameter estimation</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Eliminate mechanical factors.</li> <li>2. Check if <math>I_{dq}</math> current feedback Pn-D30(D1-16) has been greater than the parameter Pn-651(P5-02), if so we suggest lowering motor load.</li> <li>3. Refer to "Wiring and Signal" section of manual for cable re-connection.</li> <li>4. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>5. Lower Tuning Gain (Pn-F2D/Fn-18) to 20, if problem doesn't improve, gradually tune drive parameter (Pn-F2D/Fn-18) to 5.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-110</b>		

1st Single Axis ID	AL-12	Alarm Name	Critical Over Voltage
<b>Alarm Content</b>	DC BUS voltage exceeds drive's protective level 105%		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Excess DC BUS voltage caused by braking resistor when motor slows</li> <li>2. AC power input exceeds drive's rated input voltage</li> <li>3. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check regenerative resistor's specs, refer to "Wiring and Signals" section of manual.</li> <li>2. Check if AC power supply is compatible with drive.</li> <li>3. If the above two scenarios are ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-111</b>		
1st Single Axis ID	AL-13	Alarm Name	Low Voltage
<b>Alarm Content</b>	Power supply voltage is lower than driver's rated input voltage		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. AC power supply is too low</li> <li>2. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. check if AC power supply matches drive specs.</li> <li>2. If the above scenario is ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-112</b>		
1st Single Axis ID	AL-2D	Alarm Name	Power Cable Disconnected
<b>Alarm Content</b>	Power cable disconnection detected at motor non-zero speed		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 3 phase power cables are loose</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check UVW cables between motor and drive for damage or looseness.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-113</b>		

1st Single Axis ID	--	Alarm Name	Power Failure
<b>Alarm Content</b>	Power supply phase failure		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Drive cables are loose</li> <li>2. Power supply failure</li> <li>3. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check RST cables for damage or looseness.</li> <li>2. Check power source.</li> <li>3. If the above scenarios are ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		
<b>Remark</b>	From v2.8.6, the alarm is triggered only when Pn-804=1. From v2.10.1, v2.11.0, disable to detect this alarm.		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-114</b>		
1st Single Axis ID		Alarm Name	Severely Low Voltage
<b>Alarm Content</b>	Power supply voltage is far lower than the protective level.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Power supply voltage is lower than the 40% normal level.</li> <li>2. Drive hardware failure.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Ensure the DC bus voltage is stable when the driver is working.</li> <li>2. If the above scenario is ruled out, please send back to Syntec.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-120</b>		
1st Single Axis ID	<b>AL-15</b>	Alarm Name	Driver Over Current
<b>Alarm Content</b>	Current feedback exceeds 120% of the drive's peak current		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. When motor is stuck and percentage of voltage command is larger than 90%, It may cause shortage of source voltage on current sensors and cause current feedback value distortion.</li> <li>2. Overload</li> <li>3. Encoder and/or motor cable assembly error</li> <li>4. Encoder error</li> <li>5. Current loop gain mismatch while Encoder test, Magnetic Pole Offset Tuning or Motor Parameter Estimation</li> <li>6. Unbalanced motor 3 phase resistance</li> <li>7. Power module failure</li> </ol>								
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Please check wiring of U,V,W cables or connector if each of these is not linked.</li> <li>2. Check if <math>I_{dq}</math> current feedback is greater than 120% drive's peak current.</li> <li>3. Check encoder and motor U,V, W cables. Refer to "Wiring and signals" section of manual.</li> <li>4. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>5. Use oscilloscope to check if current feedback fluctuate badly. Lower Tuning Gain (Pn-F2D) to 20. If the problem still persist, gradually decrease Drive parameter Pn-F2D to 5.</li> <li>6. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>7. Turn off drive power and measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> </ol>								
<p><b>Detailed Instructions</b></p>	<p>AL-15 Issue Troubleshooting</p>								
<p><b>备注</b></p>	<ul style="list-style-type: none"> <li>• Alarm is deleted for Single Axis version V1.6.6 and after.</li> <li>• Alarm is deleted for 4-in-1 version V2.2.0 and after.</li> <li>• Alarm is restored for 4-in-1 version V2.12.3 and after.</li> <li>• Alarm threshold</li> </ul> <table border="1" data-bbox="582 1489 1425 1736"> <thead> <tr> <th>Version</th> <th>Threshold</th> </tr> </thead> <tbody> <tr> <td>4.2.16、5.0.4↑</td> <td>120% of the drive's peak current</td> </tr> <tr> <td>4.2.15、5.0.3↓</td> <td>150% of the drive's peak current</td> </tr> </tbody> </table>			Version	Threshold	4.2.16、5.0.4↑	120% of the drive's peak current	4.2.15、5.0.3↓	150% of the drive's peak current
Version	Threshold								
4.2.16、5.0.4↑	120% of the drive's peak current								
4.2.15、5.0.3↓	150% of the drive's peak current								
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p>--</p>								

1st Single Axis ID	AL-17	Alarm Name	Auto Tuning Over Current
<b>Alarm Content</b>	Alarm to prevent against current circuit malfunction		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Turning Gain is too high</li> <li>2. Drive's PM module error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if output current oscillates, lower Tuning Gain parameter Fn-18 to 20, if problem persists, lower gradually to 5.</li> <li>2. contact distributor or Syntec representative to check hardware.</li> </ol>		
All in one ID 2nd Single Axis ID	AL-121		
1st Single Axis ID	AL-1A	Alarm Name	Power Module Failure
<b>Alarm Content</b>	Power module has hardware failure. If the alarm is not checked correctly, it may damage the driver.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Internal motor UVW short or UVW to ground short.</li> <li>2. Wire UVW short or UVW to ground short.</li> <li>3. Drive connector UVW short or UVW to ground short.</li> <li>4. Motor is mechanically stuck which leads to abnormally heavy load to drive.</li> <li>5. Power module failure.</li> <li>6. Unbalanced motor 3 phase resistance.</li> <li>7. Current module becomes aged.</li> <li>8. Tthe power supply of IGBT is too low.</li> </ol>		





<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Bad insulation in motor, replace motor.</li> <li>2. Wire short, replace wire.</li> <li>3. Drive failure, replace drive.</li> <li>4. Eliminate mechanical reason, increase acceleration time and jerk time, decrease load.</li> <li>5. Turn off drive power, remove motor and wire, measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> <li>6. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite). Or do the encoder function test to see the IA IB IC current feedback.</li> <li>7. If rotation is below 100rpm, the drive still sends alarm. It means current module may become aged and is related to hardware life.</li> <li>8. Replace drive.</li> </ol> <p>Make sure the above seven are checked and no special historical alarms, turn off drive, remove the motor and wire then restart. Once certain of damage, contact distributor or Syntec representative to check hardware.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-122</b>		
<b>1st Single Axis ID</b>	<b>AL-1D</b>	<b>Alarm Name</b>	<b>Hall sensor error 1</b>
<b>Alarm Content</b>	Hall Current Sensor(IA) failure		
<b>Possible Cause</b>	1. U phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-123</b>		
<b>1st Single Axis ID</b>	<b>AL-1E</b>	<b>Alarm Name</b>	<b>Hall sensor error 2</b>
<b>Alarm Content</b>	Hall Current Sensor(IB) failure		
<b>Possible Cause</b>	1. V phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		

All in one ID 2nd Single Axis ID	AL-124		
		Alarm Name	Drive Ground Fault
<b>Alarm Content</b>	The current sensor detected more than 1A leakage current during the servo on process.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Internal motor UVW short or UVW to ground short.</li> <li>2. Wire UVW short or UVW to ground short.</li> <li>3. Drive connector UVW short or UVW to ground short.</li> <li>4. Power module failure.</li> <li>5. Unbalance of motor 3-phase resistance.</li> <li>6. Current calibration parameters error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Bad insulation in motor, replace motor.</li> <li>2. Wire short, replace wire.</li> <li>3. Drive failure, replace drive.</li> <li>4. Turn off drive power, remove motor and wire, measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> <li>5. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>6. Check whether Pn-660~668 are the default value, refer to the manual "Driver Parameter Manual". If true, contact distributor or Syntec representative to check hardware.</li> </ol>		
All in one ID 2nd Single Axis ID	AL-126		
1st Single Axis ID	--	Alarm Name	Current Sensor Module Error
<b>Alarm Content</b>	Drive detects current sensor module failure.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When motor is stuck and percentage of voltage command is larger than 90%, It may cause shortage of source voltage on current sensors.</li> <li>2. Circuit of current sensor broken.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check wiring of U,V,W cables or connector if each of these is not linked.</li> <li>2. Please contact distributor or Syntec representative to check hardware.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-129</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>This axis is not supported by this driver type</b>
<b>Alarm Content</b>	This axis is not supported.		
<b>Possible Cause</b>	This axis is not supported, and the axis card port number in controller setting interface is wrong.		
<b>Possible Solution</b>	Close the communication of this axis. Follow the CNC controller manual and set the axis card port number correctly.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-130</b>		
<b>1st Single Axis ID</b>	<b>AL-21</b>	<b>Alarm Name</b>	<b>Regenerative resistance error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality.		
<b>Possible Cause</b>	1. Switching transistor of regenerator is failure.		
<b>Possible Solution</b>	1. Check if transistor of regenerator is shorted, if so, send back to distributor or Syntec representative for hardware repair.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-131</b>		
<b>1st Single Axis ID</b>	<b>AL-22</b>	<b>Alarm Name</b>	<b>Cooling Fan error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality.		
<b>Possible Cause</b>	1. Cooling fan is malfunction or failure.		
<b>Possible Solution</b>	1. Check If cooling fan is damage, if so, send back to distributor or Syntec representative for hardware repair.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-132</b>		

1st Single Axis ID	AL-2E	Alarm Name	Control Board Error
<b>Alarm Content</b>	Triggered when drive's control board has internal communication error.		
<b>Possible Cause</b>	1. Control board is failure.		
<b>Possible Solution</b>	1. Send back to distributor or Syntec representative for hardware repair.		

All in one ID 2nd Single Axis ID	AL-133		
1st Single Axis ID	AL-53	Alarm Name	Inverter Type Error
<b>Alarm Content</b>	<p><b>1st Single Axis:</b> Triggered when power stage parameters and the parameter, which is detected from power stage, is mismatch.</p> <p><b>All in one/2nd Single Axis:</b> Triggered while accessing power stage information.</p>		
<b>Possible Cause</b>	<p><b>1st Single Axis:</b></p> <ol style="list-style-type: none"> <li>Control board is incompatible with Power Stage ID(P5-07)</li> <li>Parameter Power Stage ID(P5-07) setting error</li> </ol> <p><b>All in one/2nd Single Axis:</b></p> <ol style="list-style-type: none"> <li>Triggered when power stage information stored on power stage cannot be read.</li> <li>Triggered when the number of detected current sensors is abnormal.</li> <li>The inverter informations of current sensor is wrong</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>Send back to distributor or Syntec representative for hardware repair.</li> <li>1st Single Axis:                             <ol style="list-style-type: none"> <li>Change the value of Power Stage ID(P5-07) to Power Stage ID read(D1-70) if not consistent</li> <li>If Power Stage ID read(D1-70) is equal to zero, please send back to Syntec Corp.</li> </ol> </li> </ol>		

All in one ID 2nd Single Axis ID	AL-134		
1st Single Axis ID	----	Alarm Name	FRAM Operating Fail
<b>Alarm Content</b>	Error occur when drive operate FRAM.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Save parameters while power is off.</li> <li>2. Communication between drive and FRAM is disturbed.</li> <li>3. FRAM reached it's maximum write limit.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please save parameters while power is on.</li> <li>2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-135</b>		
<b>1st Single Axis ID</b>	<b>AL-18</b>	<b>Alarm Name</b>	<b>DSP Watchdog Reset</b>
<b>Alarm Content</b>	Drive DSP detects internal watchdog reset.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. System operation is malfunction.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Send back to distributor or Syntec representative for hardware repair.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-136</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>FRAM CRC Error</b>
<b>Alarm Content</b>	FRAM data is error.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The memory of parameters is damaged.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameters have been tampered with. Correct parameters and save.</li> <li>2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-137</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Calculation sequential error</b>
<b>Alarm Content</b>	Insufficient calculation time.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Insufficient calculation time</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Disable unnecessary functions.</li> <li>2. Decrease Pn-643 High Cycle Calculation Level.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-138</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Parameters saving failed in permanent memory</b>
<b>Alarm Content</b>	There were some errors in permanent memory. It has been recovered by earlier parameter settings.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameters saving failed in permanent memory because of noise. It has been recovered by earlier parameter settings. Please check parameter settings.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please set correct parameters or using earlier settings. Do alarm reset to clear alarm.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-139</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>PowerStage Error</b>
<b>Alarm Content</b>	PowerStage Detects Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Drive detects excessive current or over heat on power module</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Follow the instruction if <a href="#">AL-100 IGBT Overheat</a> or <a href="#">AL-121 Power Module Failure</a> shows up.</li> <li>2. Please check <b>【Pn-D98】</b> Inverter Error and follow the instruction if there is no other alarms.</li> </ol>		
<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-13A</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Module ID Data Error</b>
<b>Alarm Content</b>	Reading module ID data error		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Module ID data error causing by memory ageing or communication interfered.</li> <li>2. Any of module number, extend card number, add-on card number is over range.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check wiring, especially if shielding is connected to ground correctly. Then reboot the drive.</li> <li>2. Check the drive, IO extend card, and add-on card are official version.</li> <li>3. Send back to Syntec.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-13B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Add-on Card SSI Communication Error</b>
<b>Alarm Content</b>	RTD add-on card SSI communication error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. RTD add-on card loose or not connected.</li> <li>2. FPGA version not support RTD function.</li> <li>3. SPI communication error causing by memory ageing or communication interfered.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check RTD add-on card connected correctly.</li> <li>2. Make sure the FPGA version is v2.14.3 or up. If not, update Drive version to v2.14.105 or up.</li> <li>3. If don't need to use RTD function, please set Pn-548~Pn-54A and Pn-752 to 0. Then reboot the drive.</li> <li>4. Check wiring, especially if shielding is connected to ground correctly. Then reboot the drive.</li> <li>5. Send back to Syntec.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-13C</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Front Stage Information Error</b>
<b>Alarm Content</b>	Error occurs while accessing front stage informations		
<b>Possible Cause</b>	The front stage informations can not be read correctly		
<b>Possible Solution</b>	Send back to Syntec		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-13D</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>FRAM Read Fail</b>
<b>Alarm Content</b>	Fail to read FRAM.		
<b>Possible Cause</b>	1. FRAM error.		
<b>Possible Solution</b>	1. Reboot the Drive. 2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-150</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Extreme Regenerative Overload</b>
<b>Alarm Content</b>	The accumulated heat energy of internal or external regenerative resistor is twice higher than heat dissipation threshold. Regenerative resistor may be damaged.		
<b>Possible Cause</b>	1. When using external resistor, Pn-647、 Pn-648 is not set properly. 2. The selection or cooling condition of external regenerative resistor needs to be rechecked. 3. When using internal resistor, Pn-647、 Pn-648 is not set to 0. 4. When using internal resistor, the frequency of motor acceleration/ deceleration is too high or too intense. 5. Regenerative resistor protection is not turned-off.		
<b>Possible Solution</b>	1. When using external resistor, please check if Pn-647、 Pn-648 is set correctly. 2. When using external resistor and parameters are set correctly, please recheck the selection or cooling condition of resistor. 3. When using internal resistor, please check if Pn-647 and Pn-648 are set to 0. 4. When using internal resistor and parameters are set correctly, please decrease the frequency of motor acceleration/deceleration or increase the value of Pn-306、 Pn-307. If the alarm is raised consistently, please consider using an external resistor. 5. If external / internal regenerative resistor protection is not required, please set Pn-649 / Pn-64B to 0.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-151</b>		



1st Single Axis ID	-	Alarm Name	Regenerative Instant Overload
<b>Alarm Content</b>	When using internal resistor, the regenerator is turned-on for too long.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check if there is an external negative load applied on motor.</li> <li>2. The resistance of internal resistor is too large.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Remove the external negative load.</li> <li>2. Use an external resistor with smaller resistance.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-152</b>		
1st Single Axis ID	-	Alarm Name	Voltage Regeneration Function Abnormal
<b>Alarm Content</b>	It is detected many times that regenerator is abnormally turned-on.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The input voltage of servo drive is unstable.</li> <li>2. DC Bus voltage sensor feedback abnormal.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please install a voltage stabilizer to the input power supply to ensure that the input voltage of servo drive meets the specifications.</li> <li>2. Check if Pn-D38 has the correct voltage feedback value.</li> <li>3. Send back to Syntec.</li> </ol>		



SYNTEC

## 2 Motor Alarm - ALARM-2xx

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-200</b>		
<b>1st Single Axis ID</b>	<b>AL-11</b>	<b>Alarm Name</b>	<b>Motor Overheat</b>
<b>Alarm Content</b>	Drive detects motor overheat.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system malfunction.</li> <li>2. Digital temperature sensor setting error.</li> <li>3. KTY84 thermal sensor setting error.</li> <li>4. Motor rated current setting error.</li> <li>5. Insufficient acceleration time.</li> <li>6. Overload.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor cooling system.</li> <li>2. Correct parameter Pn-50A(P1-40) to Pn-50F(P1-61) according to digital temperature feedback(A or B).</li> <li>3. Check Pn-D60 value and make sure Pn-740 and Pn-741 are set correctly.</li> <li>4. Check rated current parameter Pn-710(P3-14).</li> <li>5. Check acceleration parameter Pn-306(P6-10) , add acceleration/ deceleration time.</li> <li>6. Check if load rate Pn-D2A(D1-10) is over 100%, consider switching to a motor with higher power.</li> </ol>		
<b>Detailed Instructions</b>	AL-11 Issue Trouble Shooting		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-201</b>		
<b>1st Single Axis ID</b>	<b>AL-14</b>	<b>Alarm Name</b>	<b>Motor Over Speed</b>
<b>Alarm Content</b>	Motor speed is above 120% of it's maximum speed.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor power cable U,V,W phase order incorrect</li> <li>2. Encoder malfunction</li> <li>3. Motor parameter loading error</li> <li>4. Sever system severe overshoot</li> <li>5. Severe speed command change</li> <li>6. Drive software outdated</li> <li>7. Encoder misses packets causing acceleration to be too great</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Execute " Encoder test ", check if alarm AL-302(AL-24) appears. Refer to "Auto tuning" section of manual. Execute " Encoder test ", check if any alarms appear. Refer to "Auto tuning" section of manual.                             <ol style="list-style-type: none"> <li>a. Correct power cord phase order or change parameter Pn-021(P3-22)(0 to 1 and 1 to 0).</li> <li>b. Once certain polarity is correct, please consider the following causes of this alarm.</li> </ol> </li> <li>2. Check whether drive parameter Pn-7XX match motor lable parameter.If there is a mismatch between motor parameters and those on the lable, please record the motor modle and contact Suzhou or Taiwan Technical Center(Syntec) for correct motor parameters and load them.</li> <li>3. If vibration of the machine can be observed, tune gain parameters Pn-100 to Pn-102(P2-01 to P2-03).</li> <li>4. Check if controller's commands shift too frequently, increase controller's acceleration and deceleration time constant.</li> <li>5. We have corrected drive alarm specs, please upgrade to versions 2.0.25(1.4.12).</li> <li>6. Capture JOG speed wave form and observe if speed change is not continuous.Check inside the junction box where the encoder is attached, make sure the shielding wire is connected to the motor's ground wire.Observe whether there is value Pn-D73~Pn-D76 (D1-28,D1-29,D1-46,D1-47).</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p>AL-14 Issue Trouble Shooting</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-202</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-16</b></p>	<p><b>Alarm Name</b></p>	<p><b>Overload</b></p>
<p><b>Alarm Content</b></p>	<p>Motor exceeds S2(short time duty) time limit.</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation</li> <li>2. Continuous operation while exceeding drive's rated current</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder malfunction</li> </ol>		

<b>Possible Solution</b>	<p>1. Check if difference between command and motor speed feedback is too great.</p> <p>2.1 Check if load rate is over 100%, enhance motor capacity, lower motor load or increase acceleration/ deceleration time constant.</p> <p>2.2. Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.</p> <p>3.Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</p> <p>4.Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</p>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-203</b>		
<b>1st Single Axis ID</b>	<b>AL-31</b>	<b>Alarm Name</b>	<b>Motor Stuck</b>
<b>Alarm Content</b>	Motor torque exceeds torque level 1 countinuously for over torque check time 1		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to machanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-204</b>		
<b>1st Single Axis ID</b>	<b>AL-32</b>	<b>Alarm Name</b>	<b>Over Torque 2</b>
<b>Alarm Content</b>	Motor torque exceeds torque level 2 countinuously for over torque check time 2		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to machanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-205</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Motor Stuck</b>
<b>Alarm Content</b>	Motor stalls with <b>【Pn-D29】</b> Torque Command being saturated for over 1 sec.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to machanical factors, leading to overload during operation.</li> <li>2. Encoder or motor wiring error.</li> <li>3. Encoder malfunction.</li> <li>4. Acceleration is too severe.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>4. Check if acceleration time is set too short, so that motor cannot provide enough torque due to excessive load.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-210</b>		
<b>1st Single Axis ID</b>	<b>AL-26</b>	<b>Alarm Name</b>	<b>Motor Pole Number Error</b>
<b>Alarm Content</b>	Triggered when motor pole number or encoder pole pair number and parameter settings are mismatched		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor pole number setup error</li> <li>2. Encoder pole pair number setup error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if value of parameter Pn-701(P3-01) equals pole number on lable.</li> <li>2. Check if value of parameter Pn-90A(P3-30) setup correct.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-230</b>		
<b>1st Single Axis ID</b>	<b>AL-77</b>	<b>Alarm Name</b>	<b>Rotor Position Error</b>
<b>Alarm Content</b>	Torque integral direction and acceleration direction are inconsistent		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder polarity error</li> <li>2. Rotor/Load inertia error</li> <li>3. Motor vibration while servo on, speed feedback is above Pn-502</li> <li>4. Pn-502 is set too low</li> <li>5. Setting of speed error threshold is too low</li> <li>6. Encoder-rotor pole offset error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Redo "Encoder test"</li> <li>2. Set the correct inertia or redo the inertia tuning</li> <li>3. Tune motor or set lower speed loop gain Pn-100(P2-02) and position loop gain Pn102(P2-01).</li> <li>4. Pn-502 should be set between 5~25RPM(mm/sec)</li> <li>5. Set Pn-70A and upgrade the driver version to 3.0.22 or above</li> <li>6. Remove the motor load and redo encoder-rotor offset tuning</li> </ol>		
<b>Remark</b>	<ul style="list-style-type: none"> <li>• Alarm threshold can be adjusted via Pn-502 (Zero speed check window) for 4-in1 version V2.4.6 and after.</li> <li>• When linear motor monitors the initial signal of the encoder, it may cause motor goes out of control. Re-boot the power can solve the problem.</li> <li>• Above driver version 3.0.22, the speed error threshold is calculated with Pn-70A (Maximum motor torque).</li> <li>• Please refer to "Manual of Encoder-rotor Offset Tuning" ( Note : Do not execute the encoder-rotor offset tuning when the motor is on load. If there is a need for encoder-rotor pole offset verification, Please refer to the Notes No.3 of the manual )</li> </ul>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-231</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Command Direction Not Allowed</b>
<b>Alarm Content</b>	Command direction is not corresponding to Pn-504 configuration		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Executed moving direction is not allowable</li> <li>2. Pn-242 Posing Type configuration is not corresponding to Pn-504 Moving Direction Limit Selection</li> <li>3. Host command polarity wrong set</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if Pn-504 setting conflicts with moving direction. Please look up specification of Pn-504</li> <li>2. Reset Pn-504 or check moving direction while running</li> <li>3. Check if Pn-242 setting conflicts with Pn-504</li> <li>4. Modify Pn-242 according to Pn-504. Please look up specification of Pn-242</li> <li>5. Check Pn-020 and command polarity in controller. If the set is wrong, please modify it.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-235</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Wrong Estimated Speed</b>
<b>Alarm Content</b>	Wrong estimated speed at Induction motor sensorless control mode		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Amount of estimated speed change larger than 30% rated speed</li> <li>2. Estimated speed is over 120% maximum speed</li> <li>3. When the direction of speed command changed, speed error over 30% rated speed in 1 second</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the motor parameters are correct</li> <li>2. Increase acceleration time</li> <li>3. Lower speed loop gain</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-236</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Over Temperature Detection</b>
<b>Alarm Content</b>	RTD over temperature detection		
<b>Possible Cause</b>	The temperature is over the setting of Over Temp Level.		
<b>Possible Solution</b>	Check Pn-548~Pn-54A and Pn-752~Pn-753 setting are correct or not.		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-237</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	RTD sensor loose or not connected.		
<b>Possible Cause</b>	RTD sensor loose or not connected.		
<b>Possible Solution</b>	Check RTD sensor connected correctly.		



# SYNTEC



### 3 Encoder Alarm - ALARM-3xx

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-300</b>		
<b>1st Single Axis ID</b>	<b>AL-51</b>	<b>Alarm Name</b>	<b>Encoder Halt Alarm</b>
<b>Alarm Content</b>	Encoder crashed and can't correctly send back position data.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder crash and watchdog restart encoder. Non-Syntec encoder internal error.</li> <li>2. Motor overheating</li> <li>3. Noise interference</li> <li>4. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Reboot driver and observe encoder for abnormality</li> <li>2. Check Pn-90E(P3-34) Encoder Reset Counter. If encoder abnormal, check whether the motor is overheated or not.</li> <li>3. Make sure the shielding wire attached to encoder inside the junction box is connected to the motor's ground wire.</li> <li>4. Replace encoder.</li> <li>5. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	AL-15 Issue Trouble Shooting <b>【Pn-D95】</b> Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-301</b>		
<b>1st Single Axis ID</b>	<b>AL-23</b>	<b>Alarm Name</b>	<b>Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong</li> <li>2. Incorrect encoder setting</li> <li>3. Encoder pole number (Pn-90A/P3-30) setting error</li> <li>4. Communication interference</li> <li>5. Encoder Hardware malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test" and check for alarms . If any alarm goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>		
<b>Detailed Instructions</b>	AL-23 Issue Trouble Shooting		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Encoder Polarity " setting error.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-021(P3-22) ( 0 to 1、 1 to 0 ) and reboot driver.</li> </ol> <p>⚠ If motor is PMSM type, set parameter Pn-021(P3-22) is not recommended.</p>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Encoder Polarity " setting error.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-021(P3-22) ( 0 to 1、 1 to 0 ) and reboot driver.</li> </ol> <p>⚠ If motor is PMSM type, set parameter Pn-021(P3-22) is not recommended.</p>		

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-303</b>		
<b>1st Single Axis ID</b>	<b>AL-25</b>	<b>Alarm Name</b>	<b>Encoder Resolution Error</b>
<b>Alarm Content</b>	Encoder resolution error.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder resolution Pn-902(P3-21) setting error</li> <li>2. Encoder pole number Pn-90A(P3-30) setting error</li> <li>3. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-902(P3-21) is equal to resolution or not. If not, set encoder resolution to correct value and reboot driver</li> <li>2. Check parameter Pn-90A(P3-30), set encoder pole pair number correctly and reboot driver</li> <li>3. Send back to distributor or Syntec representative to check hardware</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-304</b>		
<b>1st Single Axis ID</b>	<b>AL-27</b>	<b>Alarm Name</b>	<b>Encoder No Feedback</b>
<b>Alarm Content</b>	Drive fails to receive signals from the encoder .		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. Encoder wire is untied or unconnected</li> <li>3. Encoder communication interface, Encoder port number setting error</li> <li>4. Wire failure (shor circuit, wire breakage)</li> <li>5. Noise generated in QEP encoder</li> <li>6. Encoder malfunction</li> <li>7. Driver's pre-circuit board malfunction</li> <li>8. Encoder's baud rate is unsupported</li> <li>9. Encoder firmware update failed</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check if encoder wiring and pin definitions are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>3. Refer to "Driver Parameter Manual", set parameters correctly and restart drive.</li> <li>4. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>5. Set Pn-52E(P6-65) to change the speed in startup.</li> <li>6. Replace motor</li> <li>7. Replace driver</li> <li>8. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BiSSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>9. If the alarm happend after encoder firmware update, please contact syntec or authorized representative</li> <li>10. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please using Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p>AL-27 Issue Trouble Shooting</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-305</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-28</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Pulse Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Pulse number detected is different in each revolution</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Encoder cable malfunction</li> <li>2. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Encoder malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

All in one ID 2nd Single Axis ID	AL-306		
1st Single Axis ID	AL-54	Alarm Name	Encoder Z Index Shift
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encode is error possibly.		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Syntec encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is differ from the setting parameter</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> </ol> <p><b>Non-Syntec encoder:</b> Tamagawa Incremental</p> <ol style="list-style-type: none"> <li>1. The circuit board of encoder is broken.</li> <li>2. Sensor and detective ring are wrong assembly.</li> </ol>		
<b>Possible Solution</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or above(Multi-Axis Servo Drive is updated to V2.2.5 or above), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b> Tamagawa Incremental</p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Confirm the encoder is installed in accordance with the specification. <ol style="list-style-type: none"> <li>a. Check the gap between sensor and detective ring.</li> <li>b. Check the relative height between sensor and detective ring.</li> </ol> </li> <li>3. Send back to Syntec Corp.</li> </ol>		
<b>Detailed Instructions</b>	AL-54 Issue Trouble Shooting		

All in one ID 2nd Single Axis ID	AL-307		
1st Single Axis ID	AL-48	Alarm Name	Encoder Status Extreme Error
<b>Alarm Content</b>	Encoder status has extreme errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Serial encoder communication interference</li> <li>2. Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Encoder's cable grounding failure</li> <li>5. Encoder communication type setting error</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. if the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>8. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Encoder's firmware malfunction</li> <li>10. Encoder's hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D73~Pn-D76(D1-28,D1-29,D1-46,D1-47) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive is defected has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions: <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b. try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-900(P3-20) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>11. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>		
<b>Detailed Instructions</b>	AL-48 Issue Problem Shooting		

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-308</b>		
<b>1st Single Axis ID</b>	<b>AL-68</b>	<b>Alarm Name</b>	<b>1st Encoder over speed when power on</b>
<b>Alarm Content</b>	Position changes too fast leads to unfinished initialization.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Motor with Nikon Encoder must run below 250RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, backup parameter from encoder will not be read until running below 250RPM.</li> </ul> </li> <li>Motor with Panasonic Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>Motor with Mitutoyo Encoder must run below 400 mm/min during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, encoder position could be abnormal.</li> </ul> </li> <li>Motor with Tamagawa Encoder must run below 100 RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>Motor with Syntec Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, backup parameter from encoder will not be read.</li> </ul> </li> <li>If alarm occurs when motor isn't running, there is possibly encoder malfunction.</li> </ol>		
<b>Check</b>	Check the motor is stopped before drive power on.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>If using Nikon, Panasonic, Tamagawa encoder, reset the alarm after the motor is stopped.</li> <li>If using Syntec , Mitutoyo encoder, reboot the drive after the motor is stopped..</li> <li>Contact motor company for repair.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-309</b>		
<b>1st Single Axis ID</b>	<b>AL-4C</b>	<b>Alarm Name</b>	<b>Serial Encoder Communication Type is Wrong</b>

<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using serial encoder</li> <li>2. If Pn-900(P3-20) is set to 12 and connected with a Nikon encoder, then it is communication issue.</li> <li>3. If the Pn-900 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-900 can not be used at the setting of Pn-901</li> <li>6. FPGA version doesn't support this encoder type</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface (Pn-900(P3-20) ) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-901 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-900(P3-20) setting.</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Set Pn-900(P3-20) correctly and reboot drive.</li> <li>2. Reassemble cables, make sure there is no interference and then restart</li> <li>3. Set Pn-900 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-900(P3-20). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-901 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-30A</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-850</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Over Speed</b></p>
<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Nikon encoder speed exceeds 6000RPM</li> <li>2. FeeDat encoder over speed</li> <li>3. Motor with Panasonic encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo encoder exceeds maximum speed</li> <li>5. Motor with Tamagawa encoder exceeds maximum speed, or module for calculating multi-turn inside is malfunctioned</li> <li>6. Delta encoder over speed</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Check motor is over speed once or not.</li> </ol>		



<b>Possible Solution</b>		<ol style="list-style-type: none"> <li>1. Avoid having encoder run at maximum speed.</li> <li>2. Check if <b>【Pn-DD4】</b> Encoder Active Communication Type or <b>【Pn-900】</b> Encoder Communication Type shows 11.                         <ol style="list-style-type: none"> <li>a. If absolute position was unexpected, please try resetting origin(or set Pn-F44 = 1) and see how it's going</li> <li>b. If above handling didn't help, please return back the motor to Syntec</li> </ol> </li> </ol>	
<b>Detailed Instructions</b>		<b>【Pn-D95】</b> Enc Error Status ALMC	
<b>All in one ID</b>	<b>AL-30B</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder position feedback error</b>
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read absolute position data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder circuit board breakage</li> <li>2. BiSSC encoder sensor and magnetic ring are assembled incorrectly.</li> <li>3. Nikon's absolute position of absolute module is differ from incremental module.</li> <li>4. EnDat encoder position information error.</li> <li>5. The position information of Panasonic encoder is error.</li> <li>6. The position information of Mitutoyo encoder is error.</li> <li>7. The position information of Mitsubsihi encoder is error.</li> <li>8. The position information of Delta encoder is error.</li> <li>9. The position information of Tamagawa encoder is error.</li> <li>10. The position information of Hcfa encoder is error.</li> <li>11. The position information of Sankyo encoder is error.</li> <li>12. The position information of YuHeng encoder is error.</li> <li>13. The position information of Tamagawa Incremental encoder is error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder sensor and optical ruler are assembled correctly</li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC		
<b>All in one ID</b>	<b>AL-30C</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-66</b>	<b>Alarm Name</b>	<b>Encoder multi-turn data error</b>
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder's multi-turn data is incompatible to single-turn data.</li> <li>2. Panasonic encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Tamagawa encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. HIWIN encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. Sankyo encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. HCFA encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. YuHeng encoder's multi-turn data is incompatible to single-turn data.</li> <li>8. HCFA 23-bits optical encoder's multi-turn data is incompatible to single-turn data.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the encoder type is Tamagawa, the encoder may be broken and it is recommended to return it to an authorized dealer or Syntec Corp. in need of repair. If the encoder is still to be used, this alarm should be reset by the following steps: <ol style="list-style-type: none"> <li>a. Set parameter Pn-F44 to 1 and restart drive.</li> <li>b. Rerun the absolute origin setting.</li> </ol> </li> <li>2. Check encoder for dust or oil contamination.</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID</b>	<b>AL-31</b>		
<b>2nd Single Axis ID</b>	<b>1</b>		
<b>1st Single Axis ID</b>	<b>AL-33</b>	<b>Alarm Name</b>	<b>2nd Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long.</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong.</li> <li>2. Second encoder setting error.</li> <li>3. Second encoder pole number(Pn-92A/P6-90) setting error.</li> <li>4. Communication interference</li> <li>5. Second encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check wiring of second encoder, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test". If any alarms goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-312</b>		
<b>1st Single Axis ID</b>	<b>AL-34</b>	<b>Alarm Name</b>	<b>2nd Encoder Direction Error</b>
<b>Alarm Content</b>	Second encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Second encoder polarity " setting error		
<b>Possible Solution</b>	<p>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-022(P6-82) ( 0 to 1、 1 to 0 ) and reboot driver.</p> <p>⚠ If motor is PMSM type, set parameter Pn-022(P6-82) is not recommended.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-313</b>		
<b>1st Single Axis ID</b>	<b>AL-35</b>	<b>Alarm Name</b>	<b>2nd Encoder resolution error</b>
<b>Alarm Content</b>	Second encoder resolution error.		
<b>Possible Cause</b>	<p>1. 2nd encoder resolution Pn-922(P6-81) setting error</p> <p>2. 2nd Encoder pole number Pn-92A(P6-90) setting error.</p> <p>3. Second encoder hardware malfunction</p>		
<b>Possible Solution</b>	<p>1. Check if parameter Pn-922(P6-81) is equal to and resolution or not. If they differ not, set encoder resolution to correct value correct encoder resolution value and restart drive and reboot drive.</p> <p>2. Check parameter Pn-92A(P6-90), set encoder pole pair number correctly and reboot driver</p> <p>3. Send back to authorized dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-314</b>		
<b>1st Single Axis ID</b>	<b>AL-36</b>	<b>Alarm Name</b>	<b>2nd Encoder no feedback</b>
<b>Alarm Content</b>	Drive fails to receive signals from the second encoder .		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Second encoder wire is untied or unconnected.</li> <li>2. Encoder communication interface, Encoder port number setting error.</li> <li>3. Wire failure (short circuit, wire breakage)</li> <li>4. In dual feedback control and 2nd encoder type is QEP, mechanical problem and machining condition may cause alarm</li> <li>5. Encoder malfunction</li> <li>6. Driver's pre-circuit board malfunction</li> <li>7. Encoder's baud rate is unsupported</li> <li>8. Encoder firmware update failed</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if serial encoder wiring and pin definitions for errors are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>2. Refer to "Drive Parameter Manual", set parameters correctly and reboot driver.</li> <li>3. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>4. Refer to "Dual feedback control and outer feedback using linear scale" section of manual, change Pn-52F properly</li> <li>5. Replace motor</li> <li>6. Replace driver</li> <li>7. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BiSSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>8. If the alarm happens after encoder firmware update, please contact syntec or authorized representative</li> <li>9. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please use Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-315</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-39</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder Pulse Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Pulse number detected is different in each revolution</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Second encoder's cable problem</li> <li>2. Second encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Second encoder malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

All in one ID 2nd Single Axis ID	AL-316		
1st Single Axis ID	AL-55	Alarm Name	2nd Encoder Z Index Shift
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encoder is error possibly .		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Second encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is different than from the written parameter.</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> <li>6. Hardware malfunction</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of encoder is broken.</li> <li>2. Sensor and detective ring are wrong assembly.</li> </ol>		
<b>Possible Solution</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or more recent(Multi-Axis Servo Drive is updated to V2.2.5), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if second encoder and motor are grounded.</li> <li>3. Check if joining between second encoder cable and motor are is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the second encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. Check the 2nd encoder is contaminated by dust or oil.</li> <li>2. Confirm the 2nd encoder is installed in accordance with the specification.                     <ol style="list-style-type: none"> <li>a. Check the gap between sensor and detective ring.</li> <li>b. Check the relative height between sensor and detective ring.</li> </ol> </li> <li>3. Send back to Syntec Corp.</li> </ol>		
<b>Detailed Instructions</b>	AL-54 Issue Trouble Shooting		

All in one ID 2nd Single Axis ID	AL-317		
1st Single Axis ID	AL-49	Alarm Name	2nd Encoder Status Extreme Error
<b>Alarm Content</b>	2nd Encoder status has extreme errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Second encoder communication interference.</li> <li>2. Second Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Second encoder's cable grounding failure</li> <li>5. Second encoder communication type setting error.</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>8. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Second encoder's firmware malfunction</li> <li>10. Second encoder's hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D77~Pn-D7A(D1-42,D1-43,D1-59,D1-60) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions,             <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b.try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-920(P6-80) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>11. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-318</b>		
<b>1st Single Axis ID</b>	<b>AL-69</b>	<b>Alarm Name</b>	<b>2nd Encoder over speed when power on</b>
<b>Alarm Content</b>	Position changes too fast leads to unfinished initialization.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor with Nikon 2nd Encoder must run below 250RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from 2nd encoder will not be read until running below 250RPM.</li> </ul> </li> <li>2. Motor with Panasonic 2nd Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>3. Motor with Mitutoyo 2nd Encoder must run below 400 mm/min during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder position could be abnormal.</li> </ul> </li> <li>4. Motor with Tamagawa 2nd Encoder must run below 100 RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>5. Motor with Syntec 2nd Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from 2nd encoder will not be read.</li> </ul> </li> <li>6. If alarm occurs when motor isn't running, there is possibly 2nd encoder malfunction.</li> </ol>		
<b>Check</b>	Check the motor is stopped before drive power on.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If using Nikon, Panasonic, Tamagawa 2nd encoder, reset the alarm after the motor is stopped.</li> <li>2. If using Syntec , Mitutoyo 2nd encoder, reboot the drive after the motor is stopped..</li> <li>3. Contact motor company for repair.</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-319</b>		
<b>1st Single Axis ID</b>	<b>AL-4D</b>	<b>Alarm Name</b>	<b>2nd Serial Encoder Communication Type is Wrong</b>

<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using second serial encoder.</li> <li>2. If Pn-920(P6-80) is set to 12 and connected with a Nikon encoder, then the problem is with communication there is a communication problem</li> <li>3. If the Pn-920 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-920 can not be used at the setting of Pn-921</li> <li>6. FPGA version doesn't support this encoder type.</li> </ol>
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface Pn-920(P6-80) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-921 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-920(P6-80) setting encoder type.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-920(P6-80) correctly and reboot driver</li> <li>2. Reassemble cables, make sure there is no interference and then reboot driver</li> <li>3. Set Pn-920 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-920(P6-80). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-921 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type.</li> </ol>

All in one ID 2nd Single Axis ID	AL-31A		
1st Single Axis ID	AL-8A5	Alarm Name	2nd Encoder Over Speed
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Nikon second encoder speed exceeds 6000RPM</li> <li>2. FeeDat second encoder over speed</li> <li>3. Motor with Panasonic second encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo second encoder exceeds maximum speed</li> <li>5. Motor with Tamagawa second encoder exceeds maximum speed, or module for calculating multi-turn inside is malfunctioned</li> <li>6. Delta second encoder over speed</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check motor is over speed once or not. command</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Avoid having encoder run at maximum speed</li> <li>2. Check if <b>【Pn-DD5】</b> 2nd Encoder Active Communication Type or <b>【Pn-920】</b> 2nd Encoder Communication Type shows 11。                         <ol style="list-style-type: none"> <li>a. If absolute position was unexpected, please try resetting origin(or set Pn-F44 = 1) and see how it's going</li> <li>b. If above handling didn't help, please return back the motor to Syntec</li> </ol> </li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder position feedback error</b>
<b>Alarm Content</b>	2nd Encoder module error, causing encoder unable to read absolute position data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat second encoder circuit board breakage</li> <li>2. BiSSC second encoder sensor and magnetic ring are assembled incorrectly</li> <li>3. Nikon encoder's multi-turn data is incompatible to single-turn data</li> <li>4. EnDat second encoder position information error</li> <li>5. The position information of Panasonic encoder is error.</li> <li>6. The position information of Mitutoyo encoder is error.</li> <li>7. The position information of Mitsubsihi encoder is error.</li> <li>8. The position information of Delta encoder is error.</li> <li>9. The position information of Tamagawa encoder is error.</li> <li>10. The position information of Hcfa encoder is error.</li> <li>11. The position information of Sankyo encoder is error.</li> <li>12. The position information of Tamagawa Incremental encoder is error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder sensor and optical ruler are assembled correctly</li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31C</b>		
<b>1st Single Axis ID</b>	<b>AL-67</b>	<b>Alarm Name</b>	<b>2nd Encoder multi-turn data error</b>

<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon 2nd encoder's multi-turn data is incompatible to single-turn data</li> <li>2. Panasonic 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Mitsubishi 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. Tamagawa 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. HIWIN 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. Sankyo 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. HCFA 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>8. YuHeng 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>9. HCFA 2nd 23-bits optical encoder's multi-turn data is incompatible to single-turn data.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the encoder type is Tamagawa, the encoder may be broken and it is recommended to return it to an authorized dealer or Syntec Corp. in need of repair. If the encoder is still to be used, this alarm should be reset by the following steps: <ol style="list-style-type: none"> <li>a. Set parameter Pn-F44 to 1 and restart drive</li> <li>b. Rerun the absolute origin setting</li> </ol> </li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31D</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Unable to Finish Operation Configuration</b>
<b>Alarm Content</b>	Failed to set operation configuration		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. While setting operation configuration, unable to write the corresponding memory or meet access failure</li> <li>2. Fail to access 2nd encoder memory</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D9C and encoder software version, and update to the right version</li> <li>2. Check if communication ever failed and then check up wiring of this encoder</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31E</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Position Loss</b>
<b>Alarm Content</b>	Second encoder battery less than 2.5V, multi-turn position data loss		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder voltage too low or no battery                         <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 3.1V.</li> </ol> </li> <li>2. Parameter set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery                         <ol style="list-style-type: none"> <li>a. With controller: Change battery and reboot system.</li> <li>b. No controller: Change battery, set parameter Pn-F44(Fn-34) to 1 and reboot driver.</li> </ol> </li> <li>2. Check parameter Pn-924(P6-83). If not using an absolute encoder, set Pn-924 to 0, save and reboot driver</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>ABS Type 2nd Encoder Battery Low Voltage</b>
<b>Alarm Content</b>	2nd ABS encoder battery voltage lower than 3V		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery</li> <li>2. Parameter setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Replace the battery. If using Panasonic encoder, then restart driver. If using Nikon, Mitsubishi, Delta or Tamagawa encoder, then don't need to restart.</li> <li>2. If not ABS encoder, set drive parameter Pn-924(P6-83) to 0, save and restart.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-320</b>		
<b>1st Single Axis ID</b>	<b>AL-860</b>	<b>Alarm Name</b>	<b>Encoder Internal Over Temperature</b>

<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-742.</li> <li>2. Nikon encoder: Encoder internal temperature over 120 degrees Celsius.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 110 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree.</li> <li>10. Hcfa(12k) encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> <li>11. Hcfa(16k) encoder: Encoder internal temperature is higher than 95 Celsius degree.</li> <li>12. Hcfa 23 bit optical encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> <li>13. YuHeng encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi, Hcfa(12k/16k), Hcfa 23 bit, YuHeng or Delta encoders, please check up Pn-D61.</li> <li>3. If using FeeDat, Tamagawa, Hcfa(12k/16k), YuHeng or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-742(P1-32) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-742 "Syntec Encoder internal(1) KTY84 overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>7. If all above solutions fail to solve the problem, KTY84 may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p>AL-40, AL-41, AL-42 Issue Trouble Shooting</p> <p>【Pn-D95】 Enc Error Status ALMC</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-321</b></p>		

1st Single Axis ID	AL-41	Alarm Name	Encoder external(1) Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that encoder external(1)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-322</b>		
1st Single Axis ID	AL-42	Alarm Name	Encoder External(2) Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that encoder external(2)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Parameter error</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-744(P1-34) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-744 "Syntec Encoder external(2) Thermal Sensor overheat threshold" is not 0. If temperature sensing wires are floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>4. Check the type of resistance used for encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> </ol>		
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-324</b>		
<b>1st Single Axis ID</b>	<b>AL-8A6</b>	<b>Alarm Name</b>	<b>2nd Encoder Internal Over Temperature</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-746.</li> <li>2. Nikon encoder: Encoder internal temperature is higher than operation temperature or protection level Pn-746.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius or protection level Pn-746.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius or protection level Pn-746.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 110 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree or protection level Pn-746.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree or protection level Pn-746.</li> <li>10. Hcfa(12k) encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> <li>11. Hcfa(16k) encoder: Encoder internal temperature is higher than 95 Celsius degree or protection level Pn-746.</li> <li>12. Hcfa 23 bit optical encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> <li>13. YuHeng encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> </ol>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi, Hcfa(12k/16k), Hcfa 23 bit, YuHeng or Delta encoders, please check up Pn-D65.</li> <li>3. If using FeeDat, Tamagawa, Hcfa(12k/16k), YuHeng or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-746 "Syntec Encoder internal(1) thermal sensor overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for 2nd encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>7. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-325</b>		
<b>1st Single Axis ID</b>	<b>AL-45</b>	<b>Alarm Name</b>	<b>2nd Encoder External(1) Thermal Sensor Over Temperature</b>
<b>Alarm Content</b>	The temperature that 2nd encoder external(1)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-326</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-46</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder External(2) Thermal Sensor Over Temperature</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder External(2) detects Thermal Sensor's temperature over drive's protective limit</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-748(P1-38) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(2) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(2)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		



<b>All in one ID</b> <b>2nd Single Axis ID</b>		<b>AL-328</b>		
<b>1st Single Axis ID</b>	<b>AL-5A</b>	<b>Alarm Name</b>	<b>Encoder Internal Thermal Sensor Error</b>	
<b>Alarm Content</b>		Encoder Internal Thermal Sensor Error		
<b>Possible Cause</b>		<ol style="list-style-type: none"> <li>1. Encoder Internal Thermal Sensor Error</li> <li>2. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>		<ol style="list-style-type: none"> <li>1. If encoder Internal Thermal Sensor is not needed, set parameter Pn-74A(P1-70) to 1.</li> <li>2. Check the type of resistance used for encoder internal thermal sensing                         <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-329</b>			
<b>1st Single Axis ID</b>	<b>AL-5B</b>	<b>Alarm Name</b>	<b>Encoder External(1) Thermal Sensor is Unplugged</b>	
<b>Alarm Content</b>		Encoder External(1) Thermal Sensor is unplugged		
<b>Possible Cause</b>		<ol style="list-style-type: none"> <li>1. Encoder External(1) Thermal Sensor is not plugged correctly</li> <li>2. Encoder external(1) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> </ol>		

SYNTEC

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure encoder external(1) Thermal Sensor is wired properly. (b) If encoder External(1) Thermal Sensor is not needed, set parameter Pn-74B(P1-71) to 1.</li> <li>2. Measure the resistance of encoder external(1) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for encoder external(1) thermal sensing                         <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>b. If using KTY84:Please set Pn-75B into 0.</li> </ol> </li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-32A</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-5C</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder External(2) Thermal Sensor is Unplugged</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder External(2) Thermal Sensor is Unplugged</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Encoder External(2) Thermal Sensor is not plugged correctly</li> <li>2. Encoder external(2) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure encoder external(2) Thermal Sensor is wired properly. (b) If encoder External(2) Thermal Sensor is not needed, set parameter Pn-74C(P1-72) to 1.</li> <li>2. Measure the resistance of encoder external(2) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace encoder external(2) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for encoder external(2) thermal sensing                         <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> <li>b. If using KTY84:Please set Pn-75C into 0.</li> </ol> </li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-32C</b>		
<b>1st Single Axis ID</b>	<b>AL-5E</b>	<b>Alarm Name</b>	<b>2nd Encoder internal Thermal Sensor Error</b>
<b>Alarm Content</b>	2nd Encoder internal Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd Encoder internal Thermal Sensor Error</li> <li>2. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If 2nd encoder internal Thermal Sensor is not needed, set parameter Pn-74E(P1-74) to 1.</li> <li>2. Check the type of resistance used for 2nd encoder internal thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>b. If using KTY84:Please set Pn-75E into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp. for repairs.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-32D</b>		
<b>1st Single Axis ID</b>	<b>AL-5F</b>	<b>Alarm Name</b>	<b>2nd Encoder External(1) Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	2nd Encoder External(1) Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd Encoder External(1) Thermal Sensor is not plugged correctly</li> <li>2. 2nd Encoder external(1) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 2nd encoder</li> <li>4. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> </ol>		

SYNTEC

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure 2nd encoder external(1) Thermal Sensor is wired properly. (b) If 2nd encoder external(1) Thermal Sensor is not needed, set parameter Pn-74F(P1-75) to 1.</li> <li>2. Measure the resistance of 2nd encoder external(1) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace the 2nd encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D7B 【The 5V Detection of 2nd Encoder】 is lower than 5V. If so, please check the power supply voltage of 2nd encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 2nd encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for 2nd encoder external(1) thermal sensing                         <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>b. If using KTY84:Please set Pn-75F into 0.</li> </ol> </li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-32E</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-60</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder External(2) Thermal Sensor is Unplugged</b></p>
<p><b>Alarm Content</b></p>	<p>2nd Encoder External(2) Thermal Sensor is Unplugged</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. 2nd Encoder External(2) Thermal Sensor is not plugged correctly</li> <li>2. 2nd Encoder external(2) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 2nd encoder</li> <li>4. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure 2nd encoder external(2) Thermal Sensor is wired properly. (b) If 2nd encoder external(2) Thermal Sensor is not needed, set parameter Pn-750(P1-76) to 1.</li> <li>2. Measure the resistance of 2nd encoder external(2) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace the 2nd encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D7B 【The 5V Detection of 2nd Encoder】 is lower than 5V. If so, please check the power supply voltage of 2nd encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 2nd encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for 2nd encoder external(2) thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>b. If using KTY84:Please set Pn-760 into 0.</li> </ol> </li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-330</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Port Setting Error</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder Port (Parameter Pn-901) setting error</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Parameter Pn-900 encoder type is set but parameter Pn-901 is not.</li> <li>2. Port number setting is the same as another encoder port setting</li> <li>3. Parameter Pn-901 is greater than actual port number</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Set parameter Pn-901 correctly according to the actual application.</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-331</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder port setting error</b></p>
<p><b>Alarm Content</b></p>	<p>2nd encoder Port (Parameter Pn-921) setting error</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Parameter Pn-920 encoder type is set but parameter Pn-921 is not.</li> <li>2. Port number setting is the same as another encoder port setting</li> <li>3. Parameter Pn-921 is greater than actual port number</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Set parameter Pn-921 correctly according to the actual application.</li> </ol>		

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-332</b>		
<b>1st Single Axis ID</b>	<b>AL-6A</b>	<b>Alarm Name</b>	<b>Encoder not recognized</b>
<b>Alarm Content</b>	Drive doesn't support the version of encoder version. Do not run this motor and modify any parameters about this motor.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps: <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-333</b>		
<b>1st Single Axis ID</b>	<b>AL-6B</b>	<b>Alarm Name</b>	<b>2nd Encoder not recognized</b>
<b>Alarm Content</b>	Drive doesn't support the version of second encoder version. Do not run this motor and modify any parameters about this motor		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps: <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-334</b>		

1st Single Axis ID	AL-58	Alarm Name	Encoder Download Parameters Fail
<b>Alarm Content</b>	Encoder parameter download process is unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. The parameters read back from encoder is incorrect.</li> <li>3. Signal transfer error due to the poor contact of the first encoder's pin</li> <li>4. With hallow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check status parameter "First encoder parameter read back status", single axis' parameter is <a href="#">D2-97</a>, four in one's status parameter is <a href="#">Pn-E5F</a>.</li> <li>3. Check if encoder is wired correctly and whether there are interferences.</li> <li>4. Check connectivity of encoder connector pins</li> <li>5. with hallowed encoder, please set motor serial number as 0 and reboot</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently. If alarm doesn't occur after rebooting, parameters have been read correctly. If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-335</b>		
1st Single Axis ID	AL-59	Alarm Name	2nd Encoder Download Parameters Fail
<b>Alarm Content</b>	2nd Encoder parameter download process unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameters read back from 2nd encoder is incorrect.</li> <li>2. Signal transfer error due to the poor contact of the 2nd encoder's pin</li> <li>3. With hallow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check status parameter "2nd encoder parameter read back status", single axis' parameter is <a href="#">D2-98</a>, four in one's status parameter is <a href="#">Pn-E60</a>.</li> <li>2. Check if encoder is wired correctly and whether there are interferences.</li> <li>3. Check connectivity of encoder connector pins</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently.</p> <p>If alarm doesn't occur after rebooting, parameters have been read correctly.</p> <p>If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p> <p>Refer to AL-58<a href="#">问题处置</a> for alarm trouble shooting.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-336</b>		
<b>1st Single Axis ID</b>	<b>AL-4A</b>	<b>Alarm Name</b>	<b>Syntec Encoder Runs in Bootloader Mode</b>
<b>Alarm Content</b>	When 1st encoder is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-337</b>		
<b>1st Single Axis ID</b>	<b>AL-4B</b>	<b>Alarm Name</b>	<b>2nd Syntec Encoder Runs in Bootloader Mode</b>
<b>Alarm Content</b>	When 2nd is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-338</b>		
<b>1st Single Axis ID</b>	<b>AL-75</b>	<b>Alarm Name</b>	<b>Encoder Register Access Error</b>
<b>Alarm Content</b>	Encoder Register Access Error		



<b>Possible Cause</b>	1. Error count is too high while accessing encoder register		
<b>Possible Solution</b>	1. Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:             <ul style="list-style-type: none"> <li>i. Pn-D73(D1-28) Serial Encoder CRC error count(hardware)</li> <li>ii. Pn-D74(D1-29) Serial Encoder CRC error count(software)</li> <li>iii. Pn-D76(D1-47) Serial Encoder overtime error count</li> </ul> </li> <li>b. If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c. If issue is recurring, contact dealer or Syntec Corp. for repairs.</li> </ul>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-339</b>		
<b>1st Single Axis ID</b>	<b>AL-76</b>	<b>Alarm Name</b>	<b>2nd Encoder Register Access Error</b>
<b>Alarm Content</b>	2nd Encoder Register Access Error		
<b>Possible Cause</b>	1. Error count is too high while accessing 2nd encoder register		
<b>Possible Solution</b>	Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:             <ul style="list-style-type: none"> <li>i.Pn-D77(D1-42) Serial Encoder CRC error count(hardware)</li> <li>ii.Pn-D78(D1-43) Serial Encoder CRC error count(software)</li> <li>iii.Pn-D7A(D1-60) Serial Encoder overtime error count</li> </ul> </li> <li>b.If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c.If issue is recurring, contact dealer or Syntec Corp. for repairs</li> </ul>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder not support type auto detection</b>
<b>Alarm Content</b>	Type auto detection only support Syntec motors		
<b>Possible Cause</b>	1. Setting Pn-900 Encoder Communication Type to 12 with non-Syntec motors and non-Nikon encoders. 2. Pn-706 Motor Serial Number exception error.		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check up and correct Pn-900 setting.</li> <li>2. Please contact Syntec Corp.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder not support type auto detection</b>
<b>Alarm Content</b>	Type auto detection not support 2nd encoders		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Setting Pn-920 2nd Encoder Communication Type to 12 with non-Nikon encoders</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check up and correct Pn-920 setting.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33C</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Initialization Error</b>
<b>Alarm Content</b>	Encoder parameter download process is unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. 1st encoder still not ready after drive power on for 1 second.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check status parameter "First encoder parameter read back status", single axis' parameter is <a href="#">D2-97</a>, four in one's status parameter is <a href="#">Pn-E5F</a>.</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently. If alarm doesn't occur after rebooting, parameters have been initialized correctly. If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33D</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Initialization Error</b>

<b>Alarm Content</b>	2nd Encoder parameter download process unsuccessful		
<b>Possible Cause</b>	1. 2nd encoder still not ready after drive power on for 1 second.		
<b>Possible Solution</b>	<p>1. Check status parameter "2nd encoder parameter read back status", single axis' parameter is <a href="#">D2-98</a>, four in one's status parameter is <a href="#">Pn-E60</a>.</p> <p>*With this alarm occurring, we would not recommend saving parameters permanently.</p> <p>If alarm doesn't occur after rebooting, parameters have been initialized correctly.</p> <p>If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33E</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Hardware Identity Unknown</b>
<b>Alarm Content</b>	When using Syntec Encoder, Encoder Sensor Type or Hardware ID cannot be recognized.		
<b>Possible Cause</b>	<p>1. <b>【Pn-90D】</b> Encoder Sensor Type setting error</p> <p>2. Hardware ID cannot be recognized</p> <ul style="list-style-type: none"> <li>Hardware ID can be obtained from "OpenGuide Help-&gt;About-&gt;Axis(n) Encoder Hardware ID" (n = Alarm axis)</li> </ul> <p>3. Encoder hardware malfunction</p>		
<b>Possible Solution</b>	<p>1. Check if parameter Pn-90D is in the range of 0~4</p> <p>2. Upgrade driver version to match encoder software or shipping parameter</p> <p>3. If all above solutions fail to solve the problem, Hardware may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Hardware Identity Unknown</b>
<b>Alarm Content</b>	When using Syntec Encoder, 2nd Encoder Sensor Type or Hardware ID cannot be recognized.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. <b>【Pn-92D】</b> 2nd Encoder Sensor Type setting error</li> <li>2. Hardware ID cannot be recognized <ul style="list-style-type: none"> <li>• Hardware ID can be obtained from "OpenGuide Help-&gt;About-&gt;Axis(n) 2nd enc hardware ID" (n = Alarm axis)</li> </ul> </li> <li>3. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-92D is in the range of 0~4</li> <li>2. Upgrade driver version to match encoder software or shipping parameter</li> <li>3. If all above solutions fail to solve the problem, Hardware may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-340</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Status Error</b>
<b>Alarm Content</b>	Encoder status has errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder over temperature".</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-344</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Encoder Signal Noise Interference</b>
<b>Alarm Content</b>	Encoder Signal Noise Interference		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D74 Encoder CRC error counter(Software). Check the encoder wiring.</li> <li>2. With connecting Tamagawa, YuHeng, Hcfa, or Hcfa 23 bit encoder, the parameter of encoder communication interface (Pn-900) and encoder's serial communication may be mismatched If alarm is triggered at power on.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the encoder wiring and grounding.</li> <li>2. Set Pn-900 correctly and reboot drive.</li> <li>3. Send back to Syntec Corp.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-345</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Feedback Abnormal</b>
<b>Alarm Content</b>	Packet of encoder position feedback is abnormal and the difference of two continuous position feedback is too large		
<b>Possible Cause</b>	1. Driver detect the encoder feedback is abnormal.		
<b>Possible Solution</b>	1. Check is position feedback varies abnormally or unexpectedly. 2. Please contact Syntec Corp.		
<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-346</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Motor Rear Cover Over Temperature</b>
<b>Alarm Content</b>	Syntec encoder: Motor rear cover temperature is higher than protection level Pn-762.		
<b>Possible Cause</b>	1. Motor cooling system failure 2. Thermal sensor signal error 3. Motor rear cover thermal sensor type setting error 4. Encoder hardware malfunction		
<b>Possible Solution</b>	1. Check and change motor cooling system. 2. Please check up Pn-D61. 3. Make sure parameter 【Pn-746 Motor Rear Cover overheat threshold】 is set correctly. 4. Check the type of resistance used for motor rear cover thermal sensing. If using PT1000: Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1. 5. If all above solutions fail to solve the problem, thermal sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.		
<b>Detailed Instructions</b>	AL-320, AL-321, AL-322 Trouble Shooting 【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-347</b>		

1st Single Axis ID	-	Alarm Name	Motor Rear Cover Thermal Sensor Error
<b>Alarm Content</b>	Motor Rear Cover Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Rear Cover Thermal Sensor Error</li> <li>2. Motor rear cover thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If motor rear cover thermal sensor is not needed, set parameter Pn-74A(P1-70) to 1.</li> <li>2. Check the type of resistance used for motor rear cover thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp.</li> </ol>		
<b>All in one ID</b>	<b>AL-348</b>		
<b>2nd Single Axis ID</b>			
1st Single Axis ID	-	Alarm Name	Motor Coil Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that Motor Coil's Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, motor coil's thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for motor coil thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

<b>Detailed Instructions</b>		AL-40, AL-41, AL-42 Issue Trouble Shooting	
<b>All in one ID</b> <b>2nd Single A</b> <b>axis ID</b>	<b>AL-34A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Motor Coil Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Motor Coil Thermal Sensor is unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Coil Thermal Sensor is not plugged correctly</li> <li>2. Motor Coil Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. Motor coil thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure Motor Coil Thermal Sensor is wired properly. (b) If Motor Coil Thermal Sensor is not needed, set parameter Pn-74B(P1-71) to 1.</li> <li>2. Measure the resistance of Motor Coil Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace Motor Coil Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for motor coil thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>b. If using KTY84:Please set Pn-75B into 0.</li> </ol> </li> </ol>		
<b>All in one ID</b> <b>2nd Single A</b> <b>axis ID</b>	<b>AL-913</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver External Motor Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Driver External Motor Thermal Sensor is Unplugged		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Thermal sensor is not plugged correctly.</li> <li>2. Thermal sensor is broken.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure thermal sensor is wired properly. (b) If thermal sensor is not needed, set parameter Pn-740 to 1.</li> <li>2. Measure the resistance of thermal sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500 Ω to 1500 Ω. If the measured value of resistance appears to be wrong, then please replace thermal sensor with a new one.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-350</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Status Error</b>
<b>Alarm Content</b>	Encoder status has errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder over temperature".</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-354</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>2nd Encoder Signal Noise Interference</b>
<b>Alarm Content</b>	2nd Encoder Signal Noise Interference		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D78 2nd Encoder CRC error counter(Software). Check the encoder wiring.</li> <li>2. With connecting Tamagawa, YuHeng, Hcfa, or Hcfa 23 bit encoder, the parameter of encoder communication interface (Pn-920) and encoder's serial communication may be mismatched If alarm is triggered at power on.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the 2nd encoder wiring and grounding.</li> <li>2. Set Pn-920 correctly and reboot drive.</li> <li>3. Send back to Syntec Corp.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-355</b>		



1st Single Axis ID	-	Alarm Name	2nd Encoder Feedback Abnormal
<b>Alarm Content</b>	Packet of 2nd encoder position feedback is abnormal and the difference of two continuous position feedback is too large		
<b>Possible Cause</b>	1. Driver detect the 2nd encoder feedback is abnormal.		
<b>Possible Solution</b>	1. Check is position feedback varies abnormally or unexpectedly. 2. Please contact Syntec Corp.		



**SYNTEC**

## 4 Tuning Alarm - ALARM-4xx

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-4 00</b>		
<b>1st Single Axis ID</b>	<b>AL-2 9</b>	<b>Alarm Name</b>	<b>Motor Parameter Estimation Failure - Abnormal Output Command</b>
<b>Alarm Content</b>	The search for the estimated current command fails during parameter estimation		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Abnormal current control</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. Check whether the current reaches the 120% rated current of the motor during the estimation process. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. The voltage command exceeds 40% of the rated motor voltage during the tuning process. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-401</b>		
<b>1st Single Axis ID</b>	<b>AL-2A</b>	<b>Alarm Name</b>	<b>Motor Parameter Estimation Failure-Abnormal Motor Speed</b>
<b>Alarm Content</b>	The motor speed is lower than 80% of the motor rated speed during the parameter estimation.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Motor rated speed is too high</li> <li>4. Abnormal current control</li> <li>5. Motor speed has not returned to zero when starting parameter estimation</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the environment is equipped with encoder, confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. During the rotation estimation process, the motor speed does not exceed 80% of the rated speed. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. Check whether the motor rated speed exceeds 10000 RPM. It is recommended to use "static induction motor tuning", or manually enter the motor parameters to avoid using the existing Motor tuning function.</li> <li>4. Check whether the current error is too high. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps.</li> <li>5. Return the motor speed to zero, and then start parameter estimation.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-402</b>		
<b>1st Single Axis ID</b>	<b>AL-50</b>	<b>Alarm Name</b>	<b>Current Tuning Error</b>
<b>Alarm Content</b>	Current tuning error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Excess current during tuning.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Redo the "Current Tuning" test</li> <li>2. Send back to Syntec or authorized representative</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-403</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Motor Rotor Time Const. Estimation Failure</b>
<b>Alarm Content</b>	Frequency search failure during the estimation process of motor rotor time constant.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Rated Speed Pn-70C is set incorrectly</li> <li>2. Motor Pole Number Pn-701 is set incorrectly</li> <li>3. During parameter estimation, the motor is rotated by external force</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Correct Pn-70C</li> <li>2. Correct Pn-701</li> <li>3. Avoid motor rotation during parameter estimation</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-404</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>PM Motor Parameter Tuning Fail</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. UVW cable disconnected</li> <li>2. Voltage command reaches limit during tuning</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 3 phase power cables are loose</li> <li>2. Voltage specification of driver and motor are matched</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check UVW cables between motor and drive for damage or looseness.</li> <li>2. Using driver that voltage specification is matched</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-410</b>		
<b>1st Single Axis ID</b>	<b>AL-2B</b>	<b>Alarm Name</b>	<b>Acceleration Limit Too Large</b>
<b>Alarm Content</b>	Max Jerk, acceleration or travel limit setup inappropriate.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Initial rotor inertia setup incorrect</li> <li>2. Motor specification input error</li> <li>3. Low JOG speed</li> <li>4. Insufficient travel limit</li> <li>5. Acceleration setup too severe</li> <li>6. Low Jerk</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Excessive inertia setup causes drive to overshoot. Refer to "Auto tuning" section of manual and reset Pn-720(P4-20) and Pn-722(P4-21).</li> <li>2. Check motor parameter Pn-7XX (P3-XX).</li> <li>3. Parameter Pn-304(Fn-02) too low causing tuning to fail. Minimum tuning RPM is 20% of rated motor speed.</li> <li>4. Travel parameters Pn-F14(Fn-04)、 Pn-F15(Fn-05) are too close causing motor speed insufficiency. Increase Pn-F14(Fn-04) and Pn-F15(Fn-05) interval to at least half of motor revolution.</li> <li>5. Acceleration time Pn-306(P6-10) is so short that motor cannot catch up. Set Pn-306(P6-10) longer.</li> <li>6. Jerk time Pn-307(P6-11) is so large that acceleration is unable to reach proper value. Lower jerk time Pn-307(P6-11) or lengthen acceleration time Pn-30.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-411</b>		

<b>1st Single Axis ID</b>	<b>AL-2C</b>	<b>Alarm Name</b>	<b>Initial Value of Inertia is Set Unsuitable</b>
<b>Alarm Content</b>	Triggered when initial rotor inertia setup inappropriate.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Incorrect rotor inertia and mechanical constant initial setup</li> <li>2. Incorrect motor rotor time constant setup</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Refer to "Auto tuning" section of manual and reset Pn-720(P4-20) and Pn-722(P4-21).</li> <li>2. Observe if rotor viscosity drops until alarm is triggered. Refer to "Rotor time constant tuning" part of "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-412</b>		
<b>1st Single Axis ID</b>	<b>AL-3E</b>	<b>Alarm Name</b>	<b>Inertia Tuning Startup Failure</b>
<b>Alarm Content</b>	triggered when motor doesn't run during Inertia tuning		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder wiring error</li> <li>2. Motor stall</li> <li>3. Default torque is too small(50%) that can't drive the load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and signal" section of manual</li> <li>2. The motor should rotate during tuning with direction that Pn-504 allows (PS: Only 2nd Single Axis has this function) <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> <li>3. Increase <b>【Pn-F32】</b> Torque Command in Test Mode( <b>【Fn-22】</b> Torque Command in Test Mode) progressively. When the output torque is enough, the inertia tuning is finished.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-413</b>		
<b>1st Single Axis ID</b>	<b>AL-74</b>	<b>Alarm Name</b>	<b>Inertia Tuning Loading Too Large</b>
<b>Alarm Content</b>	Displacement exceeds half the motion limit while estimating gravity		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motion limit is set too small or motor power is insufficient</li> </ol>		

<b>Possible Solution</b>	1. Check motion limit Pn-F14(Fn-04) and motor power. Raise motion limit or choose motor with larger power		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-414</b>		
<b>1st Single Axis ID</b>	<b>AL-78</b>	<b>Alarm Name</b>	<b>Load Inertia Value Error</b>
<b>Alarm Content</b>	Load inertia value out of range		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Rotor inertia value error</li> <li>2. Linear motor load inertia value out of range</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Re-enter specifics' rotor inertia parameter, or re-execute rotor inertia estimation during idling.</li> <li>2. Refer to "linear motor SOP Q and A", restart rotor inertia tuning instead of load inertia tuning.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-420</b>		
<b>1st Single Axis ID</b>	<b>AL-3D</b>	<b>Alarm Name</b>	<b>Encoder Offset Searching Failure</b>
<b>Alarm Content</b>	Drive fails to detect accurate motor pole position		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder mount loose, causing position shift</li> <li>2. Motor stall</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder index and motor shaft angle are fixed</li> <li>2. Motor should rotate twice during searching process <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-430</b>		
<b>1st Single Axis ID</b>	<b>AL-4F</b>	<b>Alarm Name</b>	<b>Encoder Calibration Stall Error</b>
<b>Alarm Content</b>	No motor rotation even as current output reaches limit		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor overload</li> <li>2. UVW wiring error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor for mechanical interferences</li> <li>2. Check Pn-441/Pn-444, Reset correct Pn-441/Pn-444</li> <li>3. Check UVW wiring from drive to motor</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-431</b>		
<b>1st Single Axis ID</b>	<b>AL-3A</b>	<b>Alarm Name</b>	<b>Encoder Pitch Compensation Error</b>
<b>Alarm Content</b>	Adjacent compensation value varies too greatly		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder's original position feedback fluctuates severely</li> <li>2. Encoder's compensation fixture error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if 1st and 2nd feedback mechanical angle match. Change encoder polarity while ensuring motor direction is correct. Check if 1st and 2nd encoder's position error is greater than 20 during compensation. Redo compensation. Replace encoder if it keeps failing.</li> <li>2. Make sure fixture is correctly mounted. Rotate motor and check if 1st feedback mechanical angle changes.</li> <li>3. Rotate motor and check if 2nd feedback mechanical angle changes. If not, replace encoder and send defective to Syntec or authorized representative for repairs.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-440</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>Dead time calibration initial failure</b>
<b>Alarm Content</b>	Dead time calibration initial failure		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Some axes are servo on state</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check all axes on servo state Servo off all axes and redo tuning</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-450</b>		
<b>1st Single Axis ID</b>	<b>AL-7A</b>	<b>Alarm Name</b>	<b>Sensor Test Fail</b>
<b>Alarm Content</b>	Sensor test setting error or motor stall		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motion limit is set too small                             <ol style="list-style-type: none"> <li>a. Linear motor: Whether position limit larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Whether position limit larger than 2.5 electrical period.</li> </ol> </li> <li>2. Lmotor stall</li> <li>3. Encoder no feedback</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set motion limit:                             <ol style="list-style-type: none"> <li>a. Linear motor: Reserve a travel distance larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Reserve a travel distance larger than 2.5 electrical period.</li> </ol> </li> <li>2. Check rotor position, Check Pn-441/Pn-444:                             <ol style="list-style-type: none"> <li>a. Move motor to suitable position</li> <li>b. Reset Pn-441/Pn-444</li> </ol> </li> <li>3. Connect and wire encoder correctly</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-451</b>		
<b>1st Single Axis ID</b>	<b>AL-7B</b>	<b>Alarm Name</b>	<b>Linear Motor Magnetic Pitch Setting Error</b>
<b>Alarm Content</b>	Detected magnetic pitch (Pn-D85) and set value (Pn-702) are mismatched		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Magnetic pitch or encoder resolution setup error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameters correctly</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-452</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>Proximity Switch Spindle Posing Tuning Error</b>



<b>Alarm Content</b>	The tuning of digital input filtering level failed		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Wrong setting of gear number of motor side or screw side</li> <li>2. Abnormal function of proximity switch</li> <li>3. Spindle orientation check window is too narrow</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameters Pn-20A, Pn-20C, Pn-522, Pn-50A and Pn-50B correctly</li> <li>2. Check the installation and signal of proximity</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-453</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>Global Tuning Failure</b>
<b>Alarm Content</b>	Unexpected alarm occurred during tuning process		
<b>Possible Cause</b>	Certain axis registers the alarm during tuning process		
<b>Possible Solution</b>	Solve the cause of the alarm, and then execute the tuning again		



# SYNTEC

## 5 Application Alarm - ALARM-5xx

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-500</b>		
<b>1st Single Axis ID</b>	<b>AL-2F</b>	<b>Alarm Name</b>	<b>Incorrect setting of operational curve for V/f control</b>
<b>Alarm Content</b>	V/f curve slope setup error		
<b>Possible Cause</b>	1. V/f curve slope setup error, check parameters Pn-112~Pn-115 (P2-31~P2-34)		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Operation points 1 and 2 must increase in order. V and F of point 1 must be greater than those of point 2.</li> <li>2. Frequency of operation point 2 cannot be above rated frequency.</li> <li>3. Voltage of operation point 2 cannot be above rated voltage.</li> <li>4. Voltage of operation point 1 must be higher than minimum VF voltage. (Observe Pn-D3B (D1-30) for further information)</li> <li>5. V and f of both points cannot be 0.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-501</b>		
<b>1st Single Axis ID</b>	<b>AL-30</b>	<b>Alarm Name</b>	<b>V/f Overcurrent</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. The current feedback is continuously over the maximum current of motor in V/f mode.</li> <li>2. Triggered when current feedback is greater than 120% of maximum current</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Severe setting of acceleration time or jerk time</li> <li>2. Incorrect V/f curve setting</li> <li>3. The motor is overload.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Increase jerk time(ms) and acceleration time</li> <li>2. Adjust V/f operating curve</li> <li>3. Appropriately decrease the load.</li> </ol>		
<b>Remark</b>	From v2.12.7 , the second trigger mechanism of alarm content has been removed.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-502</b>		

<b>1st Single Axis ID</b>		<b>Alarm Name</b>	Current loop command saturation
<b>Alarm Content</b>	The voltage command reaches the limit for 150 millisecond after servo on when using open loop control or processing tuning function.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. In dual feedback or semi-closed loop control mode the belt slips.</li> <li>2. Gain tuning result is improper.</li> <li>3. UVW wiring is wrong or not connected.</li> <li>4. UVW phase short circuit, or short to ground.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Tighten or replace the belt.</li> <li>2. Refer to chapter "Auto Tuning" in user manual, tune gain properly.</li> <li>3. Refer to chapter "Wiring and signal" in user manual, and correct wiring.</li> <li>4. Turn off the power, remove power cable, check UVW to P and N is not short circuit. Use multimeter to measure is the driver connector P/N(+/-) to U/V/W phase short circuit, if it is short, this means the phase upper/lower bridge arm transistor was broken.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-505</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Control mode not set properly</b>
<b>Alarm Content</b>	Control mode should not be able to use with current setting or apparatus		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. None of encoder applied in position control</li> <li>2. Disable position control with V/f mode setting</li> <li>3. Gantry control does not support all control modes except the host position mode</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if used function in position control. Make sure of correct setting on controller or encoder configuration</li> <li>2. Check Pn-330 setting which is allowed to enter position control mode. Correct Pn-330 or avoid position control mode switch by controller</li> <li>3. Check the controller settings or Pn-840</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-510</b>		
<b>1st Single Axis ID</b>	<b>AL-3C</b>	<b>Alarm Name</b>	<b>Spindle Posing Failure</b>
<b>Alarm Content</b>	Spindle posing incomplete in time limit		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Orientation angle setting error, mechanical interference cause spindle diverge.</li> <li>2. Spindle orientation fails to reach window set in Pn-522(P6-12) for 2 seconds after command complete.</li> <li>3. Encoder communication type error.</li> <li>4. Filtering level is too high or signal width is too short. <b>(Only All in one ID/2nd Single Axis support)</b></li> <li>5. Proximity switch orientation failure.</li> <li>6. Proximity switch orientation has wrong gear ratio.</li> <li>7. Orientation is abnormally aborted.</li> <li>8. V/f mode or none of encoder applied do not support spindle orientation.</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check orientation angle and mechanical interference.</li> <li>2. Make sure parameter Pn-522(P6-12) is set in a reasonable range. Suggested value is 500. ( 0.5 degrees)</li> <li>3. Make sure Pn-900(P3-20) in single feedback control or Pn-920(P6-80) in dual feedback control is not 3.</li> <li>4. Check up the manual of Pn-03E and adjust it with motor running and monitoring Pn-D35 I Bits Status. <b>(Only All in one ID/2nd Single Axis support)</b></li> <li>5. If using proximity switch orientation Pn-243=1(P6-29=1), check Pn-D97(D1-77) is updated each turn. Assemble proximity switch correctly Pn-50A~Pn-50B(P1-40~P1-41).</li> <li>6. If using proximity switch orientation Pn-243=1(P6-29=1), check the gear ratio from controller is correctly set. Update controller software version to at least 10.116.24R(1st Single Axis) or 10.118.10(All in one/2nd Single Axis) and set gear ratio correctly.</li> <li>7. Record Pn-D53(D1-40), and connect Syntec for further trouble shooting.</li> <li>8. Check Pn-330 and encoder setting and correct them.</li> </ol>		
<p><b>All in one ID 2nd Single Axis ID</b></p>	<p><b>AL-511</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-62</b></p>	<p><b>Alarm Name</b></p>	<p><b>Spindle Posing Deviate</b></p>
<p><b>Alarm Content</b></p>	<p>Position deviated after posing complete</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Gain tuning result is improper</li> <li>2. Orientation angle setting error, mechanical interference cause spindle diverge</li> <li>3. Spindle orientation check window is too narrow</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Refer to chapter "Auto Tuning" in user manual, tune gain properly</li> <li>2. Check orientation angle and mechanical interference</li> <li>3. Check whether parameter Pn-522(P6-12) is set in a reasonable range</li> </ol>		
<p><b>All in one ID 2nd Single Axis ID</b></p>	<p><b>AL-512</b></p>		

1st Single Axis ID	-	Alarm Name	Error Digital Input Signal Index Position
<b>Alarm Content</b>	1. Proximity signal may be disturbed, driver can't mark an index position		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Digital Input Sampling Factor too low</li> <li>2. Input signal too noisy</li> <li>3. Gear ratio set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-03E. Please tune up level of Pn-03E and retry your test</li> <li>2. Please check the installation of input wire, or proper material use</li> <li>3. Replace with an more anti-noise material, or change a way of installation</li> <li>4. Check gear ratio, measure and examine gear ratio again(Controller parameter Pr1681~Pr1700 Spindle 1st gear number at screw side and motor side)</li> </ol>		
<b>All in one ID</b>	<b>AL-513</b>		
<b>2nd Single Axis ID</b>			
1st Single Axis ID	-	Alarm Name	Dual Feedback parameter setting error
<b>Alarm Content</b>	1. Parameters setting error in dual feedback control mode.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Enable velocity dual feedback control, while position dual feedback control is disabled.</li> <li>2. 2nd Encoder: Pn-924 is not relative to Pn-920, Pn-335.</li> <li>3. With SYNTEC 2nd encoder, Pn-931 is not illegal according to Pn-335.</li> <li>4. 2nd Encoder application type(linear/rotary) is not compatible with Pn-335 setting.</li> <li>5. Enable <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop and <b>【Pn-22A】</b> Enable Pos Dual Feedback Control at the same time.</li> <li>6. Linear motor does not support dual feedback control.</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. When enable velocity dual feedback control(Pn-32A = 1), Must enable position dual feedback control(Pn-22A = 1). If velocity dual feedback control is unnecessary, set Pn-32A = 0.</li> <li>2. Check Pn-924, Pn-920, Pn-335 settings. If using linear 2nd encoder, please set Pn-924 into 2 or 0, dependent to Pn-920. If using non-incremental 2nd encoder, please set Pn-924 into 2 or 1 instead of 0.</li> <li>3. Check Pn-931, Pn-335 settings. If Pn-931 is set to 1, Pn-335 must be 0 or 2; if Pn-931 is set to 2, Pn-335 must be 1 and check Pn-284 if legal.</li> <li>4. Check Pn-920 parameter manual to check 2nd encoder application type(linear/rotary) is compatible with Pn-335 setting. If linear encoder, Pn-335 must be 1; if rotary encoder, Pn-355 must be 0 or 2.</li> <li>5. Check the setting of <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop . Under semi-close loop conditions, if <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop is enabled, then the <b>【Pn-22A】</b> Enable Pos Dual Feedback Control should be disabled.</li> <li>6. Check Pn-22A, Pn-700 settings. If enable dual feedback control(Pn-22A = 1), Pn-700 must be 0 or 2.</li> </ol>		
<p><b>Remark</b></p>	<p>Alarm has been added after version v2.12.10</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-520</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-38</b></p>	<p><b>Alarm Name</b></p>	<p><b>Excessive position error between 1st and 2nd feedback</b></p>
<p><b>Alarm Content</b></p>	<p>Position error between 1st and 2nd feedback exceeds allowed level</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. 2nd encoder pulse loss, no feedback or encoder polarity error</li> <li>3. Gear ratio set incorrectly</li> <li>4. Pn-51A set too strictly</li> <li>5. Uses ABZ type as 2nd encoder and the resolution value is wrong</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check belt mechanism.</li> <li>2. Execute "Encoder test" and observe whether any alarms are triggered. Refer to "Auto tuning" section of manual.</li> <li>3. Measure and examine gear ratio again.</li> <li>4. Check Pn-51A setting. Refer to 2nd Generation Driver Dual Feedback Tuning Manual(Analysis platform) or "The Pos Dual Feedback Control Of The Linear Scales with Analysis Platform"             <ol style="list-style-type: none"> <li>a. For spindle dual feedback, it is recommended setting this error bound (Pn-51A) as 0.1 times of the 2nd encode resolution.</li> <li>b. For axial dual feedback, if the resolution of the outer feedback linear scale is R pulse/mm and the mechanism has a backlash error of P mm, this parameter setting (Pn-51A) must be greater than P * R, and it is recommended to set 2 to 3 times P * R or more.</li> </ol> </li> <li>5. For axial dual feedback, please check whether <b>【Pn-922】</b> 2nd Encoder Resolution is set correctly.</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-521</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-1F</b></p>	<p><b>Alarm Name</b></p>	<p><b>Excessive Following Error</b></p>
<p><b>Alarm Content</b></p>	<p>Error between position command and feedback is too large</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Torque limit too low</li> <li>2. Motor overload</li> <li>3. Severe speed command change</li> <li>4. Rotor inertia set incorrectly</li> <li>5. Parameter Pn-22C(P6-41) too low</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check parameter Pn-70A(P3-11).</li> <li>2. Check if load ratio is continuously over 100%.</li> <li>3. Check if controller's command changes severely. Adjust controller's acceleration time constant, set it larger. Reduce motor load or choose a larger rated torque of motor.</li> <li>4. Rotor inertia is set too low, output current is too small, resulting incorrect control behavior.</li> <li>5. Check parameter Pn-22C(P6-41). Pn-22C(P6-41) has its parameter lower bound,the minimum value of Pn-22C is 1/5 of latch frequency.</li> <li>6. Make sure Pn-904/Pn-924(P3-23/P6-83) 1st/2nd encoder incremental/ absolute setup is correct.</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-522</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-63</b></p>	<p><b>Alarm Name</b></p>	<p><b>Servo On Command Conflict</b></p>

<b>Alarm Content</b>	Servo on command conflict		
<b>Possible Cause</b>	1. Drive receives Servo On and Auxiliary function at the same time		
<b>Possible Solution</b>	1. Check if parameter Pn-F10(Fn-00) is set to enable auxiliary functions 2. Avoid Servo On and enabling Auxiliary function at the same time		
<b>Note</b>	<ul style="list-style-type: none"> <li>• Alarm has been delete for single axis drive version V1.6.9 and after.</li> <li>• Alarm has been delete for 4-in-1 drive version 4 in 1 V2.3.0 and after.</li> </ul>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-523</b>		
<b>1st Single Axis ID</b>	<b>AL-3F</b>	<b>Alarm Name</b>	<b>Parameter Saving Command is Illegal</b>
<b>Alarm Content</b>	Parameter saving command is given while Servo On		
<b>Possible Cause</b>	1. Parameter saving command is given while Servo On		
<b>Possible Solution</b>	1. Give parameter saving command while Servo Off		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-524</b>		
<b>1st Single Axis ID</b>	<b>AL-81</b>	<b>Alarm Name</b>	<b>Serious Belt slip</b>
<b>Alarm Content</b>	Speed error between external encoder and estimator is too great		
<b>Possible Cause</b>	1. Belt slip 2. Gear ratio error		
<b>Possible Solution</b>	1. Change or tighten belt 2. Set gear ratio properly		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-525</b>		
<b>1st Single Axis ID</b>	<b>AL-7C</b>	<b>Alarm Name</b>	<b>Electrical Gear Error</b>
<b>Alarm Content</b>	Relative setting error		



<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Parameter setting error</li> <li>Encoder communication type not supported</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>The ratio of Pn-20E/Pn-210 (P6-08/P6-09) should be integral, and be power of 2, and not more than 256.</li> <li>If 23 bit TAMAGAWA encoder is used, Pn-20E can not more than 128.</li> <li>Pn-210 (P6-09) must set to 1.</li> <li>Please check 【Pn-DD4】 Encoder Active Communication Type. If in DualFeedback control, then check 【Pn-DD5】 2nd Encoder Active Communication Type. If version is 1.6.x, this function only supports Nikon encoder; if version is v2.x, then support Nikon, Sankyo, HCFA and 23/25 bit TAMAGAWA, Delta encoders.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-526</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Extremely excessive position error between 1st and 2nd feedback</b>
<b>Alarm Content</b>	Position error between 1st and 2nd feedback exceeds allowed level extremely		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Belt slip</li> <li>2nd encoder pulse loss or no feedback</li> <li>Gear ratio set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>Check belt mechanism.</li> <li>Execute "Encoder test" and observe whether any alarms are triggered. Refer to "Auto tuning" section of manual.</li> <li>Measure and examine gear ratio again.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-527</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	Gantry control position feedback critical deviation
<b>Alarm Content</b>	The position difference under gantry control exceeds the limit		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Host command polarity setting error</li> <li>The origin setting of the gantry axis is not completed</li> <li>The position deviation alarm threshold is too strict</li> <li>Inertia setting error</li> <li>One of axes is stuck mechanically</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the Pn-020 host command polarity of the two axes</li> <li>2. Check the origin setting of the gantry axis</li> <li>3. Confirm Pn-572 position deviation alarm threshold</li> <li>4. Check the rotor and loader inertia or adjust the inertia</li> <li>5. Check if any axis is mechanically stuck</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-528</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	No origin point for gantry control
<b>Alarm Content</b>	No origin point for gantry control		
<b>Possible Cause</b>	No origin point for gantry control		
<b>Possible Solution</b>	Set the correct origin for the incremental encoder through Pn-F46 = 1		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-529</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	Excessive Position Error Overflow
<b>Alarm Content</b>	Excessive overflow of pulse error between position command and feedback		
<b>Possible Cause</b>	1. Torque limit reach, then position error is too large		
<b>Possible Solution</b>	1. Check position target, and set proper position target		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-52F</b>		
<b>1st Single Axis ID</b>	<b>AL-19</b>	<b>Alarm Name</b>	<b>Servo On Timeout</b>
<b>Alarm Content</b>	Servo on longer than normal		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Power of driver is loss or DC bus voltage is too low.</li> <li>2. Drive configuration error.</li> <li>3. Encoder or current sensor is malfunctioned.</li> <li>4. 1st Encoder can't be Syntec Accelerometer. (a.k.a Pn-DD4 = 13, Pn-90D = 3)</li> <li>5. Check Pn-D20, if using absolute encoder, Bit 1 and Bit 2 shall all be ON. Otherwise, it may cause this.</li> <li>6. Check Pn-D20, Bit 6 shall be OFF. Otherwise, it may cause this.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check up input voltage if lower than Pn-640(P5-00) supply voltage. Make sure of specification match between driver rated supply, wiring and Pn-640(P5-00) setting.</li> <li>2. Send back to Syntec or authorized representative.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-530</b>		
<b>1st Single Axis ID</b>	<b>AL-20</b>	<b>Alarm Name</b>	<b>Zero Speed Check Fail</b>
<b>Alarm Content</b>	Zero speed check time longer than normal		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Pn-502(P6-15) Zero Velocity Window is set too small</li> <li>2. External overload</li> <li>3. Tuning result abnormal</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-502(P6-15) settings. Set Pn-502(P6-15) larger.</li> <li>2. Pn-306(P6-10) maximum acceleration and Pn-307(P6-11) maximum JERK time are set too small. Check and set them larger.</li> <li>3. Check auto tuning parameters. Refer to "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-531</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Drive Parameter Loaded to Defaults</b>
<b>Alarm Content</b>	Do load default parameter function, parameters have been loaded to default value.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. If Pn-F43 load default parameter function is modified, this warning will be shown after the parameter is successfully loaded.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please reboot the drive and check if this warning is still exist.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-542</b>		

<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Laser Cruise Mode Failure</b>
<b>Alarm Content</b>	Laser Cruise Mode Failure		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd encoder communication type non altimeter or LVDT</li> <li>2. V/f mode or none of encoder applied do not support laser cruise mode</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-920 and set 2nd encoder as altimeter or LVDT</li> <li>2. Check Pn-330 and encoder setting and correct them</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-543</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>The Proximity Spindle Position DI setting error</b>
<b>Alarm Content</b>	More than one DI set as the Proximity Spindle Position function		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The Proximity Spindle Position function only can set one DI in one axis</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-50A ~ Pn-50D, Close the redundant Proximity Spindle Position</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-544</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Linear Sensor Overflow</b>
<b>Alarm Content</b>	Position feedback discontinuous due to linear sensor overflow		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overflow appearance while linear sensor accrossing zero</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the movement of linear sensor accrossing zero</li> <li>2. If using linear sensor of BiSSC, EnDat, FeeDat, Mitutoyo, set Pn-214 Incremental calculation</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-550</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unexpected disturbance torque</b>
<b>Alarm Content</b>	Unexpected disturbance torque		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Unexpected disturbance torque.</li> <li>2. The detection threshold parameter is set too low.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Confirm whether there is a mechanical collision in this axis. Avoid collision on the motion path.</li> <li>2. Check whether Pn-850 or Pn-851 is set too low. Increase Pn-850 or Pn-851.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-551</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Excessive Dynamic Following Error</b>
<b>Alarm Content</b>	Excessive error between Simulated and Real posfbk		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Disturbance torque is too high.</li> <li>2. The dynamic position err bound (Pn-574) is too low</li> <li>3. Torque limit too low</li> <li>4. Severe speed command change</li> <li>5. Load inertia set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if load ratio is too high. Reduce motor load or avoid collision on the motion path.</li> <li>2. Check parameter Pn-574. Set proper dynamic position err bound.(Pn-574)</li> <li>3. Check parameter Pn-70A. Set proper torque limit(Pn-70A)</li> <li>4. Check if controller's command changes severely. Adjust controller's acceleration time constant, set it larger. Reduce motor load or choose a larger rated torque of motor.</li> <li>5. The simulated position error will be incorrect due to load inertia error. Set the correct load inertia.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-690</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Not support winding selection function</b>
<b>Alarm Content</b>	The switch function of high and low speed coil can't be opened.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The wrong setting of Pn-72C Motor Winding Mode</li> <li>2. CNC version not support winding selection function</li> <li>3. Only induction spindle support winding selection function</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Set Pn-72C Motor Winding Mode correctly</li> <li>2. Update CNC version correctly</li> <li>3. Set Pn-700 Motor Type and Pn-803 Motor Application correctly, or disable Pn-01E winding selection function</li> </ol>
---------------------------------	--



**SYNTEC**

## 6 Special Alarm - ALARM

<b>All in one ID</b>	<b>AL-810</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-810</b>	<b>Alarm Name</b>	<b>Encoder Battery Low Voltage Position Loss</b>
<b>Alarm Content</b>	Encoder battery low, position data is lost.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery. <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 2.9V.</li> <li>e. YuHeng: battery voltage is less than 2.75 V.</li> <li>f. HCFA 23 bits optical encoder: battery voltage is less than 2.9 V.</li> </ol> </li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery <ol style="list-style-type: none"> <li>a. With controller: Keep driver power on, change the battery and restart system.</li> <li>b. Without controller: Keep driver power on, change the battery, set parameter Pn-F44(Fn-34) to 1 and restart drive.</li> </ol> </li> <li>2. If not absolute encoder, set parameter Pn-904(P3-23) to 0 and restart drive.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID</b>	<b>AL-812</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-56</b>	<b>Alarm Name</b>	<b>2nd Encoder Position Loss</b>
<b>Alarm Content</b>	Second encoder battery less than 2.5V, multi-turn position data loss		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder voltage too low or no battery <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 2.9V.</li> <li>e. YuHeng: battery voltage is less than 2.75 V.</li> <li>f. HCFA 23 bits optical encoder: battery voltage is less than 2.9 V.</li> </ol> </li> <li>2. Parameter set incorrectly</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery             <ol style="list-style-type: none"> <li>a. With controller: Keep driver power on, change the battery and reboot system.</li> <li>b. No controller: Keep driver power on, change the battery, set parameter Pn-F44(Fn-34) to 1 and reboot driver.</li> </ol> </li> <li>2. Check parameter Pn-924(P6-83). If not using an absolute encoder, set Pn-924 to 0, save and reboot driver</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC

<b>All in one ID</b>	<b>AL-830</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-830</b>	<b>Alarm Name</b>	<b>ABS Type Encoder Battery Low Voltage Alarm</b>
<b>Alarm Content</b>	ABS type encoder battery voltage lower than 3V.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery.</li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery and restart drive (No need to restart if equipped with Nikon encoder).</li> <li>2. If not ABS type encoder, set parameter Pn-904(P3-23) to 0 and restart drive.</li> </ol>		

<b>All in one ID</b>	<b>AL-B6B</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Mechatrolink ASIC Malfunction</b>
<b>Alarm Content</b>	Mechatrolink ASIC Malfunction		
<b>Possible Cause</b>	1. Mechatrolink ASIC Malfunction		
<b>Possible Solution</b>	1. Please contact distributor or Syntec representative.		

<b>All in one ID</b>	<b>AL-E02</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Communication Synchronization Error</b>
<b>Alarm Content</b>	Host Communication packet abnormal.		



<b>Possible Cause</b>	1. Host Data exchange time out.		
<b>Possible Solution</b>	1. Check the setting of the Mechatrolink transmission cycle Pr3203.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E30</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Mechatrolink position command error</b>
<b>Alarm Content</b>	Mechatrolink position command error, received position command too large.		
<b>Possible Cause</b>	1. Position command is too large, probably abnormal increment compared with the last command		
<b>Possible Solution</b>	1. Position command varies abnormally or unexpectedly 2. Check up software version of the controller. Please inform the manufacturer.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E40</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver Command Calculation Timeout</b>
<b>Alarm Content</b>	Driver insufficient performance, can't execute controller command.		
<b>Possible Cause</b>	1. Insufficient calculation time. 2. Mechatrolink interpolation time interval setting is outside specified range.		
<b>Possible Solution</b>	1. Disable unnecessary functions. 2. Decrease Pn-643 High Cycle Calculation Level. 3. Raise controller parameter Pr3203 interpolation time interval setting to appropriate value.		
<b>All in one ID</b> <b>2nd Single Axis ID</b> <b>ID</b>	<b>AL-E50</b>		
<b>1st Single Axis ID</b> <b>ID</b>	<b>AL-E50</b>	<b>Alarm Name</b>	<b>Host command not updated</b>
<b>Alarm Content</b>	Host communication WDT check error.		

<b>Possible Cause</b>	1. The controller did not update the packet correctly or the host communication chip is abnormal.		
<b>Possible Solution</b>	1. Check if the host command sends unexpected performance. 2. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID 2nd Single Axis ID</b>	AL-E60		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disturbed by noise(Checked by hardware)</b>
<b>Alarm Content</b>	Host communication CRC check error(Checked by hardware).		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, which makes the packet unusable.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID 2nd Single Axis ID</b>	AL-E61		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Transmission Cycle Error</b>
<b>Alarm Content</b>	The transmission cycle interval varied in tolerance which is out of range.		
<b>Possible Cause</b>	1. Host communication varied in tolerance which is out of 10% of period.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID 2nd Single Axis ID</b>	AL-E62		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disturbed by noise(Checked by software)</b>
<b>Alarm Content</b>	Host communication CRC check error(Checked by software).		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, which makes the packet unusable.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		

<b>All in one ID</b>	<b>AL-E63</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication sequence error</b>
<b>Alarm Content</b>	Host communication SYNC flag check error.		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, resulting in abnormal synchronization signal.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID</b>	<b>AL-E65</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disconnect</b>
<b>Alarm Content</b>	Host communication disconnect.		
<b>Possible Cause</b>	1. Wire falling off or loose.		
<b>Possible Solution</b>	1. Check serial wiring, whether connections are firm.		
<b>All in one ID</b>	<b>AL-E68</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication continuous error</b>
<b>Alarm Content</b>	Host communication continuous error.		
<b>Possible Cause</b>	1. Host communication is disturbed by noise. 2. The controller did not update the packet correctly. 3. The host communication chip is abnormal.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm. 2. Check if the host command sends unexpected performance.		
<b>All in one ID</b>	<b>AL-E69</b>		
<b>2nd Single Axis ID</b>			

<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication incorrect connect port</b>
<b>Alarm Content</b>	Host communication incorrect connect port.		
<b>Possible Cause</b>	1. Serial wiring are opposing connect port In and port Out.		
<b>Possible Solution</b>	1. Check serial wiring, whether correct connect port In and port Out.		
<b>All in one ID</b>	AL-F10		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power supply line open phase</b>
<b>Alarm Content</b>	One phase of the power supply has low voltage.		
<b>Possible Cause</b>	1. Voltage low for more than 1 second for R, S or T phase with main power on. 2. Parameter setting error.		
<b>Possible Solution</b>	1. Tighten power supply wires. 2. If using single-phase power supply, set parameter Pn-036 to 1 and restart drive.		



SYNTEC

## 7 Driver Warning - WARNING-9xx

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-910</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>IGBT High Temperature</b>
<b>Alarm Content</b>	The temperature of IGBT is over 90°C for 10 sec continuously		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Severe acceleration change</li> <li>2. Cooling system failure</li> <li>3. Drive output short-circuit</li> <li>4. Ambient temperature overheat</li> <li>5. Heat source nearby</li> <li>6. Continuous use while exceeding drive's rated load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Increase Pn-307</li> <li>2. Check if fan is functioning normally.</li> <li>3. Check drive's output wiring, refer to "Wiring and Signal" section of manual.</li> <li>4. Check if ambient temperature is below 55°C, refer to "Transportation and Installation" section of manual.</li> <li>5. Check environment, remove external heat source or enhance cooling capacity.</li> <li>6. Check for motor overload or over current.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-911</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power Stage Regenerative Resistor High Temperature</b>
<b>Alarm Content</b>	The temperature of regenerative resistor is over 105°C		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The acceleration is too severe.</li> <li>2. Motor or driver model selection is mismatch.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the acceleration time setting is too short. Increase Pn-307.</li> <li>2. Check if the used motor and its load match the driver's built-in regenerative resistor. <ol style="list-style-type: none"> <li>a. Reduce the load on the motor or spindle.</li> <li>b. Use external regenerative resistor instead.</li> <li>c. Contact Syntec to assist in replacing the built-in regenerative resistor or driver model with larger resistor.</li> </ol> </li> </ol>		

<b>All in one ID</b>	<b>AL-912</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power supply line open phase</b>
<b>Alarm Content</b>	One phase of the power supply has low voltage.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Voltage low for more than 1 second for R, S or T phase with main power on.</li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Tighten power supply wires.</li> <li>2. If using single-phase power supply, set parameter Pn-036 to 1 and restart drive.</li> </ol>		
<b>All in one ID</b>	<b>AL-913</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver External Motor Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Driver External Motor Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Thermal sensor is not plugged correctly.</li> <li>2. Thermal sensor is broken.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure thermal sensor is wired properly. (b) If thermal sensor is not needed, set parameter Pn-740 to 1.</li> <li>2. Measure the resistance of thermal sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500 Ω to 1500 Ω. If the measured value of resistance appears to be wrong, then please replace thermal sensor with a new one.</li> </ol>		
<b>All in one ID</b>	<b>AL-920</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-920</b>	<b>Alarm Name</b>	<b>Servo On Command Conflict</b>

<b>Alarm Content</b>	Servo On command conflict		
<b>Possible Cause</b>	1. Drive receives Servo ON and auxiliary function command at the same time		
<b>Possible Solution</b>	1. Check if parameter Pn-F10(Fn-00) is set to enable auxiliary functions. 2. Avoid giving Servo ON and auxiliary function command at the same time.		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-921</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power off pull-up function is not supported</b>
<b>Alarm Content</b>	Power off tool retraction function is not supported		
<b>Possible Cause</b>	1. Controller version doesn't support power off pull-up function 2. The setting of weight direction is wrong. 3. Power off detection module damaged 4. V/f mode or none of encoder applied do not support pull-up function 5. Gantry control does not support pull-up function		
<b>Possible Solution</b>	1. If needed, upgrade controller version 2. Please set Pn-805 to 1 or -1 3. Set Pn-804 = 0 to disable power off pull-up function, or send back to Syntec 4. Check Pn-330 and encoder setting and correct them 5. If you do not need to enable gantry control, please disable Pn-830 and Pn-840		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-922</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Proximity Position is not supported</b>
<b>Alarm Content</b>	Proximity Position is not supported		
<b>Possible Cause</b>	1. Controller version doesn't support Proximity Position function 2. Not support Proximity Position function with Dual Feedback Control		
<b>Possible Solution</b>	1. Set Pn-243 = 0 to disable Posing by proximity switch function or upgrade CNC version if needed 2. Set Pn-243 = 0 to disable Posing by proximity switch function or check whether disable dual feedback control(Pn-22A)		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	--		
<b>1st Single Axis ID</b>	<b>AL-923</b>	<b>Alarm Name</b>	<b>Cooling Fan Error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality		
<b>Possible Cause</b>	1. Cooling fan failure		
<b>Possible Solution</b>	1. Send back to Syntec or authorized dealer for repairs		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-925</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Control mode not applicable with tuning function</b>
<b>Alarm Content</b>	Corresponding tuning function is not applicable to the control mode or other settings		
<b>Possible Cause</b>	1. Speed control mode setting is not applicable to tuning function 2. Encoder interface, motor type or parameter setting is not applicable to tuning function		
<b>Possible Solution</b>	1. Check Pn-330 if the tuning function is supported with it and correct it 2. Check using conditions of tuning function and modify setting depending of those conditions. Otherwise, don't use this function with the current apparatus or configuration.		
<b>Note</b>	Please refer to 【Pn-330】 Speed Control Mode or AL-925 警报排查		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-926</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>EEPROM Cannot execute the Function of Write Data</b>
<b>Alarm Content</b>	EEPROM-Write Protect Pin Cannot Pull-Low		
<b>Possible Cause</b>	1. EERPOM's write-protect function cannot be canceled by the software 2. The EEPROM's data of frontstage is incorrect		



<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-928</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Insufficient permissions</b>
<b>Alarm Content</b>	Permissions check error		
<b>Possible Cause</b>	1. User doesn't have permission to use this feature		
<b>Possible Solution</b>	1. Check if permission parameter Pn-F00 is set correctly		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-930</b>		
<b>1st Single Axis ID</b>	<b>AL-930</b>	<b>Alarm Name</b>	<b>Abs Type Encoder Battery Low Voltage</b>
<b>Alarm Content</b>	ABS encoder battery voltage lower than 3V		
<b>Possible Cause</b>	1. Battery voltage too low or no battery 2. Parameter setting error		
<b>Possible Solution</b>	1. Keep driver power on, change the battery. If using Panasonic encoder or old version HCFA(Pn-900 or Pn-DD4 equals 22), then restart driver. If using Nikon, Mitsubishi, Delta, Tamagawa, YuHeng, HCFA 23 bits optical encoder or new version HCFA encoder(Pn-900 or Pn-DD4 equals 23), then don't need to restart. 2. If not ABS encoder, set drive parameter Pn-904(P3-23) to 0, save and restart.		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-931</b>		
<b>1st Single Axis ID</b>	<b>AL-931</b>	<b>Alarm Name</b>	<b>Encoder Low Voltage</b>
<b>Alarm Content</b>	Encoder power source voltage abnormal		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder power source voltage too great or insufficient</li> <li>2. EnDat encoder power source voltage insufficient</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-932</b>		
<b>1st Single Axis ID</b>	<b>AL-932</b>	<b>Alarm Name</b>	<b>Encoder Signal Abnormal</b>
<b>Alarm Content</b>	Encoder signal amplitude is too low.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder signal amplitude is too low. D+ D- signal may be disturbed.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-933</b>		
<b>Single Axis ID</b>	<b>AL-933</b>	<b>Alarm Name</b>	<b>Encoder Z Index Abnormal</b>
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encode is error possibly.		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Syntec encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is differ from the setting parameter</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>		

<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or above(Multi-Axis Servo Drive is updated to V2.2.5 or above), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>		
<p><b>Detailed Explanations and SOP</b></p>	<p>AL-54 Issue Problem Shooting</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-935</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-935</b></p>	<p><b>Alarm Name</b></p>	<p><b>ABS Type 2nd Encoder Battery Low Voltage</b></p>
<p><b>Alarm Content</b></p>	<p>2nd ABS encoder battery voltage lower than 3V</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery</li> <li>2. Parameter setting error</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Keep driver power on, change the battery. If using Panasonic encoder or old version HCFA(Pn-920 or Pn-DD5 equals 22), then restart driver. If using Nikon, Mitsubishi, Delta, Tamagawa, YuHeng, HCFA 23 bits optical encoder or new version HCFA encoder(Pn-920 or Pn-DD5 equals 23), then don't need to restart.</li> <li>2. If not ABS encoder, set drive parameter Pn-924(P6-83) to 0, save and restart.</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p><b>【Pn-D96】 2nd Enc Error Status ALMC</b></p>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-936</b>		
<b>1st Single Axis ID</b>	<b>AL-936</b>	<b>Alarm Name</b>	<b>2nd Encoder Low Voltage</b>
<b>Alarm Content</b>	2nd encoder power source voltage too low		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder power source voltage too great or insufficient</li> <li>2. EnDat encoder power source voltage insufficient</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-937</b>		
<b>1st Single Axis ID</b>	<b>AL-937</b>	<b>Alarm Name</b>	<b>2nd Encoder Signal Abnormal</b>
<b>Alarm Content</b>	2nd Encoder signal amplitude is too low.		
<b>Possible Cause</b>	1. FeeDat encoder signal amplitude is too low. D+ D- signal may be disturbed.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-938</b>		
<b>Single Axis ID</b>	<b>AL-938</b>	<b>Alarm Name</b>	<b>2nd Encoder Z Index Abnormal</b>
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encoder is error possibly .		

<p><b>Possible Cause</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Second encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is different than from the written parameter.</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> <li>6. Hardware malfunction</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>		
<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or more recent(Multi-Axis Servo Drive is updated to V2.2.5), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if second encoder and motor are grounded.</li> <li>3. Check if joining between second encoder cable and motor are is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the second encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>		
<p><b>Detailed Explanations and SOP</b></p>	<p>Refer to AL-54 Issue Problem Shooting</p>		
<p><b>4 in 1 ID</b></p>	<p><b>AL-93A</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Setting Wrong</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder parameters are illegal</p>		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Pn-904 is not relative to Pn-900, Pn-700</li> <li>2. With SYNTEC encoder, Pn-911 is not illegal according to Pn-700</li> <li>3. With SYNTEC encoder, encoder ver. is not compatible with thermal resistance</li> <li>4. With SYNTEC encoder, 2nd encoder ver. is not compatible with thermal resistance</li> <li>5. With HEIDENHAIN encoder, current encoder sensing type is not supported</li> <li>6. Encoder support type(linear/rotary) is not compatible with Pn-700 setting</li> </ol>
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check Pn-904, Pn-900, Pn-700 settings. If using linear encoder, please set Pn-904 into 2 or 0, dependent to Pn-900. If using non-incremental encoder, please set Pn-904 into 2 or 1 instead of 0.</li> <li>2. Check Pn-911, Pn-700 settings. If Pn-911 is set to 1, Pn-700 must be 0 or 2; if Pn-911 is set to 2, Pn-700 must be 1 and check Pn-282 if legal</li> <li>3. Check if the type of resistance used for thermal sensing is PT1000 and encoder ver. is V2.1.0 or lower.             <ol style="list-style-type: none"> <li>a. If using PT1000:Update Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>4. Check if the type of resistance used for thermal sensing is PT1000 and 2nd encoder ver. is V2.1.0 or lower.             <ol style="list-style-type: none"> <li>a. If using PT1000:Update 2nd Encoder firmware to V2.1.1 or higher. And set corresponding thermal type parameters into 1.</li> <li>b. If using KTY84:Please set corresponding thermal type parameters into 0.</li> </ol> </li> <li>5. Check Pn-900 and Pn-920 parameter manual to check whether the encoder sensing type is supported by the driver version             <ol style="list-style-type: none"> <li>a. Update to a compatible driver version for the encoder</li> <li>b. Substitute with a compatible type of encoder</li> </ol> </li> <li>6. Check Pn-900 parameter manual to check encoder support type(linear/rotary) is compatible with Pn-700 setting. If linear encoder, Pn-700 must be 1; if rotary encoder, Pn-700 must be 0 or 2.</li> </ol>

<p><b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b></p>	<p><b>AL-93B</b></p>		
<p><b>1st Single 轴向轴向 ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Motor Rear Cover High Temperature</b></p>



<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Motor Rear Cover Temperature is higher than protection level Pn-742 - 20 degree</li> <li>2. Nikon encoder: Motor Rear Cover Temperature is higher than 75 degree</li> <li>3. Tamagawa 23 bit encoder: Motor Rear Cover Temperature is higher than 65 Celsius degree</li> <li>4. Tamagawa 25 bit encoder: Motor Rear Cover Temperature is higher than 85 Celsius degree</li> <li>5. Hcfa(12k) encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> <li>6. Hcfa(16k) encoder: Motor Rear Cover Temperature is higher than 75 Celsius degree</li> <li>7. Hcfa 23 bit optical encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> <li>8. YuHeng encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, motor rear cover thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC, Nikon, Hcfa(12k/16k), Hcfa 23 bit, YuHeng encoders, please check up Pn-D61.</li> <li>3. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-742(P1-32) to correct protective temperature limit.</li> <li>4. Make sure parameter Pn-742 "Encoder internal(1) KTY84 overheat threshold" is set correctly.</li> <li>5. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>6. If all above solutions fail to solve the problem, KTY84 may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<p><b>Detailed Instructions</b></p>			
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-93C</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Motor Coil Thermal Sensor High Temperature</b></p>
<p><b>Alarm Content</b></p>	<p>The temperature that Motor Coil's Thermal Sensor detect is over drive's protective limit( Pn-743 ) - 20 degree.</p>		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, motor coil thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for motor coil thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<p><b>Detailed Instructions</b></p>			
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-93D</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Encoder External(2) Thermal Sensor High Temperature</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder External(2) detects Thermal Sensor's temperature over drive's protective limit( Pn-744 ) - 20 degree.</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-748(P1-38) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(2) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(2)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-941</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Motor stop method unsupported</b>
<b>Alarm Content</b>	The setting of MOT_TYPE 、 motor stop method and motor application does not support the selected motor brake method		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Permanent magnet motor applied to spindle cannot support dynamic braking</li> <li>2. Using Induction motor or power stage not support</li> <li>3. Motor Stop Method is ShortBrake when Critical Alarm Stop Method is Free Run</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When Pn-700 = 0 and Pn-803 = 1, Pn-001 cannot be 0</li> <li>2. When Pn-700 = 2, Pn-004 cannot be 1</li> <li>3. When Pn-001 = 2, Pn-004 cannot be 1</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-942</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Abnormal Motor Parameter Estimation - Too Large Test Current</b>
<b>Alarm Content</b>	During motor parameter estimation, the searched current command is greater or equal to 0.707 times rated current.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Mechanical abnormality or excessive motor load inhibits motor rotation.</li> <li>2. Wrong motor nameplate parameters lead to unexpected voltage command, rotational speed, or current command.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>2. Check the motor nameplate parameters ( rated voltage, rated current, rated speed, and so on ) are correct.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-947</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Parameter Setting Error</b>
<b>Alarm Content</b>	Parameter setting is not correct with specification		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When using driver torque control mode, VLIM option listens to M3 packet</li> <li>2. When STO function is active, part of IO functions are still set</li> <li>3. Speed control mode wrong set</li> <li>4. When regenerator protection is turned-on, driver detects the parameter of regenerative resistor is not complete.</li> <li>5. Pn-10A Feedforward time constant is too small. Filter bandwidth exceeds internal limit.</li> <li>6. RTD protection parameters wrong set.</li> <li>7. Gantry control setting error. <ol style="list-style-type: none"> <li>a. Check Pn-830.</li> <li>b. Check the encoder resolution of gantry control axes.</li> <li>c. If Pn-700 ≠ 1, check that Pn-904 = 1 is a multi-turn absolute encoder.</li> <li>d. If Pn-700 = 1, check that Pn-904 = 2 is a single-turn absolute encoder.</li> <li>e. Check Pn-845.</li> <li>f. Check Pn-846 and Pn-848.</li> </ol> </li> <li>8. Unexpected disturbance torque protect is incorrectly enabled.</li> <li>9. Friction compensation setting error.</li> <li>10. When voltage compensation is turned-on, driver detects the parameter of DTC current commands are not complete.</li> <li>11. 1st encoder is not set when extended monitor with semi-closed loop function is enabled.</li> <li>12. Enable SVON Gravity Compensation function in spindle application.</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. When using driver torque mode, set Pn-003 to zero and set Pn-407 or 0n-480 according to motor type</li> <li>2. Check up the corresponding IO function used by STO function are set to 1000(default). Recover those IO function settings to default value</li> <li>3. Field Orientation Control is not allowed with none of encoder applied. Please correct Pn-330</li> <li>4. When regenerator protection is turned-on and driver don't have an internal resistor, please attach an external resistor and set Pn-647、Pn-648 properly.</li> <li>5. Set Pn-10A = 0 as default, or increase Pn-10A</li> <li>6. Using RTD protection, please check Pn-548~Pn-54A and Pn-752 setting are correct or not.</li> <li>7. Check Gantry control setting             <ol style="list-style-type: none"> <li>a. Set the correct Pn-830.</li> <li>b. The encoder resolution of the gantry control axes should be the same.</li> <li>c. Pn-904 must be set to 1 while using rotary motor with multi-turn absolute encoder.</li> <li>d. Pn-904 must be set to 2 while using linear motor with linear absolute encoder.</li> <li>e. Pn-845 link axis select cannot conflict to Pn-830.</li> <li>f. If Pn-845 is not zero, the difference between Pn-846 and Pn-848 cannot be zero.</li> </ol> </li> <li>8. The Unexpected disturbance torque (Pn-852) function can't enable with spindle axis or induction motor. Set Pn-852 = 0 to disable the unexpected disturbance torque function.</li> <li>9. Set the correct friction compensation parameter             <ol style="list-style-type: none"> <li>a. Check Pn-292 &gt;= Pn-28A &gt;= Pn-29D &gt;= Pn-29A.</li> <li>b. Check Pn-28B &gt;= Pn-29E &gt;= Pn-29B.</li> <li>c. Check Pn-28C &gt;= Pn-29F &gt;= Pn-29C.</li> </ol> </li> <li>10. When voltage compensation is turned-on, please confirm the voltage compensation has been adjusted.</li> <li>11. <b>【Pn-900】</b> Encoder Communication Type must be set when <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop is enabled.</li> <li>12. SVON Gravity Compensation function can not be used in spindle application. Set Pn-470 to 0. ( When Pn-803=1, Pn-470 can not be set to 1 )</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-948</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>STO Function Not Support</b></p>
<p><b>Alarm Content</b></p>	<p>Driver does not support STO function</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Driver does not support STO function</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Please check up driver model in STO user manual</li> <li>2. Please turn off Pn-037 STO Activation</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-949</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Function Not Support</b>
<b>Alarm Content</b>	Addon card does not support RTD function		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Addon card does not support RTD function.</li> <li>2. Support RTD port numbers of addon card not match parameter setting.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check addon card spec.</li> <li>2. Make sure the addon card can support RTD function. If the addon card cannot support RTD function, turn off Pn-548~Pn-54A and set Pn-752 to 0.</li> <li>3. Make sure the addon card can support the setting of port number. Depends on supported port numbers, setting Pn-548~Pn-54A and Pn-752 correctly.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-94B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Mechatrolink position command error</b>
<b>Alarm Content</b>	Mechatrolink position command error, received position command too large.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Position command is too large, probably abnormal increment compared with the last command</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Position command varies abnormally or unexpectedly</li> <li>2. Check up software version of the controller. Please inform the manufacturer.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-950</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Regenerative Overload</b>
<b>Alarm Content</b>	The accumulated heat energy of internal or external regenerative resistor is higher than heat dissipation threshold. Regenerative resistor may not be damaged immediately.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, Pn-647、 Pn-648 is not set properly.</li> <li>2. The selection or cooling condition of external regenerative resistor needs to be rechecked.</li> <li>3. When using internal resistor, Pn-647、 Pn-648 is not set to 0.</li> <li>4. When using internal resistor, the frequency of motor acceleration/ deceleration is too high or too intense.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, please check if Pn-647、 Pn-648 is set correctly.</li> <li>2. When using external resistor and parameters are set correctly, please recheck the selection or cooling condition of resistor.</li> <li>3. When using internal resistor, please check if Pn-647 and Pn-648 are set to 0.</li> <li>4. When using internal resistor and parameters are set correctly, please decrease the frequency of motor acceleration/deceleration or increase the value of Pn-306、 Pn-307. If the alarm is raised consistently, please consider using an external resistor.</li> <li>5. If external / internal regenerative resistor protection is not required, please set Pn-649 / Pn-64B to 0.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-95F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver Receive Illegal Command</b>
<b>Alarm Content</b>	Driver receive illegal Host Command.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Mechatrolink communication error. The received Main Command or Sub Command is not recognized.</li> <li>2. EtherCAT communication error. The received control command is not supported in posing mode.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check serial port wiring and shielding</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-961</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>I2C Communication Timeout</b>
<b>Alarm Content</b>	I2C communication timeout between front stage and power stage.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Data reading from micro-controller on power stage failed constantly. <ol style="list-style-type: none"> <li>a. SYNTEC power stage MCU: failure occurs for at least 60 sec.</li> <li>b. M6S power stage MCU: failure occurs for at least 10 sec.</li> </ol> </li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check earthing of driver.</li> <li>2. Send back to Syntec Corp.</li> <li>3. If this alarm shows up while saving dead time compensation table or current calibration table, try saving again to reset alarm.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-970</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Over Voltage</b>
<b>Alarm Content</b>	DC BUS voltage is above drive's warning level 102.5%		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When motor slows, brake resistance cannot deplete regenerated energy</li> <li>2. AC power source input voltage too high</li> <li>3. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check regenerative resistor's specifics, refer to "wiring and signal" section of manual.</li> <li>2. Check if AC power source matches drive specifics.</li> <li>3. Ruling out the above solutions, hardware may be damaged. Send back to Syntec or authorized dealer for repairs.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-97A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Command Inexecutable</b>
<b>Alarm Content</b>	A command is illegal in the current communication phase		
<b>Possible Cause</b>	1. A command that cannot be executed in the current phase was sent by controller		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check software version of host controller.</li> <li>2. Please contact Syntec corp. or retailer</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-97B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Command or clamp setting beyond limit</b>

<b>Alarm Content</b>	Torque command, Speed command or VLIM beyond maximum value.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When driver is in torque control mode, torque command is larger than motor maximum torque.</li> <li>2. When driver is in torque control mode , VLIM is larger than motor maximum speed ( 【Pn-DDC】 Maximum motor speed ).</li> <li>3. When driver is in laser cruise mode, VLIM is larger than motor maximum speed( 【Pn-DDC】 Maximum motor speed ).</li> <li>4. When driver is in position or speed control mode, speed command is larger than motor maximum speed ( 【Pn-DDC】 Maximum motor speed ).</li> <li>5. When driver is in posing mode, TSPD is larger than motor maximum speed( 【Pn-DDC】 Maximum motor speed ).</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When driver in torque control mode, let the value of torque command smaller than maximum torque of motor.</li> <li>2. When driver is in torque control mode, and if Pn-003 = 1, modify the VLIM from controller. If Pn-003 = 0, then make sure Pn-407 or Pn-480 is smaller than Pn-40E, according to Pn-700.</li> <li>3. When driver is in laser cruise mode, make sure Pn-407 or Pn-480 is smaller than Pn-40E, according to Pn-700. You can also set Pn-809 = 0 to turn off velocity limit.</li> <li>4. When driver is in position or speed control mode, make sure the speed command is smaller than ( 【Pn-DDC】 Maximum motor speed ).</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-980</b>		
<b>1st Single Axis ID</b>	<b>AL-980</b>	<b>Alarm Name</b>	<b>Speed estimator error</b>
<b>Alarm Content</b>	Speed error is greater than 5% of the speed command in steady state		
<b>Possible Cause</b>	1. Motor parameter error resulting in speed estimation error		
<b>Possible Solution</b>	1. Check motor specifics plate for parameters and redo motor tuning		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-981</b>		
<b>1st Single Axis ID</b>	<b>AL-981</b>	<b>Alarm Name</b>	<b>Belt slip</b>
<b>Alarm Content</b>	Speed error between external encoder and estimator is too great		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. Gear ratio error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change or tighten belt</li> <li>2. Set gear ratio correctly</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-982</b>		
<b>1st Single Axis ID</b>	<b>AL-982</b>	<b>Alarm Name</b>	Gantry control position feedback deviation is too large
<b>Alarm Content</b>	Under gantry control, the position deviation of the two axes exceeds the warning check value		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Host command polarity setting error</li> <li>2. The origin setting of the gantry axis is not completed</li> <li>3. The position deviation warning threshold is too strict</li> <li>4. Inertia setting error</li> <li>5. One of axes is stuck mechanically</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the Pn-020 host command polarity of the two axes</li> <li>2. Reset the encoder origin of the gantry axis or set Pn-F44 = 1</li> <li>3. Confirm the position deviation threshold Pn-570 and Pn-572</li> <li>4. Set the correct rotor and loader inertia, or adjust the inertia</li> <li>5. Check if any axis is mechanically stuck</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-983</b>		
<b>1st Single Axis ID</b>	<b>AL-983</b>	<b>Alarm Name</b>	<b>Gear ratio incorrect</b>
<b>Alarm Content</b>	The error of estimated gear ratio and setup gear ratio is too big.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Gear ratio setup error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check gear ratio parameter Pn-20A, Pn-20C and Pn-D5C Gear Ratio Error.</li> <li>2. Set gear ratio correctly.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-984</b>		



<b>1st Single Axis ID</b>	<b>AL-984</b>	<b>Alarm Name</b>	<b>Rotor Position Deviation</b>
<b>Alarm Content</b>	Electrical angle offset error exceeds 45 degree		
<b>Possible Cause</b>	1. Do closed-loop control without encoder-rotor offset tuning.		
<b>Possible Solution</b>	1. Do encoder-rotor offset tuning.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-990</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Initialization fail when tuning</b>
<b>Alarm Content</b>	Initialization fail when tuning		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter settings error</li> <li>2. Wrong setting of Gear Ratio Estimation</li> <li>3. The settings of Moving Direction Limit and Motion Limit are conflict</li> <li>4. Wrong setting of Cogging Torque Compensation Tuning</li> <li>5. Tuning not support without encoder</li> <li>6. Wrong Encoder-Rotor Offset Detection setting</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameters correctly, set drive parameter Pn-F10 to 0 and redo tuning.</li> <li>2. Gear Ratio Estimation only supports induction motor. Please check Pn-700=2. Gear Ratio Estimation doesn't support the setting without 2nd encoder feedback, Please check.</li> <li>3. The settings of Moving Direction Limit and Motion Limit are conflict. Please check the setting of Pn-504, Pn-F14 and Pn-F16.</li> <li>4. Wrong setting of Cogging Torque Compensation Tuning. Please check the range of Pn-F14 and Pn-F16 is too small, or Pn-F14 and Pn-F16 has the same sign.</li> <li>5. Check encoder communication type and port number of Pn-900, Pn-901, Pn-920 and Pn-921.</li> <li>6. Check whether the parameter Pn-642 is equal to 2. When use Encoder-Rotor Offset Detection Method, set Pn-011 = 0 or 1</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-991</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unable to enable High Cycle Calculation</b>
<b>Alarm Content</b>	High Cycle Calculation unsupported		

<b>Possible Cause</b>	1. PWM frequency set above 8000Hz, High Cycle Calculation unsupported		
<b>Possible Solution</b>	1. Set Pn-642 smaller than 8000Hz, or shut off High Cycle Calculation function (Pn-643=0 automatically once alarm is triggered).		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-99A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unexpected disturbance torque protection function is not supported</b>
<b>Alarm Content</b>	Unexpected disturbance torque protection function is not supported		
<b>Possible Cause</b>	CNC version doesn't support Unexpected disturbance torque protection function.		
<b>Possible Solution</b>	Set Pn-852 = 0 to disable Unexpected disturbance torque protection function or upgrade CNC version if needed		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-9A0</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Over Travel</b>
<b>Alarm Content</b>	laser cruise mode, location is about to exceed travel limit		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cutting Head Exceeds Workpiece Range</li> <li>2. Capacitive feedback abnormality</li> <li>3. Improper setting of travel limit</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Raise the Z axis after not ready to cut, restart after replacing the workpiece</li> <li>2. Strengthening anti-jamming</li> <li>3. Adjust Controller Travel Limit Settings</li> </ol>		

## 8 AL-1xx Driver Alarm Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-024</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Internal Operation Error</b>
<b>Alarm Content</b>	An internal program error occurred in the driver.		
<b>Possible Cause</b>	An internal program error occurred in the driver.		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-025</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Hardware Computation Failure</b>
<b>Alarm Content</b>	Driver Hardware Computation Overflow Or Underflow		
<b>Possible Cause</b>	Either overflow or underflow occurs by hardware computation		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-026</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Handshake Timing Failure</b>
<b>Alarm Content</b>	Driver data sync threshold count setting inappropriate		
<b>Possible Cause</b>	Trigger DataSync before finishing packet receiving state machine		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-100</b>		
<b>1st Single Axis ID</b>	<b>AL-10</b>	<b>Alarm Name</b>	<b>IGBT Overheat</b>

<b>Alarm Content</b>	Generation I single axis drive power module exceeds 90°C IGBT temperature stays above 100°C		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Drive output short-circuit</li> <li>3. Ambient temperature overheat</li> <li>4. Heat source nearby</li> <li>5. Continuous use while exceeding drive's rated load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if fan is functioning normally.</li> <li>2. Check drive's output wiring, refer to "Wiring and Signal" section of manual.</li> <li>3. Check if ambient temperature is below 55°C, refer to "Transportation and Installation" section of manual.</li> <li>4. Check environment, remove external heat source or enhance cooling capacity.</li> <li>5. Check for motor overload or over current.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-101</b>		
<b>1st Single Axis ID</b>	<b>AL-72</b>	<b>Alarm Name</b>	<b>Drive Overload</b>
<b>Alarm Content</b>	Drive senses power module overload		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overload during operation due to mechanical factors</li> <li>2. Overload</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder failure</li> <li>5. Current gain mismatch while running encoder test, magnetic encoder correction or induction motor parameter estimation</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Eliminate mechanical factors.</li> <li>2. Check if <math>I_{dq}</math> current feedback Pn-D30(D1-16) has been greater than the parameter Pn-651(P5-02), if so we suggest lowering motor load.</li> <li>3. Refer to "Wiring and Signal" section of manual for cable re-connection.</li> <li>4. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>5. Lower Tuning Gain (Pn-F2D/Fn-18) to 20, if problem doesn't improve, gradually tune drive parameter (Pn-F2D/Fn-18) to 5.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-110</b>		

<b>1st Single Axis ID</b>	<b>AL-12</b>	<b>Alarm Name</b>	<b>Critical Over Voltage</b>
<b>Alarm Content</b>	DC BUS voltage exceeds drive's protective level 105%		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Excess DC BUS voltage caused by braking resistor when motor slows</li> <li>2. AC power input exceeds drive's rated input voltage</li> <li>3. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check regenerative resistor's specs, refer to "Wiring and Signals" section of manual.</li> <li>2. Check if AC power supply is compatible with drive.</li> <li>3. If the above two scenarios are ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-111</b>		
<b>1st Single Axis ID</b>	<b>AL-13</b>	<b>Alarm Name</b>	<b>Low Voltage</b>
<b>Alarm Content</b>	Power supply voltage is lower than driver's rated input voltage		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. AC power supply is too low</li> <li>2. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. check if AC power supply matches drive specs.</li> <li>2. If the above scenario is ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-112</b>		
<b>1st Single Axis ID</b>	<b>AL-2D</b>	<b>Alarm Name</b>	<b>Power Cable Disconnected</b>
<b>Alarm Content</b>	Power cable disconnection detected at motor non-zero speed		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 3 phase power cables are loose</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check UVW cables between motor and drive for damage or looseness.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-113</b>		

1st Single Axis ID	--	Alarm Name	Power Failure
<b>Alarm Content</b>	Power supply phase failure		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Drive cables are loose</li> <li>2. Power supply failure</li> <li>3. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check RST cables for damage or looseness.</li> <li>2. Check power source.</li> <li>3. If the above scenarios are ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		
<b>Remark</b>	From v2.8.6, the alarm is triggered only when Pn-804=1. From v2.10.1, v2.11.0, disable to detect this alarm.		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-114</b>		
1st Single Axis ID		Alarm Name	Severely Low Voltage
<b>Alarm Content</b>	Power supply voltage is far lower than the protective level.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Power supply voltage is lower than the 40% normal level.</li> <li>2. Drive hardware failure.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Ensure the DC bus voltage is stable when the driver is working.</li> <li>2. If the above scenario is ruled out, please send back to Syntec.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-120</b>		
1st Single Axis ID	<b>AL-15</b>	Alarm Name	Driver Over Current
<b>Alarm Content</b>	Current feedback exceeds 120% of the drive's peak current		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. When motor is stuck and percentage of voltage command is larger than 90%, It may cause shortage of source voltage on current sensors and cause current feedback value distortion.</li> <li>2. Overload</li> <li>3. Encoder and/or motor cable assembly error</li> <li>4. Encoder error</li> <li>5. Current loop gain mismatch while Encoder test, Magnetic Pole Offset Tuning or Motor Parameter Estimation</li> <li>6. Unbalanced motor 3 phase resistance</li> <li>7. Power module failure</li> </ol>								
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Please check wiring of U,V,W cables or connector if each of these is not linked.</li> <li>2. Check if <math>I_{dq}</math> current feedback is greater than 120% drive's peak current.</li> <li>3. Check encoder and motor U,V, W cables. Refer to "Wiring and signals" section of manual.</li> <li>4. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>5. Use oscilloscope to check if current feedback fluctuate badly. Lower Tuning Gain (Pn-F2D) to 20. If the problem still persist, gradually decrease Drive parameter Pn-F2D to 5.</li> <li>6. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>7. Turn off drive power and measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> </ol>								
<p><b>Detailed Instructions</b></p>	<p>AL-15 Issue Toubleshooting</p>								
<p><b>备注</b></p>	<ul style="list-style-type: none"> <li>• Alarm is deleted for Single Axis version V1.6.6 and after.</li> <li>• Alarm is deleted for 4-in-1 version V2.2.0 and after.</li> <li>• Alarm is restored for 4-in-1 version V2.12.3 and after.</li> <li>• Alarm threshold</li> </ul> <table border="1" data-bbox="582 1489 1423 1736"> <thead> <tr> <th>Version</th> <th>Threshold</th> </tr> </thead> <tbody> <tr> <td>4.2.16、 5.0.4↑</td> <td>120% of the drive's peak current</td> </tr> <tr> <td>4.2.15、 5.0.3↓</td> <td>150% of the drive's peak current</td> </tr> </tbody> </table>			Version	Threshold	4.2.16、 5.0.4↑	120% of the drive's peak current	4.2.15、 5.0.3↓	150% of the drive's peak current
Version	Threshold								
4.2.16、 5.0.4↑	120% of the drive's peak current								
4.2.15、 5.0.3↓	150% of the drive's peak current								
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p>--</p>								

1st Single Axis ID	AL-17	Alarm Name	Auto Tuning Over Current
<b>Alarm Content</b>	Alarm to prevent against current circuit malfunction		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Turning Gain is too high</li> <li>2. Drive's PM module error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if output current oscillates, lower Tuning Gain parameter Fn-18 to 20, if problem persists, lower gradually to 5.</li> <li>2. contact distributor or Syntec representative to check hardware.</li> </ol>		
All in one ID 2nd Single Axis ID	AL-121		
1st Single Axis ID	AL-1A	Alarm Name	Power Module Failure
<b>Alarm Content</b>	Power module has hardware failure. If the alarm is not checked correctly, it may damage the driver.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Internal motor UVW short or UVW to ground short.</li> <li>2. Wire UVW short or UVW to ground short.</li> <li>3. Drive connector UVW short or UVW to ground short.</li> <li>4. Motor is mechanically stuck which leads to abnormally heavy load to drive.</li> <li>5. Power module failure.</li> <li>6. Unbalanced motor 3 phase resistance.</li> <li>7. Current module becomes aged.</li> <li>8. Tthe power supply of IGBT is too low.</li> </ol>		





<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Bad insulation in motor, replace motor.</li> <li>2. Wire short, replace wire.</li> <li>3. Drive failure, replace drive.</li> <li>4. Eliminate mechanical reason, increase acceleration time and jerk time, decrease load.</li> <li>5. Turn off drive power, remove motor and wire, measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> <li>6. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite). Or do the encoder function test to see the IA IB IC current feedback.</li> <li>7. If rotation is below 100rpm, the drive still sends alarm. It means current module may become aged and is related to hardware life.</li> <li>8. Replace drive.</li> </ol> <p>Make sure the above seven are checked and no special historical alarms, turn off drive, remove the motor and wire then restart. Once certain of damage, contact distributor or Syntec representative to check hardware.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-122</b>		
<b>1st Single Axis ID</b>	<b>AL-1D</b>	<b>Alarm Name</b>	<b>Hall sensor error 1</b>
<b>Alarm Content</b>	Hall Current Sensor(IA) failure		
<b>Possible Cause</b>	1. U phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-123</b>		
<b>1st Single Axis ID</b>	<b>AL-1E</b>	<b>Alarm Name</b>	<b>Hall sensor error 2</b>
<b>Alarm Content</b>	Hall Current Sensor(IB) failure		
<b>Possible Cause</b>	1. V phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		

All in one ID 2nd Single Axis ID	AL-124		
		Alarm Name	Drive Ground Fault
<b>Alarm Content</b>	The current sensor detected more than 1A leakage current during the servo on process.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Internal motor UVW short or UVW to ground short.</li> <li>2. Wire UVW short or UVW to ground short.</li> <li>3. Drive connector UVW short or UVW to ground short.</li> <li>4. Power module failure.</li> <li>5. Unbalance of motor 3-phase resistance.</li> <li>6. Current calibration parameters error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Bad insulation in motor, replace motor.</li> <li>2. Wire short, replace wire.</li> <li>3. Drive failure, replace drive.</li> <li>4. Turn off drive power, remove motor and wire, measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> <li>5. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>6. Check whether Pn-660~668 are the default value, refer to the manual "Driver Parameter Manual". If true, contact distributor or Syntec representative to check hardware.</li> </ol>		
All in one ID 2nd Single Axis ID	AL-126		
1st Single Axis ID	--	Alarm Name	Current Sensor Module Error
<b>Alarm Content</b>	Drive detects current sensor module failure.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When motor is stuck and percentage of voltage command is larger than 90%, It may cause shortage of source voltage on current sensors.</li> <li>2. Circuit of current sensor broken.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check wiring of U,V,W cables or connector if each of these is not linked.</li> <li>2. Please contact distributor or Syntec representative to check hardware.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-129</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>This axis is not supported by this driver type</b>
<b>Alarm Content</b>	This axis is not supported.		
<b>Possible Cause</b>	This axis is not supported, and the axis card port number in controller setting interface is wrong.		
<b>Possible Solution</b>	Close the communication of this axis. Follow the CNC controller manual and set the axis card port number correctly.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-130</b>		
<b>1st Single Axis ID</b>	<b>AL-21</b>	<b>Alarm Name</b>	<b>Regenerative resistance error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality.		
<b>Possible Cause</b>	1. Switching transistor of regenerator is failure.		
<b>Possible Solution</b>	1. Check if transistor of regenerator is shorted, if so, send back to distributor or Syntec representative for hardware repair.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-131</b>		
<b>1st Single Axis ID</b>	<b>AL-22</b>	<b>Alarm Name</b>	<b>Cooling Fan error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality.		
<b>Possible Cause</b>	1. Cooling fan is malfunction or failure.		
<b>Possible Solution</b>	1. Check If cooling fan is damage, if so, send back to distributor or Syntec representative for hardware repair.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-132</b>		

<b>1st Single Axis ID</b>	<b>AL-2E</b>	<b>Alarm Name</b>	<b>Control Board Error</b>
<b>Alarm Content</b>	Triggered when drive's control board has internal communication error.		
<b>Possible Cause</b>	1. Control board is failure.		
<b>Possible Solution</b>	1. Send back to distributor or Syntec representative for hardware repair.		

<b>All in one ID</b>	<b>AL-133</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-53</b>	<b>Alarm Name</b>	<b>Inverter Type Error</b>
<b>Alarm Content</b>	<p><b>1st Single Axis:</b> Triggered when power stage parameters and the parameter, which is detected from power stage, is mismatch.</p> <p><b>All in one/2nd Single Axis:</b> Triggered while accessing power stage information.</p>		
<b>Possible Cause</b>	<p><b>1st Single Axis:</b></p> <ol style="list-style-type: none"> <li>Control board is incompatible with Power Stage ID(P5-07)</li> <li>Parameter Power Stage ID(P5-07) setting error</li> </ol> <p><b>All in one/2nd Single Axis:</b></p> <ol style="list-style-type: none"> <li>Triggered when power stage information stored on power stage cannot be read.</li> <li>Triggered when the number of detected current sensors is abnormal.</li> <li>The inverter informations of current sensor is wrong</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>Send back to distributor or Syntec representative for hardware repair.</li> <li>1st Single Axis:             <ol style="list-style-type: none"> <li>Change the value of Power Stage ID(P5-07) to Power Stage ID read(D1-70) if not consistent</li> <li>If Power Stage ID read(D1-70) is equal to zero, please send back to Syntec Corp.</li> </ol> </li> </ol>		

<b>All in one ID</b>	<b>AL-134</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>FRAM Operating Fail</b>
<b>Alarm Content</b>	Error occur when drive operate FRAM.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Save parameters while power is off.</li> <li>2. Communication between drive and FRAM is disturbed.</li> <li>3. FRAM reached it's maximum write limit.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please save parameters while power is on.</li> <li>2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-135</b>		
<b>1st Single Axis ID</b>	<b>AL-18</b>	<b>Alarm Name</b>	<b>DSP Watchdog Reset</b>
<b>Alarm Content</b>	Drive DSP detects internal watchdog reset.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. System operation is malfunction.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Send back to distributor or Syntec representative for hardware repair.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-136</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>FRAM CRC Error</b>
<b>Alarm Content</b>	FRAM data is error.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The memory of parameters is damaged.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameters have been tampered with. Correct parameters and save.</li> <li>2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-137</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Calculation sequential error</b>
<b>Alarm Content</b>	Insufficient calculation time.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Insufficient calculation time</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Disable unnecessary functions.</li> <li>2. Decrease Pn-643 High Cycle Calculation Level.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-138</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Parameters saving failed in permanent memory</b>
<b>Alarm Content</b>	There were some errors in permanent memory. It has been recovered by earlier parameter settings.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameters saving failed in permanent memory because of noise. It has been recovered by earlier parameter settings. Please check parameter settings.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please set correct parameters or using earlier settings. Do alarm reset to clear alarm.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-139</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>PowerStage Error</b>
<b>Alarm Content</b>	PowerStage Detects Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Drive detects excessive current or over heat on power module</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Follow the instruction if <a href="#">AL-100 IGBT Overheat</a> or <a href="#">AL-121 Power Module Failure</a> shows up.</li> <li>2. Please check <b>【Pn-D98】</b> Inverter Error and follow the instruction if there is no other alarms.</li> </ol>		
<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-13A</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Module ID Data Error</b>
<b>Alarm Content</b>	Reading module ID data error		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Module ID data error causing by memory ageing or communication interfered.</li> <li>2. Any of module number, extend card number, add-on card number is over range.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check wiring, especially if shielding is connected to ground correctly. Then reboot the drive.</li> <li>2. Check the drive, IO extend card, and add-on card are official version.</li> <li>3. Send back to Syntec.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-13B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Add-on Card SSI Communication Error</b>
<b>Alarm Content</b>	RTD add-on card SSI communication error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. RTD add-on card loose or not connected.</li> <li>2. FPGA version not support RTD function.</li> <li>3. SPI communication error causing by memory ageing or communication interfered.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check RTD add-on card connected correctly.</li> <li>2. Make sure the FPGA version is v2.14.3 or up. If not, update Drive version to v2.14.105 or up.</li> <li>3. If don't need to use RTD function, please set Pn-548~Pn-54A and Pn-752 to 0. Then reboot the drive.</li> <li>4. Check wiring, especially if shielding is connected to ground correctly. Then reboot the drive.</li> <li>5. Send back to Syntec.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-13C</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Front Stage Information Error</b>
<b>Alarm Content</b>	Error occurs while accessing front stage informations		
<b>Possible Cause</b>	The front stage informations can not be read correctly		
<b>Possible Solution</b>	Send back to Syntec		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-13D</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>FRAM Read Fail</b>
<b>Alarm Content</b>	Fail to read FRAM.		
<b>Possible Cause</b>	1. FRAM error.		
<b>Possible Solution</b>	1. Reboot the Drive. 2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-150</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Extreme Regenerative Overload</b>
<b>Alarm Content</b>	The accumulated heat energy of internal or external regenerative resistor is twice higher than heat dissipation threshold. Regenerative resistor may be damaged.		
<b>Possible Cause</b>	1. When using external resistor, Pn-647、 Pn-648 is not set properly. 2. The selection or cooling condition of external regenerative resistor needs to be rechecked. 3. When using internal resistor, Pn-647、 Pn-648 is not set to 0. 4. When using internal resistor, the frequency of motor acceleration/ deceleration is too high or too intense. 5. Regenerative resistor protection is not turned-off.		
<b>Possible Solution</b>	1. When using external resistor, please check if Pn-647、 Pn-648 is set correctly. 2. When using external resistor and parameters are set correctly, please recheck the selection or cooling condition of resistor. 3. When using internal resistor, please check if Pn-647 and Pn-648 are set to 0. 4. When using internal resistor and parameters are set correctly, please decrease the frequency of motor acceleration/deceleration or increase the value of Pn-306、 Pn-307. If the alarm is raised consistently, please consider using an external resistor. 5. If external / internal regenerative resistor protection is not required, please set Pn-649 / Pn-64B to 0.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-151</b>		



1st Single Axis ID	-	Alarm Name	Regenerative Instant Overload
<b>Alarm Content</b>	When using internal resistor, the regenerator is turned-on for too long.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check if there is an external negative load applied on motor.</li> <li>2. The resistance of internal resistor is too large.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Remove the external negative load.</li> <li>2. Use an external resistor with smaller resistance.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-152</b>		
1st Single Axis ID	-	Alarm Name	Voltage Regeneration Function Abnormal
<b>Alarm Content</b>	It is detected many times that regenerator is abnormally turned-on.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The input voltage of servo drive is unstable.</li> <li>2. DC Bus voltage sensor feedback abnormal.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please install a voltage stabilizer to the input power supply to ensure that the input voltage of servo drive meets the specifications.</li> <li>2. Check if Pn-D38 has the correct voltage feedback value.</li> <li>3. Send back to Syntec.</li> </ol>		

## 8.1 AL-17 Auto Tuning Over Current

<b>All in one ID</b> <b>2nd Single Axis ID</b>	--		
1st Single Axis ID	AL-17	Alarm Name	Auto Tuning Over Current
<b>Alarm Content</b>	Alarm to prevent against current circuit malfunction		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Turning Gain is too high</li> <li>2. Drive's PM module error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if output current oscillates, lower Tuning Gain parameter Fn-18 to 20, if problem persists, lower gradually to 5.</li> <li>2. contact distributor or Syntec representative to check hardware.</li> </ol>		

## 8.2 AL-024 Driver Internal Operation Error

All in one ID 2nd Single Axis ID	AL-024		
1st Single Axis ID	--	Alarm Name	Driver Internal Operation Error
<b>Alarm Content</b>	An internal program error occurred in the driver.		
<b>Possible Cause</b>	An internal program error occurred in the driver.		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		

## 8.3 AL-100 IGBT Overheat

All in one ID 2nd Single Axis ID	AL-100		
1st Single Axis ID	AL-10	Alarm Name	IGBT Overheat
<b>Alarm Content</b>	Generation I single axis drive power module exceeds 90°C IGBT temperature stays above 100°C		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Drive output short-circuit</li> <li>3. Ambient temperature overheat</li> <li>4. Heat source nearby</li> <li>5. Continuous use while exceeding drive's rated load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if fan is functioning normally.</li> <li>2. Check drive's output wiring, refer to "Wiring and Signal" section of manual.</li> <li>3. Check if ambient temperature is below 55°C, refer to "Transportation and Installation" section of manual.</li> <li>4. Check environment, remove external heat source or enhance cooling capacity.</li> <li>5. Check for motor overload or over current.</li> </ol>		

## 8.4 AL-101 Drive Overload

All in one ID 2nd Single Axis ID	AL-101		
1st Single Axis ID	AL-72	Alarm Name	Drive Overload
<b>Alarm Content</b>	Drive senses power module overload		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overload during operation due to mechanical factors</li> <li>2. Overload</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder failure</li> <li>5. Current gain mismatch while running encoder test, magnetic encoder correction or induction motor parameter estimation</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Eliminate mechanical factors.</li> <li>2. Check if <math>I_{dq}</math> current feedback Pn-D30(D1-16) has been greater than the parameter Pn-651(P5-02), if so we suggest lowering motor load.</li> <li>3. Refer to "Wiring and Signal" section of manual for cable re-connection.</li> <li>4. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>5. Lower Tuning Gain (Pn-F2D/Fn-18) to 20, if problem doesn't improve, gradually tune drive parameter (Pn-F2D/Fn-18) to 5.</li> </ol>		

## 8.5 AL-110 Critical Over Voltage

All in one ID 2nd Single Axis ID	AL-110		
1st Single Axis ID	AL-12	Alarm Name	Critical Over Voltage
<b>Alarm Content</b>	DC BUS voltage exceeds drive's protective level 105%		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Excess DC BUS voltage caused by braking resistor when motor slows</li> <li>2. AC power input exceeds drive's rated input voltage</li> <li>3. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check regenerative resistor's specs, refer to "Wiring and Signals" section of manual.</li> <li>2. Check if AC power supply is compatible with drive.</li> <li>3. If the above two scenarios are ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		

## 8.6 AL-111 Low Voltage

All in one ID 2nd Single Axis ID	AL-111		
1st Single Axis ID	AL-13	Alarm Name	Low Voltage
<b>Alarm Content</b>	Power supply voltage is lower than driver's rated input voltage		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. AC power supply is too low</li> <li>2. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. check if AC power supply matches drive specs.</li> <li>2. If the above scenario is ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		

## 8.7 AL-112 Power Cable Disconnected

All in one ID 2nd Single Axis ID	AL-112		
1st Single Axis ID	AL-2D	Alarm Name	Power Cable Disconnected
<b>Alarm Content</b>	Power cable disconnection detected at motor non-zero speed		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 3 phase power cables are loose</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check UVW cables between motor and drive for damage or looseness.</li> </ol>		

## 8.8 AL-113 Power Failure

All in one ID 2nd Single Axis ID	AL-113		
1st Single Axis ID	--	Alarm Name	Power Failure
<b>Alarm Content</b>	Power supply phase failure		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Drive cables are loose</li> <li>2. Power supply failure</li> <li>3. Drive hardware failure</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check RST cables for damage or looseness.</li> <li>2. Check power source.</li> <li>3. If the above scenarios are ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>
<b>Remark</b>	<p>From v2.8.6, the alarm is triggered only when Pn-804=1.</p> <p>From v2.10.1, v2.11.0, disable to detect this alarm.</p>

### 8.9 AL-114 Severely Low Voltage

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-114</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>Severely Low Voltage</b>
<b>Alarm Content</b>	Power supply voltage is far lower than the protective level.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Power supply voltage is lower than the 40% normal level.</li> <li>2. Drive hardware failure.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Ensure the DC bus voltage is stable when the driver is working.</li> <li>2. If the above scenario is ruled out, please send back to Syntec.</li> </ol>		

### 8.10 AL-120 Driver Over Current

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-120</b>		
<b>1st Single Axis ID</b>	<b>AL-15</b>	<b>Alarm Name</b>	<b>Driver Over Current</b>
<b>Alarm Content</b>	Current feedback exceeds 120% of the drive's peak current		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. When motor is stuck and percentage of voltage command is larger than 90%, It may cause shortage of source voltage on current sensors and cause current feedback value distortion.</li> <li>2. Overload</li> <li>3. Encoder and/or motor cable assembly error</li> <li>4. Encoder error</li> <li>5. Current loop gain mismatch while Encoder test, Magnetic Pole Offset Tuning or Motor Parameter Estimation</li> <li>6. Unbalanced motor 3 phase resistance</li> <li>7. Power module failure</li> </ol>						
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Please check wiring of U,V,W cables or connector if each of these is not linked.</li> <li>2. Check if <math>I_{dq}</math> current feedback is greater than 120% drive's peak current.</li> <li>3. Check encoder and motor U,V, W cables. Refer to "Wiring and signals" section of manual.</li> <li>4. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>5. Use oscilloscope to check if current feedback fluctuate badly. Lower Tuning Gain (Pn-F2D) to 20. If the problem still persist, gradually decrease Drive parameter Pn-F2D to 5.</li> <li>6. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>7. Turn off drive power and measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> </ol>						
<p><b>Detailed Instructions</b></p>	<p>AL-15 Issue Troubleshooting</p>						
<p><b>备注</b></p>	<ul style="list-style-type: none"> <li>• Alarm is deleted for Single Axis version V1.6.6 and after.</li> <li>• Alarm is deleted for 4-in-1 version V2.2.0 and after.</li> <li>• Alarm is restored for 4-in-1 version V2.12.3 and after.</li> <li>• Alarm threshold</li> </ul> <table border="1" data-bbox="582 1489 1423 1736"> <thead> <tr> <th>Version</th> <th>Threshold</th> </tr> </thead> <tbody> <tr> <td>4.2.16、 5.0.4↑</td> <td>120% of the drive's peak current</td> </tr> <tr> <td>4.2.15、 5.0.3↓</td> <td>150% of the drive's peak current</td> </tr> </tbody> </table>	Version	Threshold	4.2.16、 5.0.4↑	120% of the drive's peak current	4.2.15、 5.0.3↓	150% of the drive's peak current
Version	Threshold						
4.2.16、 5.0.4↑	120% of the drive's peak current						
4.2.15、 5.0.3↓	150% of the drive's peak current						

### 8.11 AL-121 Power Module Failure

All in one ID 2nd Single Axis ID	AL-121		
1st Single Axis ID	AL-1A	Alarm Name	Power Module Failure
<b>Alarm Content</b>	Power module has hardware failure. If the alarm is not checked correctly, it may damage the driver.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Internal motor UVW short or UVW to ground short.</li> <li>2. Wire UVW short or UVW to ground short.</li> <li>3. Drive connector UVW short or UVW to ground short.</li> <li>4. Motor is mechanically stuck which leads to abnormally heavy load to drive.</li> <li>5. Power module failure.</li> <li>6. Unbalanced motor 3 phase resistance.</li> <li>7. Current module becomes aged.</li> <li>8. Tthe power supply of IGBT is too low.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Bad insulation in motor, replace motor.</li> <li>2. Wire short, replace wire.</li> <li>3. Drive failure, replace drive.</li> <li>4. Eliminate mechanical reason, increase acceleration time and jerk time, decrease load.</li> <li>5. Turn off drive power, remove motor and wire, measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> <li>6. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite). Or do the encoder function test to see the IA IB IC current feedback.</li> <li>7. If rotation is below 100rpm, the drive still sends alarm. It means current module may become aged and is related to hardware life.</li> <li>8. Replace drive.</li> </ol> <p>Make sure the above seven are checked and no special historical alarms, turn off drive, remove the motor and wire then restart. Once certain of damage, contact distributor or Syntec representative to check hardware.</p>		

### 8.12 AL-122 Hall sensor error 1

All in one ID 2nd Single Axis ID	AL-122		
-------------------------------------	--------	--	--

1st Single Axis ID	AL-1D	Alarm Name	Hall sensor error 1
<b>Alarm Content</b>	Hall Current Sensor(IA) failure		
<b>Possible Cause</b>	1. U phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		

### 8.13 AL-123 Hall sensor error 2

All in one ID 2nd Single Axis ID	AL-123		
1st Single Axis ID	AL-1E	Alarm Name	Hall sensor error 2
<b>Alarm Content</b>	Hall Current Sensor(IB) failure		
<b>Possible Cause</b>	1. V phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		

### 8.14 AL-124 Power Module Over Current 2

All in one ID 2nd Single Axis ID	AL-124		
1st Single Axis ID	--	Alarm Name	Power Module Over Current 2
<b>Alarm Content</b>	Drive detects excessive current on power module.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overload</li> <li>2. Encoder and/or motor wiring error</li> <li>3. Encoder malfunction</li> <li>4. Unbalanced motor 3 phase resistance</li> <li>5. Power module failure</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if <math>I_{dq}</math> current feedback exceeds drive's peak current.</li> <li>2. Check encoder and motor U,V, W cables. Refer to "Wiring and signals" section of manual.</li> <li>3. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>4. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>5. Turn off drive power and measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> </ol>
---------------------------------	---

### 8.15 AL-129 This axis is not supported by this driver type

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-129</b></p>		
<p><b>1st Single Axis ID</b></p>		<p><b>Alarm Name</b></p>	<p><b>This axis is not supported by this driver type</b></p>
<p><b>Alarm Content</b></p>	<p>This axis is not supported.</p>		
<p><b>Possible Cause</b></p>	<p>This axis is not supported, and the axis card port number in controller setting interface is wrong.</p>		
<p><b>Possible Solution</b></p>	<p>Close the communication of this axis. Follow the CNC controller manual and set the axis card port number correctly.</p>		

### 8.16 AL-130 Regenerative resistance error

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-130</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-21</b></p>	<p><b>Alarm Name</b></p>	<p><b>Regenerative resistance error</b></p>
<p><b>Alarm Content</b></p>	<p>Triggered when power stage reports abnormality.</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Switching transistor of regenerator is failure.</li> </ol>		

<b>Possible Solution</b>	1. Check if transistor of regenerator is shorted, if so, send back to distributor or Syntec representative for hardware repair.
--------------------------	---

### 8.17 AL-131 Cooling Fan error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-131</b>		
<b>1st Single Axis ID</b>	<b>AL-22</b>	<b>Alarm Name</b>	<b>Cooling Fan error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality.		
<b>Possible Cause</b>	1. Cooling fan is malfunction or failure.		
<b>Possible Solution</b>	1. Check If cooling fan is damage, if so, send back to distributor or Syntec representative for hardware repair.		

### 8.18 AL-132 Control Board Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-132</b>		
<b>1st Single Axis ID</b>	<b>AL-2E</b>	<b>Alarm Name</b>	<b>Control Board Error</b>
<b>Alarm Content</b>	Triggered when drive's control board has internal communication error.		
<b>Possible Cause</b>	1. Control board is failure.		
<b>Possible Solution</b>	1. Send back to distributor or Syntec representative for hardware repair.		

### 8.19 AL-133 Inverter Type Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-133</b>		
<b>1st Single Axis ID</b>	<b>AL-53</b>	<b>Alarm Name</b>	<b>Inverter Type Error</b>

<b>Alarm Content</b>	<p><b>1st Single Axis:</b> Triggered when power stage parameters and the parameter, which is detected from power stage, is mismatch.</p> <p><b>All in one/2nd Single Axis:</b> Triggered while accessing power stage information.</p>
<b>Possible Cause</b>	<p><b>1st Single Axis:</b></p> <ol style="list-style-type: none"> <li>Control board is incompatible with Power Stage ID(P5-07)</li> <li>Parameter Power Stage ID(P5-07) setting error</li> </ol> <p><b>All in one/2nd Single Axis:</b></p> <ol style="list-style-type: none"> <li>Triggered when power stage information stored on power stage cannot be read.</li> <li>Triggered when the number of detected current sensors is abnormal.</li> <li>The inverter informations of current sensor is wrong</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>Send back to distributor or Syntec representative for hardware repair.</li> <li>1st Single Axis:             <ol style="list-style-type: none"> <li>Change the value of Power Stage ID(P5-07) to Power Stage ID read(D1-70) if not consistent</li> <li>If Power Stage ID read(D1-70) is equal to zero, please send back to Syntec Corp.</li> </ol> </li> </ol>

## 8.20 AL-134 FRAM Operating Fail

All in one ID 2nd Single Axis ID	AL-134		
1st Single Axis ID	----	Alarm Name	FRAM Operating Fail
<b>Alarm Content</b>	Error occur when drive operate FRAM.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Save parameters while power is off.</li> <li>Communication between drive and FRAM is disturbed.</li> <li>FRAM reached it's maximum write limit.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>Please save parameters while power is on.</li> <li>If this is a recurring event, send back to distributor or Syntec representative for hardware repair.</li> </ol>		

## 8.21 AL-135 DSP Watchdog Reset

All in one ID 2nd Single Axis ID	AL-135		

<b>1st Single Axis ID</b>	<b>AL-18</b>	<b>Alarm Name</b>	<b>DSP Watchdog Reset</b>
<b>Alarm Content</b>	Drive DSP detects internal watchdog reset.		
<b>Possible Cause</b>	1. System operation is malfunction.		
<b>Possible Solution</b>	1. Send back to distributor or Syntec representative for hardware repair.		

## 8.22 AL-136 FRAM CRC Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-136</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>FRAM CRC Error</b>
<b>Alarm Content</b>	FRAM data is error.		
<b>Possible Cause</b>	1. The memory of parameters is damaged.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameters have been tampered with. Correct parameters and save.</li> <li>2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.</li> </ol>		

## 8.23 AL-137 Calculation sequential error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-137</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Calculation sequential error</b>
<b>Alarm Content</b>	Insufficient calculation time.		
<b>Possible Cause</b>	1. Insufficient calculation time		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Disable unnecessary functions.</li> <li>2. Decrease Pn-643 High Cycle Calculation Level.</li> </ol>		

## 8.24 AL-138 Parameters saving failed in permanent memory

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-138</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Parameters saving failed in permanent memory</b>
<b>Alarm Content</b>	There were some errors in permanent memory. It has been recovered by earlier parameter settings.		
<b>Possible Cause</b>	1. Parameters saving failed in permanent memory because of noise. It has been recovered by earlier parameter settings. Please check parameter settings.		
<b>Possible Solution</b>	1. Please set correct parameters or using earlier settings. Do alarm reset to clear alarm.		

## 8.25 AL-139 PowerStage Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-139</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>PowerStage Error</b>
<b>Alarm Content</b>	PowerStage Detects Error		
<b>Possible Cause</b>	1. Drive detects excessive current or over heat on power module		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Follow the instruction if <a href="#">AL-100 IGBT Overheat</a> or <a href="#">AL-121 Power Module Failure</a> shows up.</li> <li>2. Please check <b>【Pn-D98】</b> Inverter Error and follow the instruction if there is no other alarms.</li> </ol>		

## 8.26 AL-13A Module ID Data Error

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-13A</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Module ID Data Error</b>

<b>Alarm Content</b>	Reading module ID data error
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Module ID data error causing by memory ageing or communication interfered.</li> <li>2. Any of module number, extend card number, add-on card number is over range.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check wiring, especially if shielding is connected to ground correctly. Then reboot the drive.</li> <li>2. Check the drive, IO extend card, and add-on card are official version.</li> <li>3. Send back to Syntec.</li> </ol>

### 8.27 AL-13B RTD Add-on Card SSI Communication Error

All in one ID 2nd Single Axis ID	AL-13B		
1st Single Axis ID	-	Alarm Name	RTD Add-on Card SSI Communication Error
<b>Alarm Content</b>	RTD add-on card SSI communication error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. RTD add-on card loose or not connected.</li> <li>2. FPGA version not support RTD function.</li> <li>3. SPI communication error causing by memory ageing or communication interfered.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check RTD add-on card connected correctly.</li> <li>2. Make sure the FPGA version is v2.14.3 or up. If not, update Drive version to v2.14.105 or up.</li> <li>3. If don't need to use RTD function, please set Pn-548~Pn-54A and Pn-752 to 0. Then reboot the drive.</li> <li>4. Check wiring, especially if shielding is connected to ground correctly. Then reboot the drive.</li> <li>5. Send back to Syntec.</li> </ol>		

### 8.28 AL-13C Front Stage Information Error

All in one ID 2nd Single Axis ID	AL-13C		
1st Single Axis ID	-	Alarm Name	Front Stage Information Error

<b>Alarm Content</b>	Error occurs while accessing front stage informations
<b>Possible Cause</b>	The front stage informations can not be read correctly
<b>Possible Solution</b>	Send back to Syntec

## 8.29 AL-150 Extreme Regenerative Overload

All in one ID 2nd Single Axis ID	AL-150		
1st Single Axis ID	-	Alarm Name	Extreme Regenerative Overload
<b>Alarm Content</b>	The accumulated heat energy of internal or external regenerative resistor is twice higher than heat dissipation threshold. Regenerative resistor may be damaged.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, Pn-647、 Pn-648 is not set properly.</li> <li>2. The selection or cooling condition of external regenerative resistor needs to be rechecked.</li> <li>3. When using internal resistor, Pn-647、 Pn-648 is not set to 0.</li> <li>4. When using internal resistor, the frequency of motor acceleration/ deceleration is too high or too intense.</li> <li>5. Regenerative resistor protection is not turned-off.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, please check if Pn-647、 Pn-648 is set correctly.</li> <li>2. When using external resistor and parameters are set correctly, please recheck the selection or cooling condition of resistor.</li> <li>3. When using internal resistor, please check if Pn-647 and Pn-648 are set to 0.</li> <li>4. When using internal resistor and parameters are set correctly, please decrease the frequency of motor acceleration/deceleration or increase the value of Pn-306、 Pn-307. If the alarm is raised consistently, please consider using an external resistor.</li> <li>5. If external / internal regenerative resistor protection is not required, please set Pn-649 / Pn-64B to 0.</li> </ol>		

## 8.30 AL-151 Regenerative Instant Overload

All in one ID 2nd Single Axis ID	AL-151		
-------------------------------------	--------	--	--

1st Single Axis ID	-	Alarm Name	<b>Regenerative Instant Overload</b>
<b>Alarm Content</b>	When using internal resistor, the regenerator is turned-on for too long.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check if there is an external negative load applied on motor.</li> <li>2. The resistance of internal resistor is too large.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Remove the external negative load.</li> <li>2. Use an external resistor with smaller resistance.</li> </ol>		

### 8.31 AL-025 Driver Hardware Computation Failure

All in one ID 2nd Single Axis ID	AL-025	Alarm Name	<b>Driver Hardware Computation Failure</b>
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Hardware Computation Failure</b>
<b>Alarm Content</b>	Driver Hardware Computation Overflow Or Underflow		
<b>Possible Cause</b>	Either overflow or underflow occurs by hardware computation		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		

### 8.32 AL-13D FRAM Read Fail

All in one ID 2nd Single Axis ID	AL-13D	Alarm Name	<b>FRAM Read Fail</b>
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>FRAM Read Fail</b>
<b>Alarm Content</b>	Fail to read FRAM.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FRAM error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Reboot the Drive.</li> <li>2. If this is a recurring event, send back to distributor or Syntec representative for hardware repair.</li> </ol>		



### 8.33 AL-026 Driver Handshake Timing Failure

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-026</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Driver Handshake Timing Failure</b>
<b>Alarm Content</b>	Driver data sync threshold count setting inappropriate		
<b>Possible Cause</b>	Trigger DataSync before finishing packet receiving state machine		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		

### 8.34 AL-152 Voltage Regeneration Function Abnormal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-152</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Voltage Regeneration Function Abnormal</b>
<b>Alarm Content</b>	It is detected many times that regenerator is abnormally turned-on.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The input voltage of servo drive is unstable.</li> <li>2. DC Bus voltage sensor feedback abnormal.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please install a voltage stabilizer to the input power supply to ensure that the input voltage of servo drive meets the specifications.</li> <li>2. Check if Pn-D38 has the correct voltage feedback value.</li> <li>3. Send back to Syntec.</li> </ol>		

### 8.35 AL-125 Driver Over Current (Software)

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-125</b>		
<b>1st Single Axis ID</b>	<b>AL-15</b>	<b>Alarm Name</b>	<b>Driver Over Current (Software)</b>
<b>Alarm Content</b>	Current feedback exceeds 110% of the drive's peak current		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overload</li> <li>2. Encoder and/or motor cable assembly error</li> <li>3. Encoder error</li> <li>4. Current loop gain mismatch while Encoder test, Magnetic Pole Offset Tuning or Motor Parameter Estimation</li> <li>5. Unbalanced motor 3 phase resistance</li> <li>6. Power module failure</li> </ol>				
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if <math>I_{dq}</math> current feedback is greater than 110% drive's peak current.</li> <li>2. Check encoder and motor U,V, W cables. Refer to "Wiring and signals" section of manual.</li> <li>3. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>4. Use oscilloscope to check if current feedback fluctuate badly. Lower Tuning Gain (Pn-F2D) to 20. If the problem still persist, gradually decrease Drive parameter Pn-F2D to 5.</li> <li>5. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>6. Turn off drive power and measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> </ol>				
<b>Detailed Instructions</b>	AL-15 Issue Troubleshooting				
<b>Note</b>	<ul style="list-style-type: none"> <li>• <b>Alarm threshold</b></li> </ul> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Version</th> <th>Threshold</th> </tr> </thead> <tbody> <tr> <td>3.0.35、4.2.16、5.0.8↑</td> <td>110% of the drive's peak current over 1 ms</td> </tr> </tbody> </table>	Version	Threshold	3.0.35、4.2.16、5.0.8↑	110% of the drive's peak current over 1 ms
Version	Threshold				
3.0.35、4.2.16、5.0.8↑	110% of the drive's peak current over 1 ms				

### 8.36 AL-126 Current Sensor Module Error

<b>All in one ID</b>	<b>AL-126</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Current Sensor Module Error</b>
<b>Alarm Content</b>	Drive detects current sensor module failure.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When motor is stuck and percentage of voltage command is larger than 90%, It may cause shortage of source voltage on current sensors.</li> <li>2. Circuit of current sensor broken.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check wiring of U,V,W cables or connector if each of these is not linked.</li> <li>2. Please contact distributor or Syntec representative to check hardware.</li> </ol>

### 8.37 AL-124 Drive Ground Fault

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-124</b>	<b>Alarm Name</b>	<b>Drive Ground Fault</b>
<b>Alarm Content</b>	The current sensor detected more than 1A leakage current during the servo on process.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Internal motor UVW short or UVW to ground short.</li> <li>2. Wire UVW short or UVW to ground short.</li> <li>3. Drive connector UVW short or UVW to ground short.</li> <li>4. Power module failure.</li> <li>5. Unbalance of motor 3-phase resistance.</li> <li>6. Current calibration parameters error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Bad insulation in motor, replace motor.</li> <li>2. Wire short, replace wire.</li> <li>3. Drive failure, replace drive.</li> <li>4. Turn off drive power, remove motor and wire, measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> <li>5. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>6. Check whether Pn-660~668 are the default value, refer to the manual "Driver Parameter Manual". If true, contact distributor or Syntec representative to check hardware.</li> </ol>		

## 9 AL-2xx Motor Alarm Description

All in one ID 2nd Single Axis ID	AL-200		
1st Single Axis ID	AL-11	Alarm Name	Motor Overheat
Alarm Content	Drive detects motor overheat.		
Possible Cause	<ol style="list-style-type: none"> <li>1. Motor cooling system malfunction.</li> <li>2. Digital temperature sensor setting error.</li> <li>3. KTY84 thermal sensor setting error.</li> <li>4. Motor rated current setting error.</li> <li>5. Insufficient acceleration time.</li> <li>6. Overload.</li> </ol>		
Possible Solution	<ol style="list-style-type: none"> <li>1. Check motor cooling system.</li> <li>2. Correct parameter Pn-50A(P1-40) to Pn-50F(P1-61) according to digital temperature feedback(A or B).</li> <li>3. Check Pn-D60 value and make sure Pn-740 and Pn-741 are set correctly.</li> <li>4. Check rated current parameter Pn-710(P3-14).</li> <li>5. Check acceleration parameter Pn-306(P6-10) , add acceleration/ deceleration time.</li> <li>6. Check if load rate Pn-D2A(D1-10) is over 100%, consider switching to a motor with higher power.</li> </ol>		
Detailed Instructions	AL-11 Issue Trouble Shooting		
All in one ID 2nd Single Axis ID	AL-201		
1st Single Axis ID	AL-14	Alarm Name	Motor Over Speed
Alarm Content	Motor speed is above 120% of it's maximum speed.		
Possible Cause	<ol style="list-style-type: none"> <li>1. Motor power cable U,V,W phase order incorrect</li> <li>2. Encoder malfunction</li> <li>3. Motor parameter loading error</li> <li>4. Sever system severe overshoot</li> <li>5. Severe speed command change</li> <li>6. Drive software outdated</li> <li>7. Encoder misses packets causing acceleration to be too great</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Execute " Encoder test ", check if alarm AL-302(AL-24) appears. Refer to "Auto tuning" section of manual. Execute " Encoder test ", check if any alarms appear. Refer to "Auto tuning" section of manual.                             <ol style="list-style-type: none"> <li>a. Correct power cord phase order or change parameter Pn-021(P3-22)(0 to 1 and 1 to 0).</li> <li>b. Once certain polarity is correct, please consider the following causes of this alarm.</li> </ol> </li> <li>2. Check whether drive parameter Pn-7XX match motor label parameter.If there is a mismatch between motor parameters and those on the label, please record the motor model and contact Suzhou or Taiwan Technical Center(Syntec) for correct motor parameters and load them.</li> <li>3. If vibration of the machine can be observed, tune gain parameters Pn-100 to Pn-102(P2-01 to P2-03).</li> <li>4. Check if controller's commands shift too frequently, increase controller's acceleration and deceleration time constant.</li> <li>5. We have corrected drive alarm specs, please upgrade to versions 2.0.25(1.4.12).</li> <li>6. Capture JOG speed wave form and observe if speed change is not continuous.Check inside the junction box where the encoder is attached, make sure the shielding wire is connected to the motor's ground wire.Observe whether there is value Pn-D73~Pn-D76 (D1-28,D1-29,D1-46,D1-47).</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p>AL-14 Issue Trouble Shooting</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-202</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-16</b></p>	<p><b>Alarm Name</b></p>	<p><b>Overload</b></p>
<p><b>Alarm Content</b></p>	<p>Motor exceeds S2(short time duty) time limit.</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation</li> <li>2. Continuous operation while exceeding drive's rated current</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder malfunction</li> </ol>		

<b>Possible Solution</b>	<p>1. Check if difference between command and motor speed feedback is too great.</p> <p>2.1 Check if load rate is over 100%, enhance motor capacity, lower motor load or increase acceleration/ deceleration time constant.</p> <p>2.2. Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.</p> <p>3.Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</p> <p>4.Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-203</b>		
<b>1st Single Axis ID</b>	<b>AL-31</b>	<b>Alarm Name</b>	<b>Motor Stuck</b>
<b>Alarm Content</b>	Motor torque exceeds torque level 1 countinuously for over torque check time 1		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to machanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-204</b>		
<b>1st Single Axis ID</b>	<b>AL-32</b>	<b>Alarm Name</b>	<b>Over Torque 2</b>
<b>Alarm Content</b>	Motor torque exceeds torque level 2 countinuously for over torque check time 2		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to machanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-205</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Motor Stuck</b>
<b>Alarm Content</b>	Motor stalls with <b>【Pn-D29】</b> Torque Command being saturated for over 1 sec.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to machanical factors, leading to overload during operation.</li> <li>2. Encoder or motor wiring error.</li> <li>3. Encoder malfunction.</li> <li>4. Acceleration is too severe.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>4. Check if acceleration time is set too short, so that motor cannot provide enough torque due to excessive load.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-210</b>		
<b>1st Single Axis ID</b>	<b>AL-26</b>	<b>Alarm Name</b>	<b>Motor Pole Number Error</b>
<b>Alarm Content</b>	Triggered when motor pole number or encoder pole pair number and parameter settings are mismatched		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor pole number setup error</li> <li>2. Encoder pole pair number setup error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if value of parameter Pn-701(P3-01) equals pole number on lable.</li> <li>2. Check if value of parameter Pn-90A(P3-30) setup correct.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-230</b>		
<b>1st Single Axis ID</b>	<b>AL-77</b>	<b>Alarm Name</b>	<b>Rotor Position Error</b>
<b>Alarm Content</b>	Torque integral direction and acceleration direction are inconsistent		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder polarity error</li> <li>2. Rotor/Load inertia error</li> <li>3. Motor vibration while servo on, speed feedback is above Pn-502</li> <li>4. Pn-502 is set too low</li> <li>5. Setting of speed error threshold is too low</li> <li>6. Encoder-rotor pole offset error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Redo "Encoder test"</li> <li>2. Set the correct inertia or redo the inertia tuning</li> <li>3. Tune motor or set lower speed loop gain Pn-100(P2-02) and position loop gain Pn102(P2-01).</li> <li>4. Pn-502 should be set between 5~25RPM(mm/sec)</li> <li>5. Set Pn-70A and upgrade the driver version to 3.0.22 or above</li> <li>6. Remove the motor load and redo encoder-rotor offset tuning</li> </ol>		
<b>Remark</b>	<ul style="list-style-type: none"> <li>• Alarm threshold can be adjusted via Pn-502 (Zero speed check window) for 4-in1 version V2.4.6 and after.</li> <li>• When linear motor monitors the initial signal of the encoder, it may cause motor goes out of control. Re-boot the power can solve the problem.</li> <li>• Above driver version 3.0.22, the speed error threshold is calculated with Pn-70A (Maximum motor torque).</li> <li>• Please refer to "Manual of Encoder-rotor Offset Tuning" ( Note : Do not execute the encoder-rotor offset tuning when the motor is on load. If there is a need for encoder-rotor pole offset verification, Please refer to the Notes No.3 of the manual )</li> </ul>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-231</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Command Direction Not Allowed</b>
<b>Alarm Content</b>	Command direction is not corresponding to Pn-504 configuration		



<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Executed moving direction is not allowable</li> <li>Pn-242 Posing Type configuration is not corresponding to Pn-504 Moving Direction Limit Selection</li> <li>Host command polarity wrong set</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>Check if Pn-504 setting conflicts with moving direction. Please look up specification of Pn-504</li> <li>Reset Pn-504 or check moving direction while running</li> <li>Check if Pn-242 setting conflicts with Pn-504</li> <li>Modify Pn-242 according to Pn-504. Please look up specification of Pn-242</li> <li>Check Pn-020 and command polarity in controller. If the set is wrong, please modify it.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-235</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Wrong Estimated Speed</b>
<b>Alarm Content</b>	Wrong estimated speed at Induction motor sensorless control mode		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Amount of estimated speed change larger than 30% rated speed</li> <li>Estimated speed is over 120% maximum speed</li> <li>When the direction of speed command changed, speed error over 30% rated speed in 1 second</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>Check if the motor parameters are correct</li> <li>Increase acceleration time</li> <li>Lower speed loop gain</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-236</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Over Temperature Detection</b>
<b>Alarm Content</b>	RTD over temperature detection		
<b>Possible Cause</b>	The temperature is over the setting of Over Temp Level.		
<b>Possible Solution</b>	Check Pn-548~Pn-54A and Pn-752~Pn-753 setting are correct or not.		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-237</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	RTD sensor loose or not connected.		
<b>Possible Cause</b>	RTD sensor loose or not connected.		
<b>Possible Solution</b>	Check RTD sensor connected correctly.		

## 9.1 AL-200 Motor Overheat

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-200</b>		
<b>1st Single Axis ID</b>	<b>AL-11</b>	<b>Alarm Name</b>	<b>Motor Overheat</b>
<b>Alarm Content</b>	Drive detects motor overheat.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system malfunction.</li> <li>2. Digital temperature sensor setting error.</li> <li>3. KTY84 thermal sensor setting error.</li> <li>4. Motor rated current setting error.</li> <li>5. Insufficient acceleration time.</li> <li>6. Overload.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor cooling system.</li> <li>2. Correct parameter Pn-50A(P1-40) to Pn-50F(P1-61) according to digital temperature feedback(A or B).</li> <li>3. Check Pn-D60 value and make sure Pn-740 and Pn-741 are set correctly.</li> <li>4. Check rated current parameter Pn-710(P3-14).</li> <li>5. Check acceleration parameter Pn-306(P6-10) , add acceleration/ deceleration time.</li> <li>6. Check if load rate Pn-D2A(D1-10) is over 100%, consider switching to a motor with higher power.</li> </ol>		
<b>Detailed Instructions</b>	AL-11 Issue Trouble Shooting		

## 9.2 AL-201 Motor Over Speed

All in one ID 2nd Single Axis ID	AL-201		
1st Single Axis ID	AL-14	Alarm Name	Motor Over Speed
<b>Alarm Content</b>	Motor speed is above 120% of it's maximum speed.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor power cable U,V,W phase order incorrect</li> <li>2. Encoder malfunction</li> <li>3. Motor parameter loading error</li> <li>4. Sever system severe overshoot</li> <li>5. Severe speed command change</li> <li>6. Drive software outdated</li> <li>7. Encoder misses packets causing acceleration to be too great</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Execute " Encoder test ", check if alarm AL-302(AL-24) appears. Refer to "Auto tuning" section of manual. Execute " Encoder test ", check if any alarms appear. Refer to "Auto tuning" section of manual. <ol style="list-style-type: none"> <li>a. Correct power cord phase order or change parameter Pn-021(P3-22)(0 to 1 and 1 to 0).</li> <li>b. Once certain polarity is correct, please cosider the following causes of this alarm.</li> </ol> </li> <li>2. Check whether drive parameter Pn-7XX match motor lable parameter.If there is a mismatch between motor parameters and those on the lable, please record the motor modle and contactSuzhou or Taiwan Technical Center(Syntec) for correct motor parameters and load them.</li> <li>3. If vibration of the machine can be observed, tune gain parameters Pn-100 to Pn-102(P2-01 to P2-03).</li> <li>4. Check if controller's commands shift too frequently, increase controller's acceleration and deceleration time constant.</li> <li>5. We have corrected drive alarm specs, please upgrade to versions 2.0.25(1.4.12).</li> <li>6. Capture JOG speed wave form and observe if speed change is not continuous.Check inside the junction box where the encoder is attached, make sure the shielding wire is connected to the motor's ground wire.Observe whether there is value Pn-D73~Pn-D76 (D1-28,D1-29,D1-46,D1-47).</li> </ol>		
<b>Detailed Instructions</b>	AL-14 Issue Trouble Shooting		

### 9.3 AL-202 Overload

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-202</b>		
<b>1st Single Axis ID</b>	<b>AL-16</b>	<b>Alarm Name</b>	<b>Overload</b>
<b>Alarm Content</b>	Motor exceeds S2(short time duty) time limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation</li> <li>2. Continuous operation while exceeding drive's rated current</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2.1 Check if load rate is over 100%, enhance motor capacity, lower motor load or increase acceleration/ deceleration time constant.</li> <li>2.2. Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.</li> <li>3.Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>4.Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		

### 9.4 AL-203 Over Torque 1

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-203</b>		
<b>1st Single Axis ID</b>	<b>AL-31</b>	<b>Alarm Name</b>	<b>Motor Stuck</b>
<b>Alarm Content</b>	Motor torque exceeds torque level 1 continuously for over torque check time 1		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to machanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>
--------------------------	---

## 9.5 AL-204 Over Torque 2

All in one ID 2nd Single Axis ID	AL-204		
1st Single Axis ID	AL-32	Alarm Name	Over Torque 2
<b>Alarm Content</b>	Motor torque exceeds torque level 2 continuously for over torque check time 2		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		

## 9.6 AL-205 Motor Stuck

All in one ID 2nd Single Axis ID	AL-205		
1st Single Axis ID	--	Alarm Name	Motor Stuck
<b>Alarm Content</b>	Motor stalls with <b>【Pn-D29】</b> Torque Command being saturated for over 1 sec.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation.</li> <li>2. Encoder or motor wiring error.</li> <li>3. Encoder malfunction.</li> <li>4. Acceleration is too severe.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>4. Check if acceleration time is set too short, so that motor cannot provide enough torque due to excessive load.</li> </ol>
--------------------------	--

## 9.7 AL-210 Motor Pole Number Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-210</b>		
<b>1st Single Axis ID</b>	<b>AL-26</b>	<b>Alarm Name</b>	<b>Motor Pole Number Error</b>
<b>Alarm Content</b>	Triggered when motor pole number or encoder pole pair number and parameter settings are mismatched		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor pole number setup error</li> <li>2. Encoder pole pair number setup error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if value of parameter Pn-701(P3-01) equals pole number on lable.</li> <li>2. Check if value of parameter Pn-90A(P3-30) setup correct.</li> </ol>		

## 9.8 AL-230 Rotor Position Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-230</b>		
<b>1st Single Axis ID</b>	<b>AL-77</b>	<b>Alarm Name</b>	<b>Rotor Position Error</b>
<b>Alarm Content</b>	Torque integral direction and acceleration direction are inconsistent		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder polarity error</li> <li>2. Rotor/Load inertia error</li> <li>3. Motor vibration while servo on, speed feedback is above Pn-502</li> <li>4. Pn-502 is set too low</li> <li>5. Setting of speed error threshold is too low</li> <li>6. Encoder-rotor pole offset error</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Redo "Encoder test"</li> <li>2. Set the correct inertia or redo the inertia tuning</li> <li>3. Tune motor or set lower speed loop gain Pn-100(P2-02) and position loop gain Pn102(P2-01).</li> <li>4. Pn-502 should be set between 5~25RPM(mm/sec)</li> <li>5. Set Pn-70A and upgrade the driver version to 3.0.22 or above</li> <li>6. Remove the motor load and redo encoder-rotor offset tuning</li> </ol>
<b>Remark</b>	<ul style="list-style-type: none"> <li>• Alarm threshold can be adjusted via Pn-502 (Zero speed check window) for 4-in1 version V2.4.6 and after.</li> <li>• When linear motor monitors the initial signal of the encoder, it may cause motor goes out of control. Re-boot the power can solve the problem.</li> <li>• Above driver version 3.0.22, the speed error threshold is calculated with Pn-70A (Maximum motor torque).</li> <li>• Please refer to "Manual of Encoder-rotor Offset Tuning" ( Note : Do not execute the encoder-rotor offset tuning when the motor is on load. If there is a need for encoder-rotor pole offset verification, Please refer to the Notes No.3 of the manual )</li> </ul>

## 9.9 AL-231 Command Direction Not Allowed

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-231</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Command Direction Not Allowed</b>
<b>Alarm Content</b>	Command direction is not corresponding to Pn-504 configuration		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Executed moving direction is not allowable</li> <li>2. Pn-242 Posing Type configuration is not corresponding to Pn-504 Moving Direction Limit Selection</li> <li>3. Host command polarity wrong set</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if Pn-504 setting conflicts with moving direction. Please look up specification of Pn-504</li> <li>2. Reset Pn-504 or check moving direction while running</li> <li>3. Check if Pn-242 setting conflicts with Pn-504</li> <li>4. Modify Pn-242 according to Pn-504. Please look up specification of Pn-242</li> <li>5. Check Pn-020 and command polarity in controller. If the set is wrong, please modify it.</li> </ol>		

### 9.10 AL-235 Wrong Estimated Speed

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-235</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Wrong Estimated Speed</b>
<b>Alarm Content</b>	Wrong estimated speed at Induction motor sensorless control mode		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Amount of estimated speed change larger than 30% rated speed</li> <li>2. Estimated speed is over 120% maximum speed</li> <li>3. When the direction of speed command changed, speed error over 30% rated speed in 1 second</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the motor parameters are correct</li> <li>2. Increase acceleration time</li> <li>3. Lower speed loop gain</li> </ol>		

### 9.11 AL-236 RTD Over Temperature Detection

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-236</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Over Temperature Detection</b>
<b>Alarm Content</b>	RTD over temperature detection		
<b>Possible Cause</b>	The temperature is over the setting of Over Temp Level.		
<b>Possible Solution</b>	Check Pn-548~Pn-54A and Pn-752~Pn-753 setting are correct or not.		

### 9.12 AL-237 RTD Thermal Sensor is Unplugged

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-237</b>		
---	---------------	--	--





1st Single Axis ID	-	Alarm Name	<b>RTD Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	RTD sensor loose or not connected.		
<b>Possible Cause</b>	RTD sensor loose or not connected.		
<b>Possible Solution</b>	Check RTD sensor connected correctly.		



**SYNTEC**

## 10 AL-3xx Encoder Alarm Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-300</b>		
<b>1st Single Axis ID</b>	<b>AL-51</b>	<b>Alarm Name</b>	<b>Encoder Halt Alarm</b>
<b>Alarm Content</b>	Encoder crashed and can't correctly send back position data.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder crash and watchdog restart encoder. Non-Syntec encoder internal error.</li> <li>2. Motor overheating</li> <li>3. Noise interference</li> <li>4. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Reboot driver and observe encoder for abnormality</li> <li>2. Check Pn-90E(P3-34) Encoder Reset Counter. If encoder abnormal, check whether the motor is overheated or not.</li> <li>3. Make sure the shielding wire attached to encoder inside the junction box is connected to the motor's ground wire.</li> <li>4. Replace encoder.</li> <li>5. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	AL-15 Issue Trouble Shooting <b>【Pn-D95】</b> Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-301</b>		
<b>1st Single Axis ID</b>	<b>AL-23</b>	<b>Alarm Name</b>	<b>Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong</li> <li>2. Incorrect encoder setting</li> <li>3. Encoder pole number (Pn-90A/P3-30) setting error</li> <li>4. Communication interference</li> <li>5. Encoder Hardware malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test" and check for alarms . If any alarm goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>		
<b>Detailed Instructions</b>	AL-23 Issue Trouble Shooting		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Encoder Polarity " setting error.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-021(P3-22) ( 0 to 1、 1 to 0 ) and reboot driver.</li> </ol> <p> If motor is PMSM type, set parameter Pn-021(P3-22) is not recommended.</p>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Encoder Polarity " setting error.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-021(P3-22) ( 0 to 1、 1 to 0 ) and reboot driver.</li> </ol> <p> If motor is PMSM type, set parameter Pn-021(P3-22) is not recommended.</p>		

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-303</b>		
<b>1st Single Axis ID</b>	<b>AL-25</b>	<b>Alarm Name</b>	<b>Encoder Resolution Error</b>
<b>Alarm Content</b>	Encoder resolution error.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder resolution Pn-902(P3-21) setting error</li> <li>2. Encoder pole number Pn-90A(P3-30) setting error</li> <li>3. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-902(P3-21) is equal to resolution or not. If not, set encoder resolution to correct value and reboot driver</li> <li>2. Check parameter Pn-90A(P3-30), set encoder pole pair number correctly and reboot driver</li> <li>3. Send back to distributor or Syntec representative to check hardware</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-304</b>		
<b>1st Single Axis ID</b>	<b>AL-27</b>	<b>Alarm Name</b>	<b>Encoder No Feedback</b>
<b>Alarm Content</b>	Drive fails to receive signals from the encoder .		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. Encoder wire is untied or unconnected</li> <li>3. Encoder communication interface, Encoder port number setting error</li> <li>4. Wire failure (shor circuit, wire breakage)</li> <li>5. Noise generated in QEP encoder</li> <li>6. Encoder malfunction</li> <li>7. Driver's pre-circuit board malfunction</li> <li>8. Encoder's baud rate is unsupported</li> <li>9. Encoder firmware update failed</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check if encoder wiring and pin definitions are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>3. Refer to "Driver Parameter Manual", set parameters correctly and restart drive.</li> <li>4. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>5. Set Pn-52E(P6-65) to change the speed in startup.</li> <li>6. Replace motor</li> <li>7. Replace driver</li> <li>8. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BiSSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>9. If the alarm happend after encoder firmware update, please contact syntec or authorized representative</li> <li>10. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please using Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p>AL-27 Issue Trouble Shooting</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-305</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-28</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Pulse Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Pulse number detected is different in each revolution</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Encoder cable malfunction</li> <li>2. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Encoder malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

All in one ID 2nd Single Axis ID	AL-306		
1st Single Axis ID	AL-54	Alarm Name	Encoder Z Index Shift
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encode is error possibly.		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Syntec encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is differ from the setting parameter</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of encoder is broken.</li> <li>2. Sensor and detective ring are wrong assembly.</li> </ol>		
<b>Possible Solution</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or above(Multi-Axis Servo Drive is updated to V2.2.5 or above), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Confirm the encoder is installed in accordance with the specification. <ol style="list-style-type: none"> <li>a. Check the gap between sensor and detective ring.</li> <li>b. Check the relative height between sensor and detective ring.</li> </ol> </li> <li>3. Send back to Syntec Corp.</li> </ol>		
<b>Detailed Instructions</b>	AL-54 Issue Trouble Shooting		

All in one ID 2nd Single Axis ID	AL-307		
1st Single Axis ID	AL-48	Alarm Name	Encoder Status Extreme Error
<b>Alarm Content</b>	Encoder status has extreme errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Serial encoder communication interference</li> <li>2. Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Encoder's cable grounding failure</li> <li>5. Encoder communication type setting error</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. if the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>8. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Encoder's firmware malfunction</li> <li>10. Encoder's hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D73~Pn-D76(D1-28,D1-29,D1-46,D1-47) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive is defected has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions: <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b. try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-900(P3-20) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>11. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>		
<b>Detailed Instructions</b>	AL-48 Issue Problem Shooting		


<b>All in one ID 2nd Single Axis ID</b>	<b>AL-308</b>		
<b>1st Single Axis ID</b>	<b>AL-68</b>	<b>Alarm Name</b>	<b>1st Encoder over speed when power on</b>
<b>Alarm Content</b>	Position changes too fast leads to unfinished initialization.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Motor with Nikon Encoder must run below 250RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, backup parameter from encoder will not be read until running below 250RPM.</li> </ul> </li> <li>Motor with Panasonic Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>Motor with Mitutoyo Encoder must run below 400 mm/min during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, encoder position could be abnormal.</li> </ul> </li> <li>Motor with Tamagawa Encoder must run below 100 RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>Motor with Syntec Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>Note: If alarm occur at just power on, backup parameter from encoder will not be read.</li> </ul> </li> <li>If alarm occurs when motor isn't running, there is possibly encoder malfunction.</li> </ol>		
<b>Check</b>	Check the motor is stopped before drive power on.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>If using Nikon, Panasonic, Tamagawa encoder, reset the alarm after the motor is stopped.</li> <li>If using Syntec , Mitutoyo encoder, reboot the drive after the motor is stopped..</li> <li>Contact motor company for repair.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-309</b>		
<b>1st Single Axis ID</b>	<b>AL-4C</b>	<b>Alarm Name</b>	<b>Serial Encoder Communication Type is Wrong</b>



<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using serial encoder</li> <li>2. If Pn-900(P3-20) is set to 12 and connected with a Nikon encoder, then it is communication issue.</li> <li>3. If the Pn-900 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-900 can not be used at the setting of Pn-901</li> <li>6. FPGA version doesn't support this encoder type</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface (Pn-900(P3-20) ) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-901 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-900(P3-20) setting.</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Set Pn-900(P3-20) correctly and reboot drive.</li> <li>2. Reassemble cables, make sure there is no interference and then restart</li> <li>3. Set Pn-900 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-900(P3-20). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-901 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type</li> </ol>		
<p><b>All in one ID 2nd Single Axis ID</b></p>	<p><b>AL-30A</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-850</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Over Speed</b></p>
<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Nikon encoder speed exceeds 6000RPM</li> <li>2. FeeDat encoder over speed</li> <li>3. Motor with Panasonic encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo encoder exceeds maximum speed</li> <li>5. Motor with Tamagawa encoder exceeds maximum speed, or module for calculating multi-turn inside is malfunctioned</li> <li>6. Delta encoder over speed</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Check motor is over speed once or not.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Avoid having encoder run at maximum speed.</li> <li>2. Check if <b>【Pn-DD4】</b> Encoder Active Communication Type or <b>【Pn-900】</b> Encoder Communication Type shows 11.                         <ol style="list-style-type: none"> <li>a. If absolute position was unexpected, please try resetting origin(or set Pn-F44 = 1) and see how it's going</li> <li>b. If above handling didn't help, please return back the motor to Syntec</li> </ol> </li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-30B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder position feedback error</b>
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read absolute position data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder circuit board breakage</li> <li>2. BiSSC encoder sensor and magnetic ring are assembled incorrectly.</li> <li>3. Nikon's absolute position of absolute module is differ from incremental module.</li> <li>4. EnDat encoder position information error.</li> <li>5. The position information of Panasonic encoder is error.</li> <li>6. The position information of Mitutoyo encoder is error.</li> <li>7. The position information of Mitsubsihi encoder is error.</li> <li>8. The position information of Delta encoder is error.</li> <li>9. The position information of Tamagawa encoder is error.</li> <li>10. The position information of Hcfa encoder is error.</li> <li>11. The position information of Sankyo encoder is error.</li> <li>12. The position information of YuHeng encoder is error.</li> <li>13. The position information of Tamagawa Incremental encoder is error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder sensor and optical ruler are assembled correctly</li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-30C</b>		
<b>1st Single Axis ID</b>	<b>AL-66</b>	<b>Alarm Name</b>	<b>Encoder multi-turn data error</b>
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder's multi-turn data is incompatible to single-turn data.</li> <li>2. Panasonic encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Tamagawa encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. HIWIN encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. Sankyo encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. HCFA encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. YuHeng encoder's multi-turn data is incompatible to single-turn data.</li> <li>8. HCFA 23-bits optical encoder's multi-turn data is incompatible to single-turn data.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the encoder type is Tamagawa, the encoder may be broken and it is recommended to return it to an authorized dealer or Syntec Corp. in need of repair. If the encoder is still to be used, this alarm should be reset by the following steps: <ol style="list-style-type: none"> <li>a. Set parameter Pn-F44 to 1 and restart drive.</li> <li>b. Rerun the absolute origin setting.</li> </ol> </li> <li>2. Check encoder for dust or oil contamination.</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31</b> <b>1</b>		
<b>1st Single Axis ID</b>	<b>AL-33</b>	<b>Alarm Name</b>	<b>2nd Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long.</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong.</li> <li>2. Second encoder setting error.</li> <li>3. Second encoder pole number(Pn-92A/P6-90) setting error.</li> <li>4. Communication interference</li> <li>5. Second encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check wiring of second encoder, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test". If any alarms goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-312</b>		
<b>1st Single Axis ID</b>	<b>AL-34</b>	<b>Alarm Name</b>	<b>2nd Encoder Direction Error</b>
<b>Alarm Content</b>	Second encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Second encoder polarity " setting error		
<b>Possible Solution</b>	<p>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-022(P6-82) ( 0 to 1、 1 to 0 ) and reboot driver.</p> <p> If motor is PMSM type, set parameter Pn-022(P6-82) is not recommended.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-313</b>		
<b>1st Single Axis ID</b>	<b>AL-35</b>	<b>Alarm Name</b>	<b>2nd Encoder resolution error</b>
<b>Alarm Content</b>	Second encoder resolution error.		
<b>Possible Cause</b>	<p>1. 2nd encoder resolution Pn-922(P6-81) setting error</p> <p>2. 2nd Encoder pole number Pn-92A(P6-90) setting error.</p> <p>3. Second encoder hardware malfunction</p>		
<b>Possible Solution</b>	<p>1. Check if parameter Pn-922(P6-81) is equal to and resolution or not. If they differ not, set encoder resolution to correct value correct encoder resolution value and restart drive and reboot drive.</p> <p>2. Check parameter Pn-92A(P6-90), set encoder pole pair number correctly and reboot driver</p> <p>3. Send back to authorized dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-314</b>		
<b>1st Single Axis ID</b>	<b>AL-36</b>	<b>Alarm Name</b>	<b>2nd Encoder no feedback</b>
<b>Alarm Content</b>	Drive fails to receive signals from the second encoder .		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Second encoder wire is untied or unconnected.</li> <li>2. Encoder communication interface, Encoder port number setting error.</li> <li>3. Wire failure (short circuit, wire breakage)</li> <li>4. In dual feedback control and 2nd encoder type is QEP, mechanical problem and machining condition may cause alarm</li> <li>5. Encoder malfunction</li> <li>6. Driver's pre-circuit board malfunction</li> <li>7. Encoder's baud rate is unsupported</li> <li>8. Encoder firmware update failed</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if serial encoder wiring and pin definitions for errors are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>2. Refer to "Drive Parameter Manual", set parameters correctly and reboot driver.</li> <li>3. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>4. Refer to "Dual feedback control and outer feedback using linear scale" section of manual, change Pn-52F properly</li> <li>5. Replace motor</li> <li>6. Replace driver</li> <li>7. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BiSSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>8. If the alarm happens after encoder firmware update, please contact syntec or authorized representative</li> <li>9. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please use Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-315</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-39</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder Pulse Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Pulse number detected is different in each revolution</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Second encoder's cable problem</li> <li>2. Second encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Second encoder malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

All in one ID 2nd Single Axis ID	AL-316		
1st Single Axis ID	AL-55	Alarm Name	2nd Encoder Z Index Shift
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encoder is error possibly .		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Second encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is different than from the written parameter.</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> <li>6. Hardware malfunction</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of encoder is broken.</li> <li>2. Sensor and detective ring are wrong assembly.</li> </ol>		
<b>Possible Solution</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or more recent(Multi-Axis Servo Drive is updated to V2.2.5), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if second encoder and motor are grounded.</li> <li>3. Check if joining between second encoder cable and motor are is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the second encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. Check the 2nd encoder is contaminated by dust or oil.</li> <li>2. Confirm the 2nd encoder is installed in accordance with the specification. <ol style="list-style-type: none"> <li>a. Check the gap between sensor and detective ring.</li> <li>b. Check the relative height between sensor and detective ring.</li> </ol> </li> <li>3. Send back to Syntec Corp.</li> </ol>		
<b>Detailed Instructions</b>	AL-54 Issue Trouble Shooting		

All in one ID 2nd Single Axis ID	AL-317		
1st Single Axis ID	AL-49	Alarm Name	2nd Encoder Status Extreme Error
<b>Alarm Content</b>	2nd Encoder status has extreme errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Second encoder communication interference.</li> <li>2. Second Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Second encoder's cable grounding failure</li> <li>5. Second encoder communication type setting error.</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>8. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Second encoder's firmware malfunction</li> <li>10. Second encoder's hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D77~Pn-D7A(D1-42,D1-43,D1-59,D1-60) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions,             <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b.try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-920(P6-80) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>11. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-318</b>		
<b>1st Single Axis ID</b>	<b>AL-69</b>	<b>Alarm Name</b>	<b>2nd Encoder over speed when power on</b>
<b>Alarm Content</b>	Position changes too fast leads to unfinished initialization.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor with Nikon 2nd Encoder must run below 250RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from 2nd encoder will not be read until running below 250RPM.</li> </ul> </li> <li>2. Motor with Panasonic 2nd Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>3. Motor with Mitutoyo 2nd Encoder must run below 400 mm/min during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder position could be abnormal.</li> </ul> </li> <li>4. Motor with Tamagawa 2nd Encoder must run below 100 RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>5. Motor with Syntec 2nd Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from 2nd encoder will not be read.</li> </ul> </li> <li>6. If alarm occurs when motor isn't running, there is possibly 2nd encoder malfunction.</li> </ol>		
<b>Check</b>	Check the motor is stopped before drive power on.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If using Nikon, Panasonic, Tamagawa 2nd encoder, reset the alarm after the motor is stopped.</li> <li>2. If using Syntec , Mitutoyo 2nd encoder, reboot the drive after the motor is stopped..</li> <li>3. Contact motor company for repair.</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-319</b>		
<b>1st Single Axis ID</b>	<b>AL-4D</b>	<b>Alarm Name</b>	<b>2nd Serial Encoder Communication Type is Wrong</b>



<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using second serial encoder.</li> <li>2. If Pn-920(P6-80) is set to 12 and connected with a Nikon encoder, then the problem is with communication there is a communication problem</li> <li>3. If the Pn-920 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-920 can not be used at the setting of Pn-921</li> <li>6. FPGA version doesn't support this encoder type.</li> </ol>
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface Pn-920(P6-80) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-921 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-920(P6-80) setting encoder type.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-920(P6-80) correctly and reboot driver</li> <li>2. Reassemble cables, make sure there is no interference and then reboot driver</li> <li>3. Set Pn-920 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-920(P6-80). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-921 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type.</li> </ol>

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31A</b>		
<b>1st Single Axis ID</b>	<b>AL-8A5</b>	<b>Alarm Name</b>	<b>2nd Encoder Over Speed</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Nikon second encoder speed exceeds 6000RPM</li> <li>2. FeeDat second encoder over speed</li> <li>3. Motor with Panasonic second encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo second encoder exceeds maximum speed</li> <li>5. Motor with Tamagawa second encoder exceeds maximum speed, or module for calculating multi-turn inside is malfunctioned</li> <li>6. Delta second encoder over speed</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check motor is over speed once or not. command</li> </ol>		

<b>Possible Solution</b>		<ol style="list-style-type: none"> <li>1. Avoid having encoder run at maximum speed</li> <li>2. Check if <b>【Pn-DD5】</b> 2nd Encoder Active Communication Type or <b>【Pn-920】</b> 2nd Encoder Communication Type shows 11。                         <ol style="list-style-type: none"> <li>a. If absolute position was unexpected, please try resetting origin(or set Pn-F44 = 1) and see how it's going</li> <li>b. If above handling didn't help, please return back the motor to Syntec</li> </ol> </li> </ol>	
<b>Detailed Instructions</b>		<b>【Pn-D96】</b> 2nd Enc Error Status ALMC	
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder position feedback error</b>
<b>Alarm Content</b>	2nd Encoder module error, causing encoder unable to read absolute position data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat second encoder circuit board breakage</li> <li>2. BiSSC second encoder sensor and magnetic ring are assembled incorrectly</li> <li>3. Nikon encoder's multi-turn data is incompatible to single-turn data</li> <li>4. EnDat second encoder position information error</li> <li>5. The position information of Panasonic encoder is error.</li> <li>6. The position information of Mitutoyo encoder is error.</li> <li>7. The position information of Mitsubsihi encoder is error.</li> <li>8. The position information of Delta encoder is error.</li> <li>9. The position information of Tamagawa encoder is error.</li> <li>10. The position information of Hcfa encoder is error.</li> <li>11. The position information of Sankyo encoder is error.</li> <li>12. The position information of Tamagawa Incremental encoder is error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder sensor and optical ruler are assembled correctly</li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>		<b>【Pn-D96】</b> 2nd Enc Error Status ALMC	
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31C</b>		
<b>1st Single Axis ID</b>	<b>AL-67</b>	<b>Alarm Name</b>	<b>2nd Encoder multi-turn data error</b>

<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon 2nd encoder's multi-turn data is incompatible to single-turn data</li> <li>2. Panasonic 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Mitsubishi 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. Tamagawa 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. HIWIN 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. Sankyo 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. HCFA 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>8. YuHeng 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>9. HCFA 2nd 23-bits optical encoder's multi-turn data is incompatible to single-turn data.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the encoder type is Tamagawa, the encoder may be broken and it is recommended to return it to an authorized dealer or Syntec Corp. in need of repair. If the encoder is still to be used, this alarm should be reset by the following steps: <ol style="list-style-type: none"> <li>a. Set parameter Pn-F44 to 1 and restart drive</li> <li>b. Rerun the absolute origin setting</li> </ol> </li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31D</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Unable to Finish Operation Configuration</b>
<b>Alarm Content</b>	Failed to set operation configuration		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. While setting operation configuration, unable to write the corresponding memory or meet access failure</li> <li>2. Fail to access 2nd encoder memory</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D9C and encoder software version, and update to the right version</li> <li>2. Check if communication ever failed and then check up wiring of this encoder</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31E</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Position Loss</b>
<b>Alarm Content</b>	Second encoder battery less than 2.5V, multi-turn position data loss		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder voltage too low or no battery                         <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 3.1V.</li> </ol> </li> <li>2. Parameter set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery                         <ol style="list-style-type: none"> <li>a. With controller: Change battery and reboot system.</li> <li>b. No controller: Change battery, set parameter Pn-F44(Fn-34) to 1 and reboot driver.</li> </ol> </li> <li>2. Check parameter Pn-924(P6-83). If not using an absolute encoder, set Pn-924 to 0, save and reboot driver</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-31F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>ABS Type 2nd Encoder Battery Low Voltage</b>
<b>Alarm Content</b>	2nd ABS encoder battery voltage lower than 3V		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery</li> <li>2. Parameter setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Replace the battery. If using Panasonic encoder, then restart driver. If using Nikon, Mitsubishi, Delta or Tamagawa encoder, then don't need to restart.</li> <li>2. If not ABS encoder, set drive parameter Pn-924(P6-83) to 0, save and restart.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-320</b>		
<b>1st Single Axis ID</b>	<b>AL-860</b>	<b>Alarm Name</b>	<b>Encoder Internal Over Temperature</b>

<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-742.</li> <li>2. Nikon encoder: Encoder internal temperature over 120 degrees Celsius.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 110 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree.</li> <li>10. Hcfa(12k) encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> <li>11. Hcfa(16k) encoder: Encoder internal temperature is higher than 95 Celsius degree.</li> <li>12. Hcfa 23 bit optical encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> <li>13. YuHeng encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi, Hcfa(12k/16k), Hcfa 23 bit, YuHeng or Delta encoders, please check up Pn-D61.</li> <li>3. If using FeeDat, Tamagawa, Hcfa(12k/16k), YuHeng or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-742(P1-32) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-742 "Syntec Encoder internal(1) KTY84 overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>7. If all above solutions fail to solve the problem, KTY84 may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p>AL-40, AL-41, AL-42 Issue Trouble Shooting</p> <p>【Pn-D95】 Enc Error Status ALMC</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-321</b></p>		

1st Single Axis ID	AL-41	Alarm Name	Encoder external(1) Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that encoder external(1)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-322</b>		
1st Single Axis ID	AL-42	Alarm Name	Encoder External(2) Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that encoder external(2)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Parameter error</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-744(P1-34) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-744 "Syntec Encoder external(2) Thermal Sensor overheat threshold" is not 0. If temperature sensing wires are floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>4. Check the type of resistance used for encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> </ol>		
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-324</b>		
<b>1st Single Axis ID</b>	<b>AL-8A6</b>	<b>Alarm Name</b>	<b>2nd Encoder Internal Over Temperature</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-746.</li> <li>2. Nikon encoder: Encoder internal temperature is higher than operation temperature or protection level Pn-746.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius or protection level Pn-746.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius or protection level Pn-746.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 110 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree or protection level Pn-746.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree or protection level Pn-746.</li> <li>10. Hcfa(12k) encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> <li>11. Hcfa(16k) encoder: Encoder internal temperature is higher than 95 Celsius degree or protection level Pn-746.</li> <li>12. Hcfa 23 bit optical encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> <li>13. YuHeng encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> </ol>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi, Hcfa(12k/16k), Hcfa 23 bit, YuHeng or Delta encoders, please check up Pn-D65.</li> <li>3. If using FeeDat, Tamagawa, Hcfa(12k/16k), YuHeng or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-746 "Syntec Encoder internal(1) thermal sensor overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for 2nd encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>7. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-325</b>		
<b>1st Single Axis ID</b>	<b>AL-45</b>	<b>Alarm Name</b>	<b>2nd Encoder External(1) Thermal Sensor Over Temperature</b>
<b>Alarm Content</b>	The temperature that 2nd encoder external(1)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-326</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-46</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder External(2) Thermal Sensor Over Temperature</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder External(2) detects Thermal Sensor's temperature over drive's protective limit</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-748(P1-38) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(2) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(2)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>		<b>AL-328</b>		
<b>1st Single Axis ID</b>	<b>AL-5A</b>	<b>Alarm Name</b>	<b>Encoder Internal Thermal Sensor Error</b>	
<b>Alarm Content</b>	Encoder Internal Thermal Sensor Error			
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder Internal Thermal Sensor Error</li> <li>2. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> </ol>			
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If encoder Internal Thermal Sensor is not needed, set parameter Pn-74A(P1-70) to 1.</li> <li>2. Check the type of resistance used for encoder internal thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp.</li> </ol>			
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-329</b>			
<b>1st Single Axis ID</b>	<b>AL-5B</b>	<b>Alarm Name</b>	<b>Encoder External(1) Thermal Sensor is Unplugged</b>	
<b>Alarm Content</b>	Encoder External(1) Thermal Sensor is unplugged			
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder External(1) Thermal Sensor is not plugged correctly</li> <li>2. Encoder external(1) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> </ol>			

SYNTEC

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure encoder external(1) Thermal Sensor is wired properly. (b) If encoder External(1) Thermal Sensor is not needed, set parameter Pn-74B(P1-71) to 1.</li> <li>2. Measure the resistance of encoder external(1) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for encoder external(1) thermal sensing                         <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>b. If using KTY84:Please set Pn-75B into 0.</li> </ol> </li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-32A</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-5C</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder External(2) Thermal Sensor is Unplugged</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder External(2) Thermal Sensor is Unplugged</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Encoder External(2) Thermal Sensor is not plugged correctly</li> <li>2. Encoder external(2) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure encoder external(2) Thermal Sensor is wired properly. (b) If encoder External(2) Thermal Sensor is not needed, set parameter Pn-74C(P1-72) to 1.</li> <li>2. Measure the resistance of encoder external(2) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace encoder external(2) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for encoder external(2) thermal sensing                         <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> <li>b. If using KTY84:Please set Pn-75C into 0.</li> </ol> </li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-32C</b>		
<b>1st Single Axis ID</b>	<b>AL-5E</b>	<b>Alarm Name</b>	<b>2nd Encoder internal Thermal Sensor Error</b>
<b>Alarm Content</b>	2nd Encoder internal Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd Encoder internal Thermal Sensor Error</li> <li>2. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If 2nd encoder internal Thermal Sensor is not needed, set parameter Pn-74E(P1-74) to 1.</li> <li>2. Check the type of resistance used for 2nd encoder internal thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>b. If using KTY84:Please set Pn-75E into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp. for repairs.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-32D</b>		
<b>1st Single Axis ID</b>	<b>AL-5F</b>	<b>Alarm Name</b>	<b>2nd Encoder External(1) Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	2nd Encoder External(1) Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd Encoder External(1) Thermal Sensor is not plugged correctly</li> <li>2. 2nd Encoder external(1) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 2nd encoder</li> <li>4. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> </ol>		

SYNTEC

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure 2nd encoder external(1) Thermal Sensor is wired properly. (b) If 2nd encoder external(1) Thermal Sensor is not needed, set parameter Pn-74F(P1-75) to 1.</li> <li>2. Measure the resistance of 2nd encoder external(1) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace the 2nd encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D7B 【The 5V Detection of 2nd Encoder】 is lower than 5V. If so, please check the power supply voltage of 2nd encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 2nd encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for 2nd encoder external(1) thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>b. If using KTY84:Please set Pn-75F into 0.</li> </ol> </li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-32E</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-60</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder External(2) Thermal Sensor is Unplugged</b></p>
<p><b>Alarm Content</b></p>	<p>2nd Encoder External(2) Thermal Sensor is Unplugged</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. 2nd Encoder External(2) Thermal Sensor is not plugged correctly</li> <li>2. 2nd Encoder external(2) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 2nd encoder</li> <li>4. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure 2nd encoder external(2) Thermal Sensor is wired properly. (b) If 2nd encoder external(2) Thermal Sensor is not needed, set parameter Pn-750(P1-76) to 1.</li> <li>2. Measure the resistance of 2nd encoder external(2) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace the 2nd encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D7B 【The 5V Detection of 2nd Encoder】 is lower than 5V. If so, please check the power supply voltage of 2nd encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 2nd encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for 2nd encoder external(2) thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>b. If using KTY84:Please set Pn-760 into 0.</li> </ol> </li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-330</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Port Setting Error</b>
<b>Alarm Content</b>	Encoder Port (Parameter Pn-901) setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter Pn-900 encoder type is set but parameter Pn-901 is not.</li> <li>2. Port number setting is the same as another encoder port setting</li> <li>3. Parameter Pn-901 is greater than actual port number</li> </ol>		
<b>Possible Solution</b>	1. Set parameter Pn-901 correctly according to the actual application.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-331</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder port setting error</b>
<b>Alarm Content</b>	2nd encoder Port (Parameter Pn-921) setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter Pn-920 encoder type is set but parameter Pn-921 is not.</li> <li>2. Port number setting is the same as another encoder port setting</li> <li>3. Parameter Pn-921 is greater than actual port number</li> </ol>		
<b>Possible Solution</b>	1. Set parameter Pn-921 correctly according to the actual application.		

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-332</b>		
<b>1st Single Axis ID</b>	<b>AL-6A</b>	<b>Alarm Name</b>	<b>Encoder not recognized</b>
<b>Alarm Content</b>	Drive doesn't support the version of encoder version. Do not run this motor and modify any parameters about this motor.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps: <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-333</b>		
<b>1st Single Axis ID</b>	<b>AL-6B</b>	<b>Alarm Name</b>	<b>2nd Encoder not recognized</b>
<b>Alarm Content</b>	Drive doesn't support the version of second encoder version. Do not run this motor and modify any parameters about this motor		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps: <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-334</b>		

1st Single Axis ID	AL-58	Alarm Name	Encoder Download Parameters Fail
<b>Alarm Content</b>	Encoder parameter download process is unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. The parameters read back from encoder is incorrect.</li> <li>3. Signal transfer error due to the poor contact of the first encoder's pin</li> <li>4. With hallow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check status parameter "First encoder parameter read back status", single axis' parameter is <a href="#">D2-97</a>, four in one's status parameter is <a href="#">Pn-E5F</a>.</li> <li>3. Check if encoder is wired correctly and whether there are interferences.</li> <li>4. Check connectivity of encoder connector pins</li> <li>5. with hallowed encoder, please set motor serial number as 0 and reboot</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently. If alarm doesn't occur after rebooting, parameters have been read correctly. If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-335</b>		
1st Single Axis ID	AL-59	Alarm Name	2nd Encoder Download Parameters Fail
<b>Alarm Content</b>	2nd Encoder parameter download process unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameters read back from 2nd encoder is incorrect.</li> <li>2. Signal transfer error due to the poor contact of the 2nd encoder's pin</li> <li>3. With hallow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check status parameter "2nd encoder parameter read back status", single axis' parameter is <a href="#">D2-98</a>, four in one's status parameter is <a href="#">Pn-E60</a>.</li> <li>2. Check if encoder is wired correctly and whether there are interferences.</li> <li>3. Check connectivity of encoder connector pins</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently.</p> <p>If alarm doesn't occur after rebooting, parameters have been read correctly.</p> <p>If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p> <p>Refer to AL-58<a href="#">问题处置</a> for alarm trouble shooting.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-336</b>		
<b>1st Single Axis ID</b>	<b>AL-4A</b>	<b>Alarm Name</b>	<b>Syntec Encoder Runs in Bootloader Mode</b>
<b>Alarm Content</b>	When 1st encoder is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-337</b>		
<b>1st Single Axis ID</b>	<b>AL-4B</b>	<b>Alarm Name</b>	<b>2nd Syntec Encoder Runs in Bootloader Mode</b>
<b>Alarm Content</b>	When 2nd is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-338</b>		
<b>1st Single Axis ID</b>	<b>AL-75</b>	<b>Alarm Name</b>	<b>Encoder Register Access Error</b>
<b>Alarm Content</b>	Encoder Register Access Error		

<b>Possible Cause</b>	1. Error count is too high while accessing encoder register		
<b>Possible Solution</b>	1. Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:             <ul style="list-style-type: none"> <li>i. Pn-D73(D1-28) Serial Encoder CRC error count(hardware)</li> <li>ii. Pn-D74(D1-29) Serial Encoder CRC error count(software)</li> <li>iii. Pn-D76(D1-47) Serial Encoder overtime error count</li> </ul> </li> <li>b. If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c. If issue is recurring, contact dealer or Syntec Corp. for repairs.</li> </ul>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-339</b>		
<b>1st Single Axis ID</b>	<b>AL-76</b>	<b>Alarm Name</b>	<b>2nd Encoder Register Access Error</b>
<b>Alarm Content</b>	2nd Encoder Register Access Error		
<b>Possible Cause</b>	1. Error count is too high while accessing 2nd encoder register		
<b>Possible Solution</b>	Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:             <ul style="list-style-type: none"> <li>i.Pn-D77(D1-42) Serial Encoder CRC error count(hardware)</li> <li>ii.Pn-D78(D1-43) Serial Encoder CRC error count(software)</li> <li>iii.Pn-D7A(D1-60) Serial Encoder overtime error count</li> </ul> </li> <li>b.If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c.If issue is recurring, contact dealer or Syntec Corp. for repairs</li> </ul>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder not support type auto detection</b>
<b>Alarm Content</b>	Type auto detection only support Syntec motors		
<b>Possible Cause</b>	1. Setting Pn-900 Encoder Communication Type to 12 with non-Syntec motors and non-Nikon encoders. 2. Pn-706 Motor Serial Number exception error.		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check up and correct Pn-900 setting.</li> <li>2. Please contact Syntec Corp.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder not support type auto detection</b>
<b>Alarm Content</b>	Type auto detection not support 2nd encoders		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Setting Pn-920 2nd Encoder Communication Type to 12 with non-Nikon encoders</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check up and correct Pn-920 setting.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33C</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Initialization Error</b>
<b>Alarm Content</b>	Encoder parameter download process is unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. 1st encoder still not ready after drive power on for 1 second.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check status parameter "First encoder parameter read back status", single axis' parameter is <a href="#">D2-97</a>, four in one's status parameter is <a href="#">Pn-E5F</a>.</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently. If alarm doesn't occur after rebooting, parameters have been initialized correctly. If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33D</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Initialization Error</b>

<b>Alarm Content</b>	2nd Encoder parameter download process unsuccessful		
<b>Possible Cause</b>	1. 2nd encoder still not ready after drive power on for 1 second.		
<b>Possible Solution</b>	<p>1. Check status parameter "2nd encoder parameter read back status", single axis' parameter is <a href="#">D2-98</a>, four in one's status parameter is <a href="#">Pn-E60</a>.</p> <p>*With this alarm occurring, we would not recommend saving parameters permanently.</p> <p>If alarm doesn't occur after rebooting, parameters have been initialized correctly.</p> <p>If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33E</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Hardware Identity Unknown</b>
<b>Alarm Content</b>	When using Syntec Encoder, Encoder Sensor Type or Hardware ID cannot be recognized.		
<b>Possible Cause</b>	<p>1. <b>【Pn-90D】</b> Encoder Sensor Type setting error</p> <p>2. Hardware ID cannot be recognized</p> <ul style="list-style-type: none"> <li>Hardware ID can be obtained from "OpenGuide Help-&gt;About-&gt;Axis(n) Encoder Hardware ID" (n = Alarm axis)</li> </ul> <p>3. Encoder hardware malfunction</p>		
<b>Possible Solution</b>	<p>1. Check if parameter Pn-90D is in the range of 0~4</p> <p>2. Upgrade driver version to match encoder software or shipping parameter</p> <p>3. If all above solutions fail to solve the problem, Hardware may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</p>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-33F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Hardware Identity Unknown</b>
<b>Alarm Content</b>	When using Syntec Encoder, 2nd Encoder Sensor Type or Hardware ID cannot be recognized.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. <b>【Pn-92D】</b> 2nd Encoder Sensor Type setting error</li> <li>2. Hardware ID cannot be recognized <ul style="list-style-type: none"> <li>• Hardware ID can be obtained from "OpenGuide Help-&gt;About-&gt;Axis(n) 2nd enc hardware ID" (n = Alarm axis)</li> </ul> </li> <li>3. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-92D is in the range of 0~4</li> <li>2. Upgrade driver version to match encoder software or shipping parameter</li> <li>3. If all above solutions fail to solve the problem, Hardware may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-340</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Status Error</b>
<b>Alarm Content</b>	Encoder status has errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder over temperature".</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-344</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Encoder Signal Noise Interference</b>
<b>Alarm Content</b>	Encoder Signal Noise Interference		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D74 Encoder CRC error counter(Software). Check the encoder wiring.</li> <li>2. With connecting Tamagawa, YuHeng, Hcfa, or Hcfa 23 bit encoder, the parameter of encoder communication interface (Pn-900) and encoder's serial communication may be mismatched If alarm is triggered at power on.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the encoder wiring and grounding.</li> <li>2. Set Pn-900 correctly and reboot drive.</li> <li>3. Send back to Syntec Corp.</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-345</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Feedback Abnormal</b>
<b>Alarm Content</b>	Packet of encoder position feedback is abnormal and the difference of two continuous position feedback is too large		
<b>Possible Cause</b>	1. Driver detect the encoder feedback is abnormal.		
<b>Possible Solution</b>	1. Check is position feedback varies abnormally or unexpectedly. 2. Please contact Syntec Corp.		
<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-346</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Motor Rear Cover Over Temperature</b>
<b>Alarm Content</b>	Syntec encoder: Motor rear cover temperature is higher than protection level Pn-762.		
<b>Possible Cause</b>	1. Motor cooling system failure 2. Thermal sensor signal error 3. Motor rear cover thermal sensor type setting error 4. Encoder hardware malfunction		
<b>Possible Solution</b>	1. Check and change motor cooling system. 2. Please check up Pn-D61. 3. Make sure parameter 【Pn-746 Motor Rear Cover overheat threshold】 is set correctly. 4. Check the type of resistance used for motor rear cover thermal sensing. If using PT1000: Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1. 5. If all above solutions fail to solve the problem, thermal sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.		
<b>Detailed Instructions</b>	AL-320, AL-321, AL-322 Trouble Shooting 【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-347</b>		

1st Single Axis ID	-	Alarm Name	Motor Rear Cover Thermal Sensor Error
<b>Alarm Content</b>	Motor Rear Cover Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Rear Cover Thermal Sensor Error</li> <li>2. Motor rear cover thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If motor rear cover thermal sensor is not needed, set parameter Pn-74A(P1-70) to 1.</li> <li>2. Check the type of resistance used for motor rear cover thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp.</li> </ol>		
<b>All in one ID</b>	<b>AL-348</b>		
<b>2nd Single Axis ID</b>			
1st Single Axis ID	-	Alarm Name	Motor Coil Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that Motor Coil's Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, motor coil's thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for motor coil thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

<b>Detailed Instructions</b>		AL-40, AL-41, AL-42 Issue Trouble Shooting	
<b>All in one ID</b>	<b>AL-34A</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Motor Coil Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Motor Coil Thermal Sensor is unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Coil Thermal Sensor is not plugged correctly</li> <li>2. Motor Coil Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. Motor coil thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure Motor Coil Thermal Sensor is wired properly. (b) If Motor Coil Thermal Sensor is not needed, set parameter Pn-74B(P1-71) to 1.</li> <li>2. Measure the resistance of Motor Coil Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace Motor Coil Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for motor coil thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>b. If using KTY84:Please set Pn-75B into 0.</li> </ol> </li> </ol>		
<b>All in one ID</b>	<b>AL-913</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver External Motor Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Driver External Motor Thermal Sensor is Unplugged		



<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Thermal sensor is not plugged correctly.</li> <li>2. Thermal sensor is broken.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure thermal sensor is wired properly. (b) If thermal sensor is not needed, set parameter Pn-740 to 1.</li> <li>2. Measure the resistance of thermal sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500 Ω to 1500 Ω. If the measured value of resistance appears to be wrong, then please replace thermal sensor with a new one.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-350</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Status Error</b>
<b>Alarm Content</b>	Encoder status has errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder over temperature".</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-354</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>2nd Encoder Signal Noise Interference</b>
<b>Alarm Content</b>	2nd Encoder Signal Noise Interference		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D78 2nd Encoder CRC error counter(Software). Check the encoder wiring.</li> <li>2. With connecting Tamagawa, YuHeng, Hcfa, or Hcfa 23 bit encoder, the parameter of encoder communication interface (Pn-920) and encoder's serial communication may be mismatched If alarm is triggered at power on.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the 2nd encoder wiring and grounding.</li> <li>2. Set Pn-920 correctly and reboot drive.</li> <li>3. Send back to Syntec Corp.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-355</b>		

1st Single Axis ID	-	Alarm Name	2nd Encoder Feedback Abnormal
<b>Alarm Content</b>	Packet of 2nd encoder position feedback is abnormal and the difference of two continuous position feedback is too large		
<b>Possible Cause</b>	1. Driver detect the 2nd encoder feedback is abnormal.		
<b>Possible Solution</b>	1. Check is position feedback varies abnormally or unexpectedly. 2. Please contact Syntec Corp.		

### 10.1 AL-30A Encoder Over Speed

All in one ID 2nd Single Axis ID	AL-30A		
1st Single Axis ID	AL-850	Alarm Name	Encoder Over Speed
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder speed exceeds 6000RPM</li> <li>2. FeeDat encoder over speed</li> <li>3. Motor with Panasonic encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo encoder exceeds maximum speed</li> <li>5. Motor with Tamagawa encoder exceeds maximum speed, or module for calculating multi-turn inside is malfunctioned</li> <li>6. Delta encoder over speed</li> </ol>		
<b>Possible Cause</b>	1. Check motor is over speed once or not.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Avoid having encoder run at maximum speed.</li> <li>2. Check if <b>【Pn-DD4】</b> Encoder Active Communication Type or <b>【Pn-900】</b> Encoder Communication Type shows 11.                             <ol style="list-style-type: none"> <li>a. If absolute position was unexpected, please try resetting origin(or set Pn-F44 = 1) and see how it's going</li> <li>b. If above handling didn't help, please return back the motor to Syntec</li> </ol> </li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC		

## 10.2 AL-30B Encoder position feedback error

All in one ID 2nd Single Axis ID	AL-30B		
1st Single Axis ID	-	Alarm Name	Encoder position feedback error
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read absolute position data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder circuit board breakage</li> <li>2. BiSSC encoder sensor and magnetic ring are assembled incorrectly.</li> <li>3. Nikon's absolute position of absolute module is differ from incremental module.</li> <li>4. EnDat encoder position information error.</li> <li>5. The position information of Panasonic encoder is error.</li> <li>6. The position information of Mitutoyo encoder is error.</li> <li>7. The position information of Mitsubsihi encoder is error.</li> <li>8. The position information of Delta encoder is error.</li> <li>9. The position information of Tamagawa encoder is error.</li> <li>10. The position information of Hcfa encoder is error.</li> <li>11. The position information of Sankyo encoder is error.</li> <li>12. The position information of YuHeng encoder is error.</li> <li>13. The position information of Tamagawa Incremental encoder is error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder sensor and optical ruler are assembled correctly</li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		

## 10.3 AL-30C Encoder multi-turn data error

All in one ID 2nd Single Axis ID	AL-30C		
1st Single Axis ID	AL-66	Alarm Name	Encoder multi-turn data error
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder's multi-turn data is incompatible to single-turn data.</li> <li>2. Panasonic encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Tamagawa encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. HIWIN encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. Sankyo encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. HCFA encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. YuHeng encoder's multi-turn data is incompatible to single-turn data.</li> <li>8. HCFA 23-bits optical encoder's multi-turn data is incompatible to single-turn data.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the encoder type is Tamagawa, the encoder may be broken and it is recommended to return it to an authorized dealer or Syntec Corp. in need of repair. If the encoder is still to be used, this alarm should be reset by the following steps: <ol style="list-style-type: none"> <li>a. Set parameter Pn-F44 to 1 and restart drive.</li> <li>b. Rerun the absolute origin setting.</li> </ol> </li> <li>2. Check encoder for dust or oil contamination.</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs.</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC

## 10.4 AL-30D Encoder Unable to Finish Operation Configuration

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-30D</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Encoder Unable to Finish Operation Configuration</b>
<b>Alarm Content</b>	Failed to set operation configuration		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. While setting operation configuration, unable to write the corresponding memory or meet access failure</li> <li>2. Fail to access encoder memory</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D9B and encoder software version, and update to the right version</li> <li>2. Check if communication ever failed and then check up wiring of this encoder</li> </ol>		

## 10.5 AL-31A 2nd Encoder Over Speed

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31A</b>		
---	---------------	--	--

1st Single Axis ID	AL-8A5	Alarm Name	2nd Encoder Over Speed
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Nikon second encoder speed exceeds 6000RPM</li> <li>2. FeeDat second encoder over speed</li> <li>3. Motor with Panasonic second encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo second encoder exceeds maximum speed</li> <li>5. Motor with Tamagawa second encoder exceeds maximum speed, or module for calculating multi-turn inside is malfunctioned</li> <li>6. Delta second encoder over speed</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check motor is over speed once or not. command</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Avoid having encoder run at maximum speed</li> <li>2. Check if 【Pn-DD5】 2nd Encoder Active Communication Type or 【Pn-920】 2nd Encoder Communication Type shows 11. <ol style="list-style-type: none"> <li>a. If absolute position was unexpected, please try resetting origin(or set Pn-F44 = 1) and see how it's going</li> <li>b. If above handling didn't help, please return back the motor to Syntec</li> </ol> </li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		

## 10.6 AL-31B 2nd Encoder position feedback error

All in one ID 2nd Single Axis ID	AL-31B		
1st Single Axis ID	-	Alarm Name	2nd Encoder position feedback error
<b>Alarm Content</b>	2nd Encoder module error, causing encoder unable to read absolute position data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat second encoder circuit board breakage</li> <li>2. BiSSC second encoder sensor and magnetic ring are assembled incorrectly</li> <li>3. Nikon encoder's multi-turn data is incompatible to single-turn data</li> <li>4. EnDat second encoder position information error</li> <li>5. The position information of Panasonic encoder is error.</li> <li>6. The position information of Mitutoyo encoder is error.</li> <li>7. The position information of Mitsubsihi encoder is error.</li> <li>8. The position information of Delta encoder is error.</li> <li>9. The position information of Tamagawa encoder is error.</li> <li>10. The position information of Hcfa encoder is error.</li> <li>11. The position information of Sankyo encoder is error.</li> <li>12. The position information of Tamagawa Incremental encoder is error.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder sensor and optical ruler are assembled correctly</li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC

## 10.7 AL-31C 2nd Encoder multi-turn data error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31C</b>		
<b>1st Single Axis ID</b>	<b>AL-67</b>	<b>Alarm Name</b>	<b>2nd Encoder multi-turn data error</b>
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon 2nd encoder's multi-turn data is incompatible to single-turn data</li> <li>2. Panasonic 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Mitsubishi 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. Tamagawa 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. HIWIN 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. Sankyo 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. HCFA 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>8. YuHeng 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>9. HCFA 2nd 23-bits optical encoder's multi-turn data is incompatible to single-turn data.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the encoder type is Tamagawa, the encoder may be broken and it is recommended to return it to an authorized dealer or Syntec Corp. in need of repair. If the encoder is still to be used, this alarm should be reset by the following steps: <ol style="list-style-type: none"> <li>a. Set parameter Pn-F44 to 1 and restart drive</li> <li>b. Rerun the absolute origin setting</li> </ol> </li> <li>2. Check encoder for dust or oil contamination</li> <li>3. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC		

## 10.8 AL-31D 2nd Encoder Unable to Finish Operation Configuration

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31D</b>		
---	---------------	--	--

1st Single Axis ID	-	Alarm Name	2nd Encoder Unable to Finish Operation Configuration
<b>Alarm Content</b>	Failed to set operation configuration		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. While setting operation configuration, unable to write the corresponding memory or meet access failure</li> <li>2. Fail to access 2nd encoder memory</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D9C and encoder software version, and update to the right version</li> <li>2. Check if communication ever failed and then check up wiring of this encoder</li> </ol>		

## 10.9 AL-31E 2nd Encoder Battery Low Voltage Position Loss

All in one ID 2nd Single Axis ID	AL-31E		
1st Single Axis ID	-	Alarm Name	2nd Encoder Position Loss
<b>Alarm Content</b>	Second encoder battery less than 2.5V, multi-turn position data loss		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder voltage too low or no battery <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 3.1V.</li> </ol> </li> <li>2. Parameter set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery <ol style="list-style-type: none"> <li>a. With controller: Change battery and reboot system.</li> <li>b. No controller: Change battery, set parameter Pn-F44(Fn-34) to 1 and reboot driver.</li> </ol> </li> <li>2. Check parameter Pn-924(P6-83). If not using an absolute encoder, set Pn-924 to 0, save and reboot driver</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		

### 10.10 AL-31F ABS Type 2nd Encoder Battery Low Voltage

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>ABS Type 2nd Encoder Battery Low Voltage</b>
<b>Alarm Content</b>	2nd ABS encoder battery voltage lower than 3V		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery</li> <li>2. Parameter setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Replace the battery. If using Panasonic encoder, then restart driver. If using Nikon, Mitsubishi, Delta or Tamagawa encoder, then don't need to restart.</li> <li>2. If not ABS encoder, set drive parameter Pn-924(P6-83) to 0, save and restart.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		

### 10.11 AL-32A Encoder External(2) Thermal Sensor is Unplugged

<b>All in one ID</b> <b>2nd Single A xis ID</b>	<b>AL-32A</b>		
<b>1st Single Axis ID</b>	<b>AL-5C</b>	<b>Alarm Name</b>	<b>Encoder External(2) Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Encoder External(2) Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder External(2) Thermal Sensor is not plugged correctly</li> <li>2. Encoder external(2) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure encoder external(2) Thermal Sensor is wired properly. (b) If encoder External(2) Thermal Sensor is not needed, set parameter Pn-74C(P1-72) to 1.</li> <li>2. Measure the resistance of encoder external(2) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace encoder external(2) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 【The 5V Detection of 1st Encoder】 is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for encoder external(2) thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> <li>b. If using KTY84:Please set Pn-75C into 0.</li> </ol> </li> </ol>
--------------------------	--

### 10.12 AL-32C 2nd Encoder internal Thermal Sensor Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-32C</b>		
<b>1st Single Axis ID</b>	<b>AL-5E</b>	<b>Alarm Name</b>	<b>2nd Encoder internal Thermal Sensor Error</b>
<b>Alarm Content</b>	2nd Encoder internal Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd Encoder internal Thermal Sensor Error</li> <li>2. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If 2nd encoder internal Thermal Sensor is not needed, set parameter Pn-74E(P1-74) to 1.</li> <li>2. Check the type of resistance used for 2nd encoder internal thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>b. If using KTY84:Please set Pn-75E into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp. for repairs.</li> </ol>		

### 10.13 AL-32D 2nd Encoder External(1) Thermal Sensor is Unplugged

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-32D</b>		
---	---------------	--	--

1st Single Axis ID	AL-5F	Alarm Name	2nd Encoder External(1) Thermal Sensor is Unplugged
<b>Alarm Content</b>	2nd Encoder External(1) Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd Encoder External(1) Thermal Sensor is not plugged correctly</li> <li>2. 2nd Encoder external(1) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 2nd encoder</li> <li>4. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure 2nd encoder external(1) Thermal Sensor is wired properly. (b) If 2nd encoder external(1) Thermal Sensor is not needed, set parameter Pn-74F(P1-75) to 1.</li> <li>2. Measure the resistance of 2nd encoder external(1) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace the 2nd encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D7B 【The 5V Detection of 2nd Encoder】 is lower than 5V. If so, please check the power supply voltage of 2nd encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 2nd encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for 2nd encoder external(1) thermal sensing <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>b. If using KTY84:Please set Pn-75F into 0.</li> </ol> </li> </ol>		

## 10.14 AL-32E 2nd Encoder External(2) Thermal Sensor is Unplugged

All in one ID 2nd Single Axis ID	AL-32E		
1st Single Axis ID	AL-60	Alarm Name	2nd Encoder External(2) Thermal Sensor is Unplugged
<b>Alarm Content</b>	2nd Encoder External(2) Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd Encoder External(2) Thermal Sensor is not plugged correctly</li> <li>2. 2nd Encoder external(2) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 2nd encoder</li> <li>4. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. (a) Make sure 2nd encoder external(2) Thermal Sensor is wired properly. (b) If 2nd encoder external(2) Thermal Sensor is not needed, set parameter Pn-750(P1-76) to 1.</li> <li>2. Measure the resistance of 2nd encoder external(2) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace the 2nd encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D7B <b>【The 5V Detection of 2nd Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 2nd encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 2nd encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for 2nd encoder external(2) thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>b. If using KTY84:Please set Pn-760 into 0.</li> </ol> </li> </ol>
---------------------------------	---

### 10.15 AL-33A Encoder not support type auto detection

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-33A</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Encoder not support type auto detection</b></p>
<p><b>Alarm Content</b></p>	<p>Type auto detection only support Syntec motors</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Setting Pn-900 Encoder Communication Type to 12 with non-Syntec motors and non-Nikon encoders.</li> <li>2. Pn-706 Motor Serial Number exception error.</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Please check up and correct Pn-900 setting.</li> <li>2. Please contact Syntec Corp.</li> </ol>		

### 10.16 AL-33B Encoder not support type auto detection

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-33B</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder not support type auto detection</b></p>

<b>Alarm Content</b>	Type auto detection not support 2nd encoders
<b>Possible Cause</b>	1. Setting Pn-920 2nd Encoder Communication Type to 12 with non-Nikon encoders
<b>Possible Solution</b>	1. Please check up and correct Pn-920 setting.

### 10.17 AL-33C Encoder Initialization Error

All in one ID 2nd Single Axis ID	AL-33C		
1st Single Axis ID	-	Alarm Name	Encoder Initialization Error
<b>Alarm Content</b>	Encoder parameter download process is unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. 1st encoder still not ready after drive power on for 1 second.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check status parameter "First encoder parameter read back status", single axis' parameter is <a href="#">D2-97</a>, four in one's status parameter is <a href="#">Pn-E5F</a>.</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently. If alarm doesn't occur after rebooting, parameters have been initialized correctly. If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		

### 10.18 AL-33D 2nd Encoder Initialization Error

All in one ID 2nd Single Axis ID	AL-33D		
1st Single Axis ID	-	Alarm Name	2nd Encoder Initialization Error
<b>Alarm Content</b>	2nd Encoder parameter download process unsuccessful		
<b>Possible Cause</b>	1. 2nd encoder still not ready after drive power on for 1 second.		

<b>Possible Solution</b>	<p>1. Check status parameter "2nd encoder parameter read back status", single axis' parameter is <a href="#">D2-98</a>, four in one's status parameter is <a href="#">Pn-E60</a>.</p> <p>*With this alarm occurring, we would not recommend saving parameters permanently.</p> <p>If alarm doesn't occur after rebooting, parameters have been initialized correctly.</p> <p>If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>
--------------------------	---

### 10.19 AL-33E Encoder Hardware Identity Unknown

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-33E</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Hardware Identity Unknown</b>
<b>Alarm Content</b>	When using Syntec Encoder, Encoder Sensor Type or Hardware ID cannot be recognized.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. <b>【Pn-90D】</b> Encoder Sensor Type setting error</li> <li>2. Hardware ID cannot be recognized <ul style="list-style-type: none"> <li>• Hardware ID can be obtained from "OpenGuide Help-&gt;About-&gt;Axis(n) Encoder Hardware ID" (n = Alarm axis)</li> </ul> </li> <li>3. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-90D is in the range of 0~4</li> <li>2. Upgrade driver version to match encoder software or shipping parameter</li> <li>3. If all above solutions fail to solve the problem, Hardware may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

### 10.20 AL-33F 2nd Encoder Hardware Identity Unknown

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-33F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Hardware Identity Unknown</b>
<b>Alarm Content</b>	When using Syntec Encoder, 2nd Encoder Sensor Type or Hardware ID cannot be recognized.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. <b>【Pn-92D】</b> 2nd Encoder Sensor Type setting error</li> <li>2. Hardware ID cannot be recognized             <ul style="list-style-type: none"> <li>• Hardware ID can be obtained from "OpenGuide Help-&gt;About-&gt;Axis(n) 2nd enc hardware ID" (n = Alarm axis)</li> </ul> </li> <li>3. Encoder hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-92D is in the range of 0~4</li> <li>2. Upgrade driver version to match encoder software or shipping parameter</li> <li>3. If all above solutions fail to solve the problem, Hardware may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>

## 10.21 AL-34A Motor Coil Thermal Sensor is Unplugged

<b>All in one ID</b>	<b>AL-34A</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Motor Coil Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Motor Coil Thermal Sensor is unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Coil Thermal Sensor is not plugged correctly</li> <li>2. Motor Coil Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. Motor coil thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure Motor Coil Thermal Sensor is wired properly. (b) If Motor Coil Thermal Sensor is not needed, set parameter Pn-74B(P1-71) to 1.</li> <li>2. Measure the resistance of Motor Coil Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace Motor Coil Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for motor coil thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>b. If using KTY84:Please set Pn-75B into 0.</li> </ol> </li> </ol>		

### 10.22 AL-64 1st Encoder Memory Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	--		
<b>1st Single Axis ID</b>	<b>AL-64</b>	<b>Alarm Name</b>	<b>1st Encoder Memory Error</b>
<b>Alarm Content</b>	Nikon's 1st Encoder internal memory error		
<b>Possible Cause</b>	Nikon encoder read and write function error		
<b>Check</b>	Reboot the driver, observe if problem is fixed		
<b>Possible Solution</b>	Send back to dealer or Syntec Corp. for repairs		

### 10.23 AL-65 2nd Encoder Memory Error

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	--		
<b>1st Single 轴向轴向 ID</b>	<b>AL-65</b>	<b>Alarm Name</b>	<b>2nd Encoder Memory Error</b>
<b>Alarm Content</b>	2nd Encoder internal memory error		
<b>Possible Cause</b>	Nikon encoder read and write function error		
<b>Check</b>	Reboot the driver, observe if problem is fixed		
<b>Possible Solution</b>	Send back to dealer or Syntec Corp. for repairs		

### 10.24 AL-300 Encoder Halt Alarm

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-300</b>		
<b>1st Single Axis ID</b>	<b>AL-51</b>	<b>Alarm Name</b>	<b>Encoder Halt Alarm</b>

<b>Alarm Content</b>	Encoder crashed and can't correctly send back position data.
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder crash and watchdog restart encoder. Non-Syntec encoder internal error.</li> <li>2. Motor overheating</li> <li>3. Noise interference</li> <li>4. Hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Reboot driver and observe encoder for abnormality</li> <li>2. Check Pn-90E(P3-34) Encoder Reset Counter. If encoder abnormal, check whether the motor is overheated or not.</li> <li>3. Make sure the shielding wire attached to encoder inside the junction box is connected to the motor's ground wire.</li> <li>4. Replace encoder.</li> <li>5. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>
<b>Detailed Instructions</b>	AL-15 Issue Trouble Shooting 【Pn-D95】 Enc Error Status ALMC

## 10.25 AL-301 Encoder Index Error

All in one ID 2nd Single Axis ID	AL-301		
1st Single Axis ID	AL-23	Alarm Name	Encoder Index Error
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong</li> <li>2. Incorrect encoder setting</li> <li>3. Encoder pole number (Pn-90A/P3-30) setting error</li> <li>4. Communication interference</li> <li>5. Encoder Hardware malfunction</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test" and check for alarms . If any alarm goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>
<b>Detailed Instructions</b>	AL-23 Issue Trouble Shooting

### 10.26 AL-302 Encoder Direction Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Encoder Polarity " setting error.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-021(P3-22) ( 0 to 1、 1 to 0 ) and reboot driver.</li> </ol> <p>⚠ If motor is PMSM type, set parameter Pn-021(P3-22) is not recommended.</p>		

### 10.27 AL-303 Encoder Resolution Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-303</b>		
<b>1st Single Axis ID</b>	<b>AL-25</b>	<b>Alarm Name</b>	<b>Encoder Resolution Error</b>
<b>Alarm Content</b>	Encoder resolution error.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder resolution Pn-902(P3-21) setting error</li> <li>2. Encoder pole number Pn-90A(P3-30) setting error</li> <li>3. Hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-902(P3-21) is equal to resolution or not. If not, set encoder resolution to correct value and reboot driver</li> <li>2. Check parameter Pn-90A(P3-30), set encoder pole pair number correctly and reboot driver</li> <li>3. Send back to distributor or Syntec representative to check hardware</li> </ol>

## 10.28 AL-304 Encoder No Feedback

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-304</b>		
<b>1st Single Axis ID</b>	<b>AL-27</b>	<b>Alarm Name</b>	<b>Encoder No Feedback</b>
<b>Alarm Content</b>	Drive fails to receive signals from the encoder .		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. Encoder wire is untied or unconnected</li> <li>3. Encoder communication interface, Encoder port number setting error</li> <li>4. Wire failure (shor circuit, wire breakage)</li> <li>5. Noise generated in QEP encoder</li> <li>6. Encoder malfunction</li> <li>7. Driver's pre-circuit board malfunction</li> <li>8. Encoder's baud rate is unsupported</li> <li>9. Encoder firmware update failed</li> </ol>		

# SYNTEC

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check if encoder wiring and pin definitions are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>3. Refer to "Driver Parameter Manual", set parameters correctly and restart drive.</li> <li>4. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>5. Set Pn-52E(P6-65) to change the speed in startup.</li> <li>6. Replace motor</li> <li>7. Replace driver</li> <li>8. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BiSSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>9. If the alarm happend after encoder firmware update, please contact syntec or authorized representative</li> <li>10. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please using Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-27 Issue Trouble Shooting</p>

## 10.29 AL-305 Encoder Pulse Loss

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-305</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-28</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Pulse Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Pulse number detected is different in each revolution</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Encoder cable malfunction</li> <li>2. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Encoder malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

### 10.30 AL-306 Encoder Z Index Shift

All in one ID 2nd Single Axis ID	AL-306		
1st Single Axis ID	AL-54	Alarm Name	Encoder Z Index Shift
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encode is error possibly.		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Syntec encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is differ from the setting parameter</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of encoder is broken.</li> <li>2. Sensor and detective ring are wrong assembly.</li> </ol>		
<b>Possible Solution</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or above(Multi-Axis Servo Drive is updated to V2.2.5 or above), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder: Tamagawa Incremental</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Confirm the encoder is installed in accordance with the specification. <ol style="list-style-type: none"> <li>a. Check the gap between sensor and detective ring.</li> <li>b. Check the relative height between sensor and detective ring.</li> </ol> </li> <li>3. Send back to Syntec Corp.</li> </ol>		

<b>Detailed Instructions</b>	AL-54 Issue Trouble Shooting
------------------------------	------------------------------

### 10.31 AL-307 Encoder Status Extreme Error

All in one ID 2nd Single Axis ID	AL-307		
1st Single Axis ID	AL-48	Alarm Name	Encoder Status Extreme Error
<b>Alarm Content</b>	Encoder status has extreme errors to operate normally		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Serial encoder communication interference</li> <li>2. Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Encoder's cable grounding failure</li> <li>5. Encoder communication type setting error</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. if the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>8. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Encoder's firmware malfunction</li> <li>10. Encoder's hardware malfunction</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D73~Pn-D76(D1-28,D1-29,D1-46,D1-47) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive is defected has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions:             <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b. try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-900(P3-20) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>11. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-48 Issue Problem Shooting</p>

### 10.32 AL-308 1st Encoder over speed when power on

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-308</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-68</b></p>	<p><b>Alarm Name</b></p>	<p><b>1st Encoder over speed when power on</b></p>
<p><b>Alarm Content</b></p>	<p>Position changes too fast leads to unfinished initialization.</p>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor with Nikon Encoder must run below 250RPM during initialization.                     <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from encoder will not be read until running below 250RPM.</li> </ul> </li> <li>2. Motor with Panasonic Encoder must run below 100RPM during initialization.                     <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>3. Motor with Mitutoyo Encoder must run below 400 mm/min during initialization.                     <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, encoder position could be abnormal.</li> </ul> </li> <li>4. Motor with Tamagawa Encoder must run below 100 RPM during initialization.                     <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>5. Motor with Syntec Encoder must run below 100RPM during initialization.                     <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from encoder will not be read.</li> </ul> </li> <li>6. If alarm occurs when motor isn't running, there is possibly encoder malfunction.</li> </ol>
<b>Check</b>	Check the motor is stopped before drive power on.
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If using Nikon, Panasonic, Tamagawa encoder, reset the alarm after the motor is stopped.</li> <li>2. If using Syntec , Mitutoyo encoder, reboot the drive after the motor is stopped..</li> <li>3. Contact motor company for repair.</li> </ol>
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC

### 10.33 AL-309 Serial Encoder Communication Type is Wrong

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-309</b>		
<b>1st Single Axis ID</b>	<b>AL-4C</b>	<b>Alarm Name</b>	<b>Serial Encoder Communication Type is Wrong</b>

<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using serial encoder</li> <li>2. If Pn-900(P3-20) is set to 12 and connected with a Nikon encoder, then it is communication issue.</li> <li>3. If the Pn-900 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-900 can not be used at the setting of Pn-901</li> <li>6. FPGA version doesn't support this encoder type</li> </ol>
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface (Pn-900(P3-20) ) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-901 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-900(P3-20) setting.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-900(P3-20) correctly and reboot drive.</li> <li>2. Reassemble cables, make sure there is no interference and then restart</li> <li>3. Set Pn-900 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-900(P3-20). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-901 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type</li> </ol>

### 10.34 AL-310 2nd Encoder Halt Alarm

<b>All in one ID</b>	<b>AL-310</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-52</b>	<b>Alarm Name</b>	<b>2nd Encoder Halt Alarm</b>
<b>Alarm Content</b>	Second encoder crashes, unable to send back position data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder crash and watchdog restart encoder. Non-Syntec encoder internal error.</li> <li>2. Motor overheating</li> <li>3. Noise interference</li> <li>4. Hardware malfunction</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Restart and observe second encoder for abnormality</li> <li>2. Check Pn-92E(P6-94) 2nd Encoder Reset Counter. If encoder abnormal, check whether the motor is overheated or not</li> <li>3. Check whether the motor is overheated or not, if the parameter Pn-92E(P6-94) is 5</li> <li>4. Make sure the shielding wire attached to encoder inside the junction box is connected to the motor's ground wire.</li> <li>5. Replace encoder.</li> <li>6. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC

### 10.35 AL-311 2nd Encoder Index Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-31 1</b>		
<b>1st Single Axis ID</b>	<b>AL-33</b>	<b>Alarm Name</b>	<b>2nd Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long.</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong.</li> <li>2. Second encoder setting error.</li> <li>3. Second encoder pole number(Pn-92A/P6-90) setting error.</li> <li>4. Communication interference</li> <li>5. Second encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check wiring of second encoder, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test". If any alarms goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>		

### 10.36 AL-312 2nd Encoder Direction Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-312</b>		
<b>1st Single Axis ID</b>	<b>AL-34</b>	<b>Alarm Name</b>	<b>2nd Encoder Direction Error</b>
<b>Alarm Content</b>	Second encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Second encoder polarity " setting error		
<b>Possible Solution</b>	<p>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-022(P6-82) ( 0 to 1、 1 to 0 ) and reboot driver.</p> <p>⚠ If motor is PMSM type, set parameter Pn-022(P6-82) is not recommended.</p>		

### 10.37 AL-313 2nd Encoder resolution error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-313</b>		
<b>1st Single Axis ID</b>	<b>AL-35</b>	<b>Alarm Name</b>	<b>2nd Encoder resolution error</b>
<b>Alarm Content</b>	Second encoder resolution error.		
<b>Possible Cause</b>	<p>1. 2nd encoder resolution Pn-922(P6-81) setting error</p> <p>2. 2nd Encoder pole number Pn-92A(P6-90) setting error.</p> <p>3. Second encoder hardware malfunction</p>		
<b>Possible Solution</b>	<p>1. Check if parameter Pn-922(P6-81) is equal to and resolution or not. If they differ not, set encoder resolution to correct value correct encoder resolution value and restart drive and reboot drive.</p> <p>2. Check parameter Pn-92A(P6-90), set encoder pole pair number correctly and reboot driver</p> <p>3. Send back to authorized dealer or Syntec Corp. for repairs.</p>		

### 10.38 AL-314 2nd Encoder no feedback

All in one ID 2nd Single Axis ID	AL-314		
1st Single Axis ID	AL-36	Alarm Name	2nd Encoder no feedback
<b>Alarm Content</b>	Drive fails to receive signals from the second encoder .		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Second encoder wire is untied or unconnected.</li> <li>2. Encoder communication interface, Encoder port number setting error.</li> <li>3. Wire failure (shor circuit, wire breakage)</li> <li>4. In dual feedback control and 2nd encoder type is QEP, mechanical problem and machining condition may cause alarm</li> <li>5. Encoder malfunction</li> <li>6. Driver's pre-circuit board malfunction</li> <li>7. Encoder's baud rate is unsupported</li> <li>8. Encoder firmware update failed</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if serial encoder wiring and pin definitions for errors are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>2. Refer to "Drive Parameter Manual", set parameters correctly and reboot driver.</li> <li>3. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>4. Refer to "Dual feedback control and outer feedback using linear scale" section of manual, change Pn-52F properly</li> <li>5. Replace motor</li> <li>6. Replace driver</li> <li>7. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BiSSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>8. If the alarm happend after encoder firmware update, please contact syntec or authorized representative</li> <li>9. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please using Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>		

### 10.39 AL-315 2nd Encoder Pulse Loss

All in one ID 2nd Single Axis ID	AL-315		
-------------------------------------	--------	--	--

1st Single Axis ID	AL-39	Alarm Name	2nd Encoder Pulse Loss
<b>Alarm Content</b>	Pulse number detected is different in each revolution		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Second encoder's cable problem</li> <li>2. Second encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Second encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

### 10.40 AL-316 2nd Encoder Z Index Shift

All in one ID 2nd Single Axis ID	AL-316		
1st Single Axis ID	AL-55	Alarm Name	2nd Encoder Z Index Shift
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encoder is error possibly .		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Second encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hallow magnetic ring Zindex position is different than from the written parameter.</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> <li>6. Hardware malfunction</li> </ol> <p><b>Non-Syntec encoder:</b> Tamagawa Incremental</p> <ol style="list-style-type: none"> <li>1. The circuit board of encoder is broken.</li> <li>2. Sensor and detective ring are wrong assembly.</li> </ol>		

<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or more recent(Multi-Axis Servo Drive is updated to V2.2.5), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if second encoder and motor are grounded.</li> <li>3. Check if joining between second encoder cable and motor are is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the second encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b> Tamagawa Incremental</p> <ol style="list-style-type: none"> <li>1. Check the 2nd encoder is contaminated by dust or oil.</li> <li>2. Confirm the 2nd encoder is installed in accordance with the specification.             <ol style="list-style-type: none"> <li>a. Check the gap between sensor and detective ring.</li> <li>b. Check the relative height between sensor and detective ring.</li> </ol> </li> <li>3. Send back to Syntec Corp.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-54 Issue Trouble Shooting</p>

### 10.41 AL-317 2nd Encoder Status Extreme Error

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-317</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-49</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder Status Extreme Error</b></p>
<p><b>Alarm Content</b></p>	<p>2nd Encoder status has extreme errors to operate normally</p>		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Second encoder communication interference.</li> <li>2. Second Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Second encoder's cable grounding failure</li> <li>5. Second encoder communication type setting error.</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>8. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Second encoder's firmware malfunction</li> <li>10. Second encoder's hardware malfunction</li> </ol>
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D77~Pn-D7A(D1-42,D1-43,D1-59,D1-60) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions,             <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b.try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-920(P6-80) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>11. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>

## 10.42 AL-318 2nd Encoder over speed when power on

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-318</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-69</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder over speed when power on</b></p>
<p><b>Alarm Content</b></p>	<p>Position changes too fast leads to unfinished initialization.</p>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor with Nikon 2nd Encoder must run below 250RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from 2nd encoder will not be read until running below 250RPM.</li> </ul> </li> <li>2. Motor with Panasonic 2nd Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>3. Motor with Mitutoyo 2nd Encoder must run below 400 mm/min during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder position could be abnormal.</li> </ul> </li> <li>4. Motor with Tamagawa 2nd Encoder must run below 100 RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, 2nd encoder initialization will be suspended until running below 100RPM.</li> </ul> </li> <li>5. Motor with Syntec 2nd Encoder must run below 100RPM during initialization. <ul style="list-style-type: none"> <li>• Note: If alarm occur at just power on, backup parameter from 2nd encoder will not be read.</li> </ul> </li> <li>6. If alarm occurs when motor isn't running, there is possibly 2nd encoder malfunction.</li> </ol>
<b>Check</b>	Check the motor is stopped before drive power on.
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If using Nikon, Panasonic, Tamagawa 2nd encoder, reset the alarm after the motor is stopped.</li> <li>2. If using Syntec , Mitutoyo 2nd encoder, reboot the drive after the motor is stopped..</li> <li>3. Contact motor company for repair.</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC

### 10.43 AL-319 2nd Serial Encoder Communication Type is Wrong

<b>All in one ID</b>	<b>AL-319</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-4D</b>	<b>Alarm Name</b>	<b>2nd Serial Encoder Communication Type is Wrong</b>

<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using second serial encoder.</li> <li>2. If Pn-920(P6-80) is set to 12 and connected with a Nikon encoder, then the problem is with communication there is a communication problem</li> <li>3. If the Pn-920 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-920 can not be used at the setting of Pn-921</li> <li>6. FPGA version doesn't support this encoder type.</li> </ol>
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface Pn-920(P6-80) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-921 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-920(P6-80) setting encoder type.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-920(P6-80) correctly and reboot driver</li> <li>2. Reassemble cables, make sure there is no interference and then reboot driver</li> <li>3. Set Pn-920 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-920(P6-80). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-921 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type.</li> </ol>

## 10.44 AL-320 Encoder Internal Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-320</b>		
<b>1st Single Axis ID</b>	<b>AL-860</b>	<b>Alarm Name</b>	<b>Encoder Internal Over Temperature</b>





<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-742.</li> <li>2. Nikon encoder: Encoder internal temperature over 120 degrees Celsius.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 110 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree.</li> <li>10. Hcfa(12k) encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> <li>11. Hcfa(16k) encoder: Encoder internal temperature is higher than 95 Celsius degree.</li> <li>12. Hcfa 23 bit optical encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> <li>13. YuHeng encoder: Encoder internal temperature is higher than 90 Celsius degree.</li> </ol>
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi, Hcfa(12k/16k), Hcfa 23 bit, YuHeng or Delta encoders, please check up Pn-D61.</li> <li>3. If using FeeDat, Tamagawa, Hcfa(12k/16k), YuHeng or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-742(P1-32) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-742 "Syntec Encoder internal(1) KTY84 overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>7. If all above solutions fail to solve the problem, KTY84 may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-40, AL-41, AL-42 Issue Trouble Shooting</p> <p>【Pn-D95】 Enc Error Status ALMC</p>

### 10.45 AL-321 Encoder external(1) Thermal Sensor Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-321</b>		
<b>1st Single Axis ID</b>	<b>AL-41</b>	<b>Alarm Name</b>	<b>Encoder external(1) Thermal Sensor Over Temperature</b>
<b>Alarm Content</b>	The temperature that encoder external(1)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting		

### 10.46 AL-322 Encoder External(2) Thermal Sensor Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-322</b>		
<b>1st Single Axis ID</b>	<b>AL-42</b>	<b>Alarm Name</b>	<b>Encoder External(2) Thermal Sensor Over Temperature</b>

<b>Alarm Content</b>	The temperature that encoder external(2)'s Thermal Sensor detect is over drive's protective limit.
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Parameter error</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-744(P1-34) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-744 "Syntec Encoder external(2) Thermal Sensor overheat threshold" is not 0. If temperature sensing wires are floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>4. Check the type of resistance used for encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> </ol>
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting

### 10.47 AL-324 2nd Encoder Internal Over Temperature

<b>All in one ID</b>	<b>AL-324</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-8A6</b>	<b>Alarm Name</b>	<b>2nd Encoder Internal Over Temperature</b>



<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-746.</li> <li>2. Nikon encoder: Encoder internal temperature is higher than operation temperature or protection level Pn-746.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius or protection level Pn-746.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius or protection level Pn-746.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 110 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree or protection level Pn-746.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree or protection level Pn-746.</li> <li>10. Hcfa(12k) encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> <li>11. Hcfa(16k) encoder: Encoder internal temperature is higher than 95 Celsius degree or protection level Pn-746.</li> <li>12. Hcfa 23 bit optical encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> <li>13. YuHeng encoder: Encoder internal temperature is higher than 90 Celsius degree or protection level Pn-746.</li> </ol>
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi, Hcfa(12k/16k), Hcfa 23 bit, YuHeng or Delta encoders, please check up Pn-D65.</li> <li>3. If using FeeDat, Tamagawa, Hcfa(12k/16k), YuHeng or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-746 "Syntec Encoder internal(1) thermal sensor overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for 2nd encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>7. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>【Pn-D96】 2nd Enc Error Status ALMC</p>

### 10.48 AL-325 2nd Encoder External(1) Thermal Sensor Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-325</b>		
<b>1st Single Axis ID</b>	<b>AL-45</b>	<b>Alarm Name</b>	<b>2nd Encoder External(1) Thermal Sensor Over Temperature</b>
<b>Alarm Content</b>	The temperature that 2nd encoder external(1)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

### 10.49 AL-326 2nd Encoder External(2) Thermal Sensor Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-326</b>		
<b>1st Single Axis ID</b>	<b>AL-46</b>	<b>Alarm Name</b>	<b>2nd Encoder External(2) Thermal Sensor Over Temperature</b>

<b>Alarm Content</b>	Encoder External(2) detects Thermal Sensor's temperature over drive's protective limit
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-748(P1-38) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(2) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(2)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>

## 10.50 AL-328 Encoder Internal Thermal Sensor Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-328</b>		
<b>1st Single Axis ID</b>	<b>AL-5A</b>	<b>Alarm Name</b>	<b>Encoder Internal Thermal Sensor Error</b>
<b>Alarm Content</b>	Encoder Internal Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder Internal Thermal Sensor Error</li> <li>2. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If encoder Internal Thermal Sensor is not needed, set parameter Pn-74A(P1-70) to 1.</li> <li>2. Check the type of resistance used for encoder internal thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp.</li> </ol>
--------------------------	--

### 10.51 AL-329 Encoder External(1) Thermal Sensor is Unplugged

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-329</b>		
<b>1st Single Axis ID</b>	<b>AL-5B</b>	<b>Alarm Name</b>	<b>Encoder External(1) Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Encoder External(1) Thermal Sensor is unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder External(1) Thermal Sensor is not plugged correctly</li> <li>2. Encoder external(1) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure encoder external(1) Thermal Sensor is wired properly. (b) If encoder External(1) Thermal Sensor is not needed, set parameter Pn-74B(P1-71) to 1.</li> <li>2. Measure the resistance of encoder external(1) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for encoder external(1) thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>b. If using KTY84:Please set Pn-75B into 0.</li> </ol> </li> </ol>		

### 10.52 AL-330 Encoder Port Setting Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-330</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Port Setting Error</b>
<b>Alarm Content</b>	Encoder Port (Parameter Pn-901) setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter Pn-900 encoder type is set but parameter Pn-901 is not.</li> <li>2. Port number setting is the same as another encoder port setting</li> <li>3. Parameter Pn-901 is greater than actual port number</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameter Pn-901 correctly according to the actual application.</li> </ol>		

### 10.53 AL-331 2nd Encoder port setting error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-331</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder port setting error</b>
<b>Alarm Content</b>	2nd encoder Port (Parameter Pn-921) setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter Pn-920 encoder type is set but parameter Pn-921 is not.</li> <li>2. Port number setting is the same as another encoder port setting</li> <li>3. Parameter Pn-921 is greater than actual port number</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameter Pn-921 correctly according to the actual application.</li> </ol>		

### 10.54 AL-332 Encoder not recognized

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-332</b>		
<b>1st Single Axis ID</b>	<b>AL-6A</b>	<b>Alarm Name</b>	<b>Encoder not recognized</b>



<b>Alarm Content</b>	Drive doesn't support the version of encoder version. Do not run this motor and modify any parameters about this motor.
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps:             <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>

### 10.55 AL-333 2nd Encoder not recognized

All in one ID 2nd Single Axis ID	AL-333		
1st Single Axis ID	AL-6B	Alarm Name	2nd Encoder not recognized
<b>Alarm Content</b>	Drive doesn't support the version of second encoder version. Do not run this motor and modify any parameters about this motor		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps:             <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>		

### 10.56 AL-334 Encoder Download Parameters Fail

All in one ID 2nd Single Axis ID	AL-334		
-------------------------------------	--------	--	--

1st Single Axis ID	AL-58	Alarm Name	Encoder Download Parameters Fail
<b>Alarm Content</b>	Encoder parameter download process is unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. The parameters read back from encoder is incorrect.</li> <li>3. Signal transfer error due to the poor contact of the first encoder's pin</li> <li>4. With hallow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check status parameter "First encoder parameter read back status", single axis' parameter is <a href="#">D2-97</a>, four in one's status parameter is <a href="#">Pn-E5F</a>.</li> <li>3. Check if encoder is wired correctly and whether there are interferences.</li> <li>4. Check connectivity of encoder connector pins</li> <li>5. with hallowed encoder, please set motor serial number as 0 and reboot</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently. If alarm doesn't occur after rebooting, parameters have been read correctly. If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		

### 10.57 AL-335 2nd Encoder Download Parameters Fail

All in one ID 2nd Single Axis ID	AL-335		
1st Single Axis ID	AL-59	Alarm Name	2nd Encoder Download Parameters Fail
<b>Alarm Content</b>	2nd Encoder parameter download process unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameters read back from 2nd encoder is incorrect.</li> <li>2. Signal transfer error due to the poor contact of the 2nd encoder's pin</li> <li>3. With hallow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check status parameter "2nd encoder parameter read back status", single axis' parameter is <a href="#">D2-98</a>, four in one's status parameter is <a href="#">Pn-E60</a>.</li> <li>2. Check if encoder is wired correctly and whether there are interferences.</li> <li>3. Check connectivity of encoder connector pins</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently.</p> <p>If alarm doesn't occur after rebooting, parameters have been read correctly.</p> <p>If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p> <p>Refer to AL-58<a href="#">问题处置</a> for alarm trouble shooting.</p>
--------------------------	---

### 10.58 AL-336 Syntec Encoder Runs in Bootloader Mode

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-336</b>		
<b>1st Single Axis ID</b>	<b>AL-4A</b>	<b>Alarm Name</b>	<b>Syntec Encoder Runs in Bootloader Mode</b>
<b>Alarm Content</b>	When 1st encoder is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		

### 10.59 AL-337 2nd Syntec Encoder Runs in Bootloader Mode

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-337</b>		
<b>1st Single Axis ID</b>	<b>AL-4B</b>	<b>Alarm Name</b>	<b>2nd Syntec Encoder Runs in Bootloader Mode</b>
<b>Alarm Content</b>	When 2nd is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		

## 10.60 AL-338 Encoder Register Access Error

All in one ID 2nd Single Axis ID	AL-338		
1st Single Axis ID	AL-75	Alarm Name	Encoder Register Access Error
<b>Alarm Content</b>	Encoder Register Access Error		
<b>Possible Cause</b>	1. Error count is too high while accessing encoder register		
<b>Possible Solution</b>	1. Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:                             <ul style="list-style-type: none"> <li>i. Pn-D73(D1-28) Serial Encoder CRC error count(hardware)</li> <li>ii. Pn-D74(D1-29) Serial Encoder CRC error count(software)</li> <li>iii. Pn-D76(D1-47) Serial Encoder overtime error count</li> </ul> </li> <li>b. If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c. If issue is recurring, contact dealer or Syntec Corp. for repairs.</li> </ul>		

## 10.61 AL-339 2nd Encoder Register Access Error

All in one ID 2nd Single Axis ID	AL-339		
1st Single Axis ID	AL-76	Alarm Name	2nd Encoder Register Access Error
<b>Alarm Content</b>	2nd Encoder Register Access Error		
<b>Possible Cause</b>	1. Error count is too high while accessing 2nd encoder register		
<b>Possible Solution</b>	Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:                             <ul style="list-style-type: none"> <li>i.Pn-D77(D1-42) Serial Encoder CRC error count(hardware)</li> <li>ii.Pn-D78(D1-43) Serial Encoder CRC error count(software)</li> <li>iii.Pn-D7A(D1-60) Serial Encoder overtime error count</li> </ul> </li> <li>b.If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c.If issue is recurring, contact dealer or Syntec Corp. for repairs</li> </ul>		

## 10.62 AL-340 Encoder Status Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-340</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Status Error</b>
<b>Alarm Content</b>	Encoder status has errors to operate normally		
<b>Possible Cause</b>	1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder over temperature".		
<b>Possible Solution</b>	1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.		

## 10.63 AL-341 Encoder Extremely Internal Over Temperature

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-341</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Encoder Extremely Internal Over Temperature</b>
<b>Alarm Content</b>	1. Syntec encoder: Encoder temperature over 100 Celsius degrees		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC encoders, please check up Pn-D61.</li> <li>3. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>4. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

### 10.64 AL-342 Encoder Extremely External(1) Thermal Sensor Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-342</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Extremely External(1) Thermal Sensor over temperature</b>
<b>Alarm Content</b>	The temperature that encoder external(1)'s Thermal Sensor detect is 20 Celsius degrees higher than protection level Pn-743.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Thermal sensor signal error</li> <li>3. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>4. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. Make sure parameter Pn-743 is set correctly.</li> <li>3. Check the type of resistance used for encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>4. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

### 10.65 AL-343 Encoder Extremely External(2) Thermal Sensor Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-343</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Extremely External(2) Thermal Sensor over temperature</b>
<b>Alarm Content</b>	The temperature that encoder external(2)'s Thermal Sensor detect is 20 Celsius degrees higher than protection level Pn-744.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Thermal sensor signal error</li> <li>3. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the pink and gray line of the encoder, respectively)</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. Make sure parameter Pn-744 is set correctly.</li> <li>3. Check the type of resistance used for encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> <li>4. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>

### 10.66 AL-344 Encoder Signal Noise Interference

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-344</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Encoder Signal Noise Interference</b>
<b>Alarm Content</b>	Encoder Signal Noise Interference		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D74 Encoder CRC error counter(Software). Check the encoder wiring.</li> <li>2. With connecting Tamagawa, YuHeng, Hcfa, or Hcfa 23 bit encoder, the parameter of encoder communication interface (Pn-900) and encoder's serial communication may be mismatched If alarm is triggered at power on.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the encoder wiring and grounding.</li> <li>2. Set Pn-900 correctly and reboot drive.</li> <li>3. Send back to Syntec Corp.</li> </ol>		

### 10.67 AL-345 Encoder Feedback Abnormal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-345</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder Feedback Abnormal</b>

<b>Alarm Content</b>	Packet of encoder position feedback is abnormal and the difference of two continuous position feedback is too large
<b>Possible Cause</b>	1. Driver detect the encoder feedback is abnormal.
<b>Possible Solution</b>	1. Check is position feedback varies abnormally or unexpectedly. 2. Please contact Syntec Corp.

### 10.68 AL-346 Motor Rear Cover Over Temperature

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-346</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>Motor Rear Cover Over Temperature</b>
<b>Alarm Content</b>	Syntec encoder: Motor rear cover temperature is higher than protection level Pn-762.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Thermal sensor signal error</li> <li>3. Motor rear cover thermal sensor type setting error</li> <li>4. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. Please check up Pn-D61.</li> <li>3. Make sure parameter <b>【Pn-746 Motor Rear Cover overheat threshold】</b> is set correctly.</li> <li>4. Check the type of resistance used for motor rear cover thermal sensing. If using PT1000: Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>5. If all above solutions fail to solve the problem, thermal sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>Detailed Instructions</b>	AL-320, AL-321, AL-322 Trouble Shooting <b>【Pn-D95】</b> Enc Error Status ALMC		

### 10.69 AL-347 Motor Rear Cover Thermal Sensor Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-347</b>		
---	---------------	--	--



1st Single Axis ID	-	Alarm Name	Motor Rear Cover Thermal Sensor Error
<b>Alarm Content</b>	Motor Rear Cover Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Motor Rear Cover Thermal Sensor Error</li> <li>Motor rear cover thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>If motor rear cover thermal sensor is not needed, set parameter Pn-74A(P1-70) to 1.</li> <li>Check the type of resistance used for motor rear cover thermal sensing                             <ol style="list-style-type: none"> <li>If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>Send back to dealer or Syntec Corp.</li> </ol>		

### 10.70 AL-348 Motor Coil Thermal Sensor Over Temperature

All in one ID 2nd Single Axis ID	AL-348		
1st Single Axis ID	-	Alarm Name	Motor Coil Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that Motor Coil's Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>Motor cooling system failure</li> <li>Version compatability</li> <li>Thermal sensor signal error</li> <li>Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>With SYNTEC encoder, motor coil's thermal sensor type setting error</li> <li>Encoder hardware malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for motor coil thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting

### 10.71 AL-350 2nd Encoder Status Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-350</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Status Error</b>
<b>Alarm Content</b>	Encoder status has errors to operate normally		
<b>Possible Cause</b>	1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder over temperature".		
<b>Possible Solution</b>	1. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.		

### 10.72 AL-351 2nd Encoder Extremely Internal Over Temperature

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-351</b>		
<b>1st Single 轴向轴向 ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Extremely Internal Over Temperature</b>
<b>Alarm Content</b>	1. Syntec encoder: Encoder temperature over 100 Celsius degrees		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC encoders, please check up Pn-D65.</li> <li>3. Check the type of resistance used for 2nd encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>4. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>

### 10.73 AL-352 2nd Encoder Extremely External(1) Thermal Sensor Over Temperature

All in one ID 2nd Single Axis ID	AL-352		
1st Single Axis ID	-	Alarm Name	2nd Encoder Extremely External(1) Thermal Sensor over temperature
<b>Alarm Content</b>	The temperature that 2nd encoder external(1)'s Thermal Sensor detect is 20 Celsius degrees higher than protection level Pn-747.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Thermal sensor signal error</li> <li>3. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>4. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. Make sure parameter Pn-747 is set correctly.</li> <li>3. Check the type of resistance used for 2nd encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>4. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

## 10.74 AL-353 2nd Encoder Extremely External(2) Thermal Sensor Over Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-353</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Extremely External(2) Thermal Sensor over temperature</b>
<b>Alarm Content</b>	The temperature that 2nd encoder external(2)'s Thermal Sensor detect is 20 Celsius degrees higher than protection level Pn-748.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Thermal sensor signal error</li> <li>3. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the pink and gray line of the encoder, respectively)</li> <li>4. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. Make sure parameter Pn-748 is set correctly.</li> <li>3. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>4. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		

## 10.75 AL-354 2nd Encoder Signal Noise Interference

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-354</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>2nd Encoder Signal Noise Interference</b>
<b>Alarm Content</b>	2nd Encoder Signal Noise Interference		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check Pn-D78 2nd Encoder CRC error counter(Software). Check the encoder wiring.</li> <li>2. With connecting Tamagawa, YuHeng, Hcfa, or Hcfa 23 bit encoder, the parameter of encoder communication interface (Pn-920) and encoder's serial communication may be mismatched If alarm is triggered at power on.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the 2nd encoder wiring and grounding.</li> <li>2. Set Pn-920 correctly and reboot drive.</li> <li>3. Send back to Syntec Corp.</li> </ol>
--------------------------	---

### 10.76 AL-355 2nd Encoder Feedback Abnormal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-355</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>2nd Encoder Feedback Abnormal</b>
<b>Alarm Content</b>	Packet of 2nd encoder position feedback is abnormal and the difference of two continuous position feedback is too large		
<b>Possible Cause</b>	1. Driver detect the 2nd encoder feedback is abnormal.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check is position feedback varies abnormally or unexpectedly.</li> <li>2. Please contact Syntec Corp.</li> </ol>		



## 11 AL-4xx Tuning Alarm Description

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-400</b>		
<b>1st Single Axis ID</b>	<b>AL-29</b>	<b>Alarm Name</b>	<b>Motor Parameter Estimation Failure - Abnormal Output Command</b>
<b>Alarm Content</b>	The search for the estimated current command fails during parameter estimation		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Abnormal current control</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. Check whether the current reaches the 120% rated current of the motor during the estimation process. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. The voltage command exceeds 40% of the rated motor voltage during the tuning process. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-401</b>		
<b>1st Single Axis ID</b>	<b>AL-2A</b>	<b>Alarm Name</b>	<b>Motor Parameter Estimation Failure-Abnormal Motor Speed</b>
<b>Alarm Content</b>	The motor speed is lower than 80% of the motor rated speed during the parameter estimation.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Motor rated speed is too high</li> <li>4. Abnormal current control</li> <li>5. Motor speed has not returned to zero when starting parameter estimation</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the environment is equipped with encoder, confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. During the rotation estimation process, the motor speed does not exceed 80% of the rated speed. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. Check whether the motor rated speed exceeds 10000 RPM. It is recommended to use "static induction motor tuning", or manually enter the motor parameters to avoid using the existing Motor tuning function.</li> <li>4. Check whether the current error is too high. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps.</li> <li>5. Return the motor speed to zero, and then start parameter estimation.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-402</b>		
<b>1st Single Axis ID</b>	<b>AL-50</b>	<b>Alarm Name</b>	<b>Current Tuning Error</b>
<b>Alarm Content</b>	Current tuning error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Excess current during tuning.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Redo the "Current Tuning" test</li> <li>2. Send back to Syntec or authorized representative</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-403</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Motor Rotor Time Const. Estimation Failure</b>
<b>Alarm Content</b>	Frequency search failure during the estimation process of motor rotor time constant.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Rated Speed Pn-70C is set incorrectly</li> <li>2. Motor Pole Number Pn-701 is set incorrectly</li> <li>3. During parameter estimation, the motor is rotated by external force</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Correct Pn-70C</li> <li>2. Correct Pn-701</li> <li>3. Avoid motor rotation during parameter estimation</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-404</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>PM Motor Parameter Tuning Fail</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. UVW cable disconnected</li> <li>2. Voltage command reaches limit during tuning</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 3 phase power cables are loose</li> <li>2. Voltage specification of driver and motor are matched</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check UVW cables between motor and drive for damage or looseness.</li> <li>2. Using driver that voltage specification is matched</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-410</b>		
<b>1st Single Axis ID</b>	<b>AL-2B</b>	<b>Alarm Name</b>	<b>Acceleration Limit Too Large</b>
<b>Alarm Content</b>	Max Jerk, acceleration or travel limit setup inappropriate.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Initial rotor inertia setup incorrect</li> <li>2. Motor specification input error</li> <li>3. Low JOG speed</li> <li>4. Insufficient travel limit</li> <li>5. Acceleration setup too severe</li> <li>6. Low Jerk</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Excessive inertia setup causes drive to overshoot. Refer to "Auto tuning" section of manual and reset Pn-720(P4-20) and Pn-722(P4-21).</li> <li>2. Check motor parameter Pn-7XX (P3-XX).</li> <li>3. Parameter Pn-304(Fn-02) too low causing tuning to fail. Minimum tuning RPM is 20% of rated motor speed.</li> <li>4. Travel parameters Pn-F14(Fn-04)、 Pn-F15(Fn-05) are too close causing motor speed insufficiency. Increase Pn-F14(Fn-04) and Pn-F15(Fn-05) interval to at least half of motor revolution.</li> <li>5. Acceleration time Pn-306(P6-10) is so short that motor cannot catch up. Set Pn-306(P6-10) longer.</li> <li>6. Jerk time Pn-307(P6-11) is so large that acceleration is unable to reach proper value. Lower jerk time Pn-307(P6-11) or lengthen acceleration time Pn-30.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-411</b>		



<b>1st Single Axis ID</b>	<b>AL-2C</b>	<b>Alarm Name</b>	<b>Initial Value of Inertia is Set Unsuitable</b>
<b>Alarm Content</b>	Triggered when initial rotor inertia setup inappropriate.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Incorrect rotor inertia and mechanical constant initial setup</li> <li>2. Incorrect motor rotor time constant setup</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Refer to "Auto tuning" section of manual and reset Pn-720(P4-20) and Pn-722(P4-21).</li> <li>2. Observe if rotor viscosity drops until alarm is triggered. Refer to "Rotor time constant tuning" part of "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-412</b>		
<b>1st Single Axis ID</b>	<b>AL-3E</b>	<b>Alarm Name</b>	<b>Inertia Tuning Startup Failure</b>
<b>Alarm Content</b>	triggered when motor doesn't run during Inertia tuning		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder wiring error</li> <li>2. Motor stall</li> <li>3. Default torque is too small(50%) that can't drive the load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and signal" section of manual</li> <li>2. The motor should rotate during tuning with direction that Pn-504 allows (PS: Only 2nd Single Axis has this function) <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> <li>3. Increase <b>【Pn-F32】</b> Torque Command in Test Mode( <b>【Fn-22】</b> Torque Command in Test Mode) progressively. When the output torque is enough, the inertia tuning is finished.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-413</b>		
<b>1st Single Axis ID</b>	<b>AL-74</b>	<b>Alarm Name</b>	<b>Inertia Tuning Loading Too Large</b>
<b>Alarm Content</b>	Displacement exceeds half the motion limit while estimating gravity		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motion limit is set too small or motor power is insufficient</li> </ol>		

<b>Possible Solution</b>	1. Check motion limit Pn-F14(Fn-04) and motor power. Raise motion limit or choose motor with larger power		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-414</b>		
<b>1st Single Axis ID</b>	<b>AL-78</b>	<b>Alarm Name</b>	<b>Load Inertia Value Error</b>
<b>Alarm Content</b>	Load inertia value out of range		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Rotor inertia value error</li> <li>2. Linear motor load inertia value out of range</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Re-enter specifics' rotor inertia parameter, or re-execute rotor inertia estimation during idling.</li> <li>2. Refer to "linear motor SOP Q and A", restart rotor inertia tuning instead of load inertia tuning.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-420</b>		
<b>1st Single Axis ID</b>	<b>AL-3D</b>	<b>Alarm Name</b>	<b>Encoder Offset Searching Failure</b>
<b>Alarm Content</b>	Drive fails to detect accurate motor pole position		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder mount loose, causing position shift</li> <li>2. Motor stall</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder index and motor shaft angle are fixed</li> <li>2. Motor should rotate twice during searching process <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-430</b>		
<b>1st Single Axis ID</b>	<b>AL-4F</b>	<b>Alarm Name</b>	<b>Encoder Calibration Stall Error</b>
<b>Alarm Content</b>	No motor rotation even as current output reaches limit		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor overload</li> <li>2. UVW wiring error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor for mechanical interferences</li> <li>2. Check Pn-441/Pn-444, Reset correct Pn-441/Pn-444</li> <li>3. Check UVW wiring from drive to motor</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-431</b>		
<b>1st Single Axis ID</b>	<b>AL-3A</b>	<b>Alarm Name</b>	<b>Encoder Pitch Compensation Error</b>
<b>Alarm Content</b>	Adjacent compensation value varies too greatly		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder's original position feedback fluctuates severely</li> <li>2. Encoder's compensation fixture error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if 1st and 2nd feedback mechanical angle match. Change encoder polarity while ensuring motor direction is correct. Check if 1st and 2nd encoder's position error is greater than 20 during compensation. Redo compensation. Replace encoder if it keeps failing.</li> <li>2. Make sure fixture is correctly mounted. Rotate motor and check if 1st feedback mechanical angle changes.</li> <li>3. Rotate motor and check if 2nd feedback mechanical angle changes. If not, replace encoder and send defective to Syntec or authorized representative for repairs.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-440</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>Dead time calibration initial failure</b>
<b>Alarm Content</b>	Dead time calibration initial failure		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Some axes are servo on state</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check all axes on servo state Servo off all axes and redo tuning</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-450</b>		
<b>1st Single Axis ID</b>	<b>AL-7A</b>	<b>Alarm Name</b>	<b>Sensor Test Fail</b>
<b>Alarm Content</b>	Sensor test setting error or motor stall		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motion limit is set too small                             <ol style="list-style-type: none"> <li>a. Linear motor: Whether position limit larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Whether position limit larger than 2.5 electrical period.</li> </ol> </li> <li>2. Lmotor stall</li> <li>3. Encoder no feedback</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set motion limit:                             <ol style="list-style-type: none"> <li>a. Linear motor: Reserve a travel distance larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Reserve a travel distance larger than 2.5 electrical period.</li> </ol> </li> <li>2. Check rotor position, Check Pn-441/Pn-444:                             <ol style="list-style-type: none"> <li>a. Move motor to suitable position</li> <li>b. Reset Pn-441/Pn-444</li> </ol> </li> <li>3. Connect and wire encoder correctly</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-451</b>		
<b>1st Single Axis ID</b>	<b>AL-7B</b>	<b>Alarm Name</b>	<b>Linear Motor Magnetic Pitch Setting Error</b>
<b>Alarm Content</b>	Detected magnetic pitch (Pn-D85) and set value (Pn-702) are mismatched		
<b>Possible Cause</b>	1. Magnetic pitch or encoder resolution setup error		
<b>Possible Solution</b>	1. Set parameters correctly		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-452</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>Proximity Switch Spindle Posing Tuning Error</b>

<b>Alarm Content</b>	The tuning of digital input filtering level failed		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Wrong setting of gear number of motor side or screw side</li> <li>2. Abnormal function of proximity switch</li> <li>3. Spindle orientation check window is too narrow</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameters Pn-20A, Pn-20C, Pn-522, Pn-50A and Pn-50B correctly</li> <li>2. Check the installation and signal of proximity</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-453</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>Global Tuning Failure</b>
<b>Alarm Content</b>	Unexpected alarm occurred during tuning process		
<b>Possible Cause</b>	Certain axis registers the alarm during tuning process		
<b>Possible Solution</b>	Solve the cause of the alarm, and then execute the tuning again		

### 11.1 AL-2B Acceleration Limit Too Large

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-410</b>		
<b>1st Single Axis ID</b>	<b>AL-2B</b>	<b>Alarm Name</b>	<b>Acceleration Limit Too Large</b>
<b>Alarm Content</b>	Max Jerk, acceleration or travel limit setup inappropriate.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Initial rotor inertia setup incorrect</li> <li>2. Motor specification input error</li> <li>3. Low JOG speed</li> <li>4. Insufficient travel limit</li> <li>5. Acceleration setup too severe</li> <li>6. Low Jerk</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Excessive inertia setup causes drive to overshoot. Refer to "Auto tuning" section of manual and reset Pn-720(P4-20) and Pn-722(P4-21).</li> <li>2. Check motor parameter Pn-7XX (P3-XX).</li> <li>3. Parameter Pn-304(Fn-02) too low causing tuning to fail. Minimum tuning RPM is 20%of rated motor speed.</li> <li>4. Travel parameters Pn-F14(Fn-04)、 Pn-F15(Fn-05) are too close causing motor speed insufficiency. Increase Pn-F14(Fn-04) and Pn-F15(Fn-05) interval to at least half of motor revolution.</li> <li>5. Acceleration time Pn-306(P6-10) is so short that motor cannot catch up. Set Pn-306(P6-10) longer.</li> <li>6. Jerk time Pn-307(P6-11) is so large that acceleration is unable to reach proper value. Lower jerk time Pn-307(P6-11) or lengthen acceleration time Pn-30.</li> </ol>
--------------------------	--

## 11.2 AL-2C Initial Value of Inertia is Set Unsuitable

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-411</b>		
<b>1st Single Axis ID</b>	<b>AL-2C</b>	<b>Alarm Name</b>	<b>Initial Value of Inertia is Set Unsuitable</b>
<b>Alarm Content</b>	Triggered when initial rotor inertia setup inappropriate.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Incorrect rotor inertia and mechanical constant initial setup</li> <li>2. Incorrect motor rotor time constant setup</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Refer to " Auto tuning" section of manual and reset Pn-720(P4-20) and Pn-722(P4-21).</li> <li>2. Observe if rotor viscosity drops until alarm is triggered. Refer to "Rotor time constant tuning" part of "Auto tuning" section of manual.</li> </ol>		

## 11.3 AL-210 Motor Pole Number Error\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-210</b>		
<b>1st Single 轴向轴向 ID</b>	<b>AL-26</b>	<b>Alarm Name</b>	<b>Motor Pole Number Error</b>
<b>Alarm Content</b>	Triggered when determined motor pole number and parameter settings are mismatched.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor pole number setup error</li> </ol>		

<b>Possible Solution</b>	1. Check if value of parameter Pn-701 equals pole number on lable.
--------------------------	--

### 11.4 AL-301 Encoder Index Error\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-301</b>		
<b>1st Single Axis ID</b>	<b>AL-23</b>	<b>Alarm Name</b>	<b>Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong</li> <li>2. Encoder malfunction</li> <li>3. Syntec encoder pole number (Pn-90A/P3-30) setting error</li> <li>4. Communication interference</li> <li>5. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test" and check for alarms . If any alarm goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> <li>4. Set encoder pole number correctly and reboot driver.</li> <li>5. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>6. Replace encoder</li> </ol>		
<b>Detailed Instructions</b>	AL-23 Issue Trouble Shooting		

### 11.5 AL-302 Encoder Direction Error\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter "Encoder Polarity " setting error.</li> </ol>		

<b>Possible Solution</b>	1. Check if mechanical angle is correct or not. If not, set parameter Pn-021(P3-22) (0 to 1, 1 to 0) and reboot driver.
--------------------------	---

## 11.6 AL-303 Encoder Resolution Error\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-303</b>		
<b>1st Single 轴向轴向 ID</b>	<b>AL-25</b>	<b>Alarm Name</b>	<b>Encoder Resolution Error</b>
<b>Alarm Content</b>	The parameter "Encoder Resolution" setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter "Encoder Resolution" setting error</li> <li>2. Hardware malfunction</li> <li>3. Encoder pole number(Pn-90A/P3-30) setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-902(P3-21) is equal to encoder resolution or not. If not, set encoder resolution to correct value and reboot driver</li> <li>2. Send back to distributor or Syntec representative to check hardware</li> <li>3. Set encoder pole pair number correctly and reboot driver</li> </ol>		

## 11.7 AL-305 Encoder Pulse Loss\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-305</b>		
<b>1st Single 轴向轴向 ID</b>	<b>AL-28</b>	<b>Alarm Name</b>	<b>Encoder Pulse Loss</b>
<b>Alarm Content</b>	Pulse number detected is different in each revolution		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder cable malfunction</li> <li>2. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Send to Syntec or authorized representative.</li> </ol>		



## 11.8 AL-400 Motor Parameter Estimation Failure - Abnormal Output Command

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-400</b>		
<b>1st Single Axis ID</b>	<b>AL-29</b>	<b>Alarm Name</b>	<b>Motor Parameter Estimation Failure - Abnormal Output Command</b>
<b>Alarm Content</b>	The search for the estimated current command fails during parameter estimation		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Abnormal current control</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. Check whether the current reaches the 120% rated current of the motor during the estimation process. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. The voltage command exceeds 40% of the rated motor voltage during the tuning process. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps</li> </ol>		

## 11.9 AL-401 Motor Parameter Estimation Failure-Abnormal Motor Speed

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-401</b>		
<b>1st Single Axis ID</b>	<b>AL-2A</b>	<b>Alarm Name</b>	<b>Motor Parameter Estimation Failure-Abnormal Motor Speed</b>
<b>Alarm Content</b>	The motor speed is lower than 80% of the motor rated speed during the parameter estimation.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Motor rated speed is too high</li> <li>4. Abnormal current control</li> <li>5. Motor speed has not returned to zero when starting parameter estimation</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the environment is equipped with encoder, confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. During the rotation estimation process, the motor speed does not exceed 80% of the rated speed. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. Check whether the motor rated speed exceeds 10000 RPM. It is recommended to use "static induction motor tuning", or manually enter the motor parameters to avoid using the existing Motor tuning function.</li> <li>4. Check whether the current error is too high. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps.</li> <li>5. Return the motor speed to zero, and then start parameter estimation.</li> </ol>
--------------------------	---

### 11.10 AL-402 Current Tuning Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-402</b>		
<b>1st Single Axis ID</b>	<b>AL-50</b>	<b>Alarm Name</b>	<b>Current Tuning Error</b>
<b>Alarm Content</b>	Current tuning error		
<b>Possible Cause</b>	1. Excess current during tuning.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Redo the "Current Tuning" test</li> <li>2. Send back to Syntec or authorized representative</li> </ol>		

### 11.11 AL-403 Motor Rotor Time Const. Estimation Failure

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-403</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Motor Rotor Time Const. Estimation Failure</b>
<b>Alarm Content</b>	Frequency search failure during the estimation process of motor rotor time constant.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor Rated Speed Pn-70C is set incorrectly</li> <li>2. Motor Pole Number Pn-701 is set incorrectly</li> <li>3. During parameter estimation, the motor is rotated by external force</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Correct Pn-70C</li> <li>2. Correct Pn-701</li> <li>3. Avoid motor rotation during parameter estimation</li> </ol>
--------------------------	---

### 11.12 AL-404 PM Motor Parameter Tuning Fail

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-404</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>PM Motor Parameter Tuning Fail</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. UVW cable disconnected</li> <li>2. Voltage command reaches limit during tuning</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 3 phase power cables are loose</li> <li>2. Voltage specification of driver and motor are matched</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check UVW cables between motor and drive for damage or looseness.</li> <li>2. Using driver that voltage specification is matched</li> </ol>		

### 11.13 AL-412 Inertia Tuning Startup Failure

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-412</b>		
<b>1st Single Axis ID</b>	<b>AL-3E</b>	<b>Alarm Name</b>	<b>Inertia Tuning Startup Failure</b>
<b>Alarm Content</b>	triggered when motor doesn't run during Inertia tuning		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder wiring error</li> <li>2. Motor stall</li> <li>3. Default torque is too small(50%) that can't drive the load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and signal" section of manual</li> <li>2. The motor should rotate during tuning with direction that Pn-504 allows (PS: Only 2nd Single Axis has this function) <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> <li>3. Increase <b>【Pn-F32】</b> Torque Command in Test Mode( <b>【Fn-22】</b> Torque Command in Test Mode) progressively. When the output torque is enough, the inertia tuning is finished.</li> </ol>		

### 11.14 AL-413 Inertia Tuning Loading Too Large

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-413</b>		
<b>1st Single Axis ID</b>	<b>AL-74</b>	<b>Alarm Name</b>	<b>Inertia Tuning Loading Too Large</b>
<b>Alarm Content</b>	Displacement exceeds half the motion limit while estimating gravity		
<b>Possible Cause</b>	1. Motion limit is set too small or motor power is insufficient		
<b>Possible Solution</b>	1. Check motion limit Pn-F14(Fn-04) and motor power. Raise motion limit or choose motor with larger power		

### 11.15 AL-414 Load Inertia Value Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-414</b>		
<b>1st Single Axis ID</b>	<b>AL-78</b>	<b>Alarm Name</b>	<b>Load Inertia Value Error</b>
<b>Alarm Content</b>	Load inertia value out of range		
<b>Possible Cause</b>	1. Rotor inertia value error 2. Linear motor load inertia value out of range		
<b>Possible Solution</b>	1. Re-enter specifics' rotor inertia parameter, or re-execute rotor inertia estimation during idling. 2. Refer to "linear motor SOP Q and A", restart rotor inertia tuning instead of load inertia tuning.		

### 11.16 AL-420 Encoder Offset Searching Failure

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-420</b>		
<b>1st Single Axis ID</b>	<b>AL-3D</b>	<b>Alarm Name</b>	<b>Encoder Offset Searching Failure</b>
<b>Alarm Content</b>	Drive fails to detect accurate motor pole position		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder mount loose, causing position shift</li> <li>2. Motor stall</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder index and motor shaft angle are fixed</li> <li>2. Motor should rotate twice during searching process             <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> </ol>

### 11.17 AL-421 Initial Electrical Angle Detection Fail

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-421</b>		
<b>1st Single 轴向轴向 ID</b>	--	<b>Alarm Name</b>	<b>Initial electrical angle detection fail</b>
<b>Alarm Content</b>	initial electrical angle detection fail		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Unexpected rotation during detection</li> <li>2. Motor does not rotate during polarity detect</li> <li>3. Wrong initial angle detect method of linear motor</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether disturbance cause rotation during detection. Eliminate any mechanical disturbance causing rotation.</li> <li>2. Motor is locked during detection. Eliminate any mechanical brake of the motor.</li> <li>3. Motor's Inductance parameter is wrong. Correct the inductance parameter.</li> <li>4. Set Pn-72D manually, and set it opposite sign.</li> <li>5. Use linear motor and set Pn-011 as 2. When use linear motor, set Pn-011 = 0 or 1.</li> </ol>		

### 11.18 AL-430 Encoder Calibration Stall Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-430</b>		
<b>1st Single Axis ID</b>	<b>AL-4F</b>	<b>Alarm Name</b>	<b>Encoder Calibration Stall Error</b>
<b>Alarm Content</b>	No motor rotation even as current output reaches limit		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor overload</li> <li>2. UVW wiring error</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor for mechanical interferences</li> <li>2. Check Pn-441/Pn-444, Reset correct Pn-441/Pn-444</li> <li>3. Check UVW wiring from drive to motor</li> </ol>

### 11.19 AL-431 Encoder Pitch Compensation Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-431</b>		
<b>1st Single Axis ID</b>	<b>AL-3A</b>	<b>Alarm Name</b>	<b>Encoder Pitch Compensation Error</b>
<b>Alarm Content</b>	Adjacent compensation value varies too greatly		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder's original position feedback fluctuates severely</li> <li>2. Encoder's compensation fixture error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if 1st and 2nd feedback mechanical angle match. Change encoder polarity while ensuring motor direction is correct. Check if 1st and 2nd encoder's position error is greater than 20 during compensation. Redo compensation. Replace encoder if it keeps failing.</li> <li>2. Make sure fixture is correctly mounted. Rotate motor and check if 1st feedback mechanical angle changes.</li> <li>3. Rotate motor and check if 2nd feedback mechanical angle changes. If not, replace encoder and send defective to Syntec or authorized representative for repairs.</li> </ol>		

### 11.20 AL-440 Dead time calibration initial failure

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-440</b>		
<b>1st Single Axis ID</b>	-----	<b>Alarm Name</b>	<b>Dead time calibration initial failure</b>
<b>Alarm Content</b>	Dead time calibration initial failure		

<b>Possible Cause</b>	1. Some axes are servo on state
<b>Possible Solution</b>	1. Check all axes on servo state Servo off all axes and redo tuning

### 11.21 AL-450 Sensor Test Fail

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-450</b>		
<b>1st Single Axis ID</b>	<b>AL-7A</b>	<b>Alarm Name</b>	<b>Sensor Test Fail</b>
<b>Alarm Content</b>	Sensor test setting error or motor stall		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motion limit is set too small                         <ol style="list-style-type: none"> <li>a. Linear motor: Whether position limit larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Whether position limit larger than 2.5 electrical period.</li> </ol> </li> <li>2. Lmotor stall</li> <li>3. Encoder no feedback</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set motion limit:                         <ol style="list-style-type: none"> <li>a. Linear motor: Reserve a travel distance larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Reserve a travel distance larger than 2.5 electrical period.</li> </ol> </li> <li>2. Check rotor position, Check Pn-441/Pn-444:                         <ol style="list-style-type: none"> <li>a. Move motor to suitable position</li> <li>b. Reset Pn-441/Pn-444</li> </ol> </li> <li>3. Connect and wire encoder correctly</li> </ol>		

### 11.22 AL-451 Linear Motor Magnetic Pitch Setting Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-451</b>		
<b>1st Single Axis ID</b>	<b>AL-7B</b>	<b>Alarm Name</b>	<b>Linear Motor Magnetic Pitch Setting Error</b>
<b>Alarm Content</b>	Detected magnetic pitch (Pn-D85) and set value (Pn-702) are mismatched		

<b>Possible Cause</b>	1. Magnetic pitch or encoder resolution setup error
<b>Possible Solution</b>	1. Set parameters correctly

### 11.23 AL-452 Proximity Switch Spindle Posing Tuning Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-452</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>Proximity Switch Spindle Posing Tuning Error</b>
<b>Alarm Content</b>	The tuning of digital input filtering level failed		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Wrong setting of gear number of motor side or screw side</li> <li>2. Abnormal function of proximity switch</li> <li>3. Spindle orientation check window is too narrow</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameters Pn-20A, Pn-20C, Pn-522, Pn-50A and Pn-50B correctly</li> <li>2. Check the installation and signal of proximity</li> </ol>		

### 11.24 AL-453 Global tuning failure

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-453</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	<b>Global Tuning Failure</b>
<b>Alarm Content</b>	Unexpected alarm occurred during tuning process		
<b>Possible Cause</b>	Certain axis registers the alarm during tuning process		
<b>Possible Solution</b>	Solve the cause of the alarm, and then execute the tuning again		



## 12 AL-5xx Application Alarm Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-500</b>		
<b>1st Single Axis ID</b>	<b>AL-2F</b>	<b>Alarm Name</b>	<b>Incorrect setting of operational curve for V/f control</b>
<b>Alarm Content</b>	V/f curve slope setup error		
<b>Possible Cause</b>	1. V/f curve slope setup error, check parameters Pn-112~Pn-115 (P2-31~P2-34)		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Operation points 1 and 2 must increase in order. V and F of point 1 must be greater than those of point 2.</li> <li>2. Frequency of operation point 2 cannot be above rated frequency.</li> <li>3. Voltage of operation point 2 cannot be above rated voltage.</li> <li>4. Voltage of operation point 1 must be higher than minimum VF voltage. (Observe Pn-D3B (D1-30) for further information)</li> <li>5. V and f of both points cannot be 0.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-501</b>		
<b>1st Single Axis ID</b>	<b>AL-30</b>	<b>Alarm Name</b>	<b>V/f Overcurrent</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. The current feedback is continuously over the maximum current of motor in V/f mode.</li> <li>2. Triggered when current feedback is greater than 120% of maximum current</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Severe setting of acceleration time or jerk time</li> <li>2. Incorrect V/f curve setting</li> <li>3. The motor is overload.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Increase jerk time(ms) and acceleration time</li> <li>2. Adjust V/f operating curve</li> <li>3. Appropriately decrease the load.</li> </ol>		
<b>Remark</b>	From v2.12.7 , the second trigger mechanism of alarm content has been removed.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-502</b>		

<b>1st Single Axis ID</b>		<b>Alarm Name</b>	Current loop command saturation
<b>Alarm Content</b>	The voltage command reaches the limit for 150 millisecond after servo on when using open loop control or processing tuning function.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. In dual feedback or semi-closed loop control mode the belt slips.</li> <li>2. Gain tuning result is improper.</li> <li>3. UVW wiring is wrong or not connected.</li> <li>4. UVW phase short circuit, or short to ground.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Tighten or replace the belt.</li> <li>2. Refer to chapter "Auto Tuning" in user manual, tune gain properly.</li> <li>3. Refer to chapter "Wiring and signal" in user manual, and correct wiring.</li> <li>4. Turn off the power, remove power cable, check UVW to P and N is not short circuit. Use multimeter to measure is the driver connector P/N(+/-) to U/V/W phase short circuit, if it is short, this means the phase upper/lower bridge arm transistor was broken.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-505</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Control mode not set properly</b>
<b>Alarm Content</b>	Control mode should not be able to use with current setting or apparatus		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. None of encoder applied in position control</li> <li>2. Disable position control with V/f mode setting</li> <li>3. Gantry control does not support all control modes except the host position mode</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if used function in position control. Make sure of correct setting on controller or encoder configuration</li> <li>2. Check Pn-330 setting which is allowed to enter position control mode. Correct Pn-330 or avoid position control mode switch by controller</li> <li>3. Check the controller settings or Pn-840</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-510</b>		
<b>1st Single Axis ID</b>	<b>AL-3C</b>	<b>Alarm Name</b>	<b>Spindle Posing Failure</b>
<b>Alarm Content</b>	Spindle posing incomplete in time limit		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Orientation angle setting error, mechanical interference cause spindle diverge.</li> <li>2. Spindle orientation fails to reach window set in Pn-522(P6-12) for 2 seconds after command complete.</li> <li>3. Encoder communication type error.</li> <li>4. Filtering level is too high or signal width is too short. <b>(Only All in one ID/2nd Single Axis support)</b></li> <li>5. Proximity switch orientation failure.</li> <li>6. Proximity switch orientation has wrong gear ratio.</li> <li>7. Orientation is abnormally aborted.</li> <li>8. V/f mode or none of encoder applied do not support spindle orientation.</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check orientation angle and mechanical interference.</li> <li>2. Make sure parameter Pn-522(P6-12) is set in a reasonable range. Suggested value is 500. ( 0.5 degrees)</li> <li>3. Make sure Pn-900(P3-20) in single feedback control or Pn-920(P6-80) in dual feedback control is not 3.</li> <li>4. Check up the manual of Pn-03E and adjust it with motor running and monitoring Pn-D35 I Bits Status. <b>(Only All in one ID/2nd Single Axis support)</b></li> <li>5. If using proximity switch orientation Pn-243=1(P6-29=1), check Pn-D97(D1-77) is updated each turn. Assemble proximity switch correctly Pn-50A~Pn-50B(P1-40~P1-41).</li> <li>6. If using proximity switch orientation Pn-243=1(P6-29=1), check the gear ratio from controller is correctly set. Update controller software version to at least 10.116.24R(1st Single Axis) or 10.118.10(All in one/2nd Single Axis) and set gear ratio correctly.</li> <li>7. Record Pn-D53(D1-40), and connect Syntec for further trouble shooting.</li> <li>8. Check Pn-330 and encoder setting and correct them.</li> </ol>		
<p><b>All in one ID 2nd Single Axis ID</b></p>	<p><b>AL-511</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-62</b></p>	<p><b>Alarm Name</b></p>	<p><b>Spindle Posing Deviate</b></p>
<p><b>Alarm Content</b></p>	<p>Position deviated after posing complete</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Gain tuning result is improper</li> <li>2. Orientation angle setting error, mechanical interference cause spindle diverge</li> <li>3. Spindle orientation check window is too narrow</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Refer to chapter "Auto Tuning" in user manual, tune gain properly</li> <li>2. Check orientation angle and mechanical interference</li> <li>3. Check whether parameter Pn-522(P6-12) is set in a reasonable range</li> </ol>		
<p><b>All in one ID 2nd Single Axis ID</b></p>	<p><b>AL-512</b></p>		

1st Single Axis ID	-	Alarm Name	Error Digital Input Signal Index Position
<b>Alarm Content</b>	1. Proximity signal may be disturbed, driver can't mark an index position		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Digital Input Sampling Factor too low</li> <li>2. Input signal too noisy</li> <li>3. Gear ratio set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-03E. Please tune up level of Pn-03E and retry your test</li> <li>2. Please check the installation of input wire, or proper material use</li> <li>3. Replace with an more anti-noise material, or change a way of installation</li> <li>4. Check gear ratio, measure and examine gear ratio again(Controller parameter Pr1681~Pr1700 Spindle 1st gear number at screw side and motor side)</li> </ol>		
<b>All in one ID</b>	<b>AL-513</b>		
<b>2nd Single Axis ID</b>			
1st Single Axis ID	-	Alarm Name	Dual Feedback parameter setting error
<b>Alarm Content</b>	1. Parameters setting error in dual feedback control mode.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Enable velocity dual feedback control, while position dual feedback control is disabled.</li> <li>2. 2nd Encoder: Pn-924 is not relative to Pn-920, Pn-335.</li> <li>3. With SYNTEC 2nd encoder, Pn-931 is not illegal according to Pn-335.</li> <li>4. 2nd Encoder application type(linear/rotary) is not compatible with Pn-335 setting.</li> <li>5. Enable <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop and <b>【Pn-22A】</b> Enable Pos Dual Feedback Control at the same time.</li> <li>6. Linear motor does not support dual feedback control.</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. When enable velocity dual feedback control(Pn-32A = 1), Must enable position dual feedback control(Pn-22A = 1). If velocity dual feedback control is unnecessary, set Pn-32A = 0.</li> <li>2. Check Pn-924, Pn-920, Pn-335 settings. If using linear 2nd encoder, please set Pn-924 into 2 or 0, dependent to Pn-920. If using non-incremental 2nd encoder, please set Pn-924 into 2 or 1 instead of 0.</li> <li>3. Check Pn-931, Pn-335 settings. If Pn-931 is set to 1, Pn-335 must be 0 or 2; if Pn-931 is set to 2, Pn-335 must be 1 and check Pn-284 if legal.</li> <li>4. Check Pn-920 parameter manual to check 2nd encoder application type(linear/rotary) is compatible with Pn-335 setting. If linear encoder, Pn-335 must be 1; if rotary encoder, Pn-355 must be 0 or 2.</li> <li>5. Check the setting of <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop . Under semi-close loop conditions, if <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop is enabled, then the <b>【Pn-22A】</b> Enable Pos Dual Feedback Control should be disabled.</li> <li>6. Check Pn-22A, Pn-700 settings. If enable dual feedback control(Pn-22A = 1), Pn-700 must be 0 or 2.</li> </ol>		
<p><b>Remark</b></p>	<p>Alarm has been added after version v2.12.10</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-520</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-38</b></p>	<p><b>Alarm Name</b></p>	<p><b>Excessive position error between 1st and 2nd feedback</b></p>
<p><b>Alarm Content</b></p>	<p>Position error between 1st and 2nd feedback exceeds allowed level</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. 2nd encoder pulse loss, no feedback or encoder polarity error</li> <li>3. Gear ratio set incorrectly</li> <li>4. Pn-51A set too strictly</li> <li>5. Uses ABZ type as 2nd encoder and the resolution value is wrong</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check belt mechanism.</li> <li>2. Execute "Encoder test" and observe whether any alarms are triggered. Refer to "Auto tuning" section of manual.</li> <li>3. Measure and examine gear ratio again.</li> <li>4. Check Pn-51A setting. Refer to 2nd Generation Driver Dual Feedback Tuning Manual(Analysis platform) or "The Pos Dual Feedback Control Of The Linear Scales with Analysis Platform"             <ol style="list-style-type: none"> <li>a. For spindle dual feedback, it is recommended setting this error bound (Pn-51A) as 0.1 times of the 2nd encode resolution.</li> <li>b. For axial dual feedback, if the resolution of the outer feedback linear scale is R pulse/mm and the mechanism has a backlash error of P mm, this parameter setting (Pn-51A) must be greater than P * R, and it is recommended to set 2 to 3 times P * R or more.</li> </ol> </li> <li>5. For axial dual feedback, please check whether 【Pn-922】 2nd Encoder Resolution is set correctly.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-521</b>		
<b>1st Single Axis ID</b>	<b>AL-1F</b>	<b>Alarm Name</b>	<b>Excessive Following Error</b>
<b>Alarm Content</b>	Error between position command and feedback is too large		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Torque limit too low</li> <li>2. Motor overload</li> <li>3. Severe speed command change</li> <li>4. Rotor inertia set incorrectly</li> <li>5. Parameter Pn-22C(P6-41) too low</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check parameter Pn-70A(P3-11).</li> <li>2. Check if load ratio is continuously over 100%.</li> <li>3. Check if controller's command changes severely. Adjust controller's acceleration time constant, set it larger. Reduce motor load or choose a larger rated torque of motor.</li> <li>4. Rotor inertia is set too low, output current is too small, resulting incorrect control behavior.</li> <li>5. Check parameter Pn-22C(P6-41). Pn-22C(P6-41) has its parameter lower bound,the minimum value of Pn-22C is 1/5 of latch frequency.</li> <li>6. Make sure Pn-904/Pn-924(P3-23/P6-83) 1st/2nd encoder incremental/ absolute setup is correct.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-522</b>		
<b>1st Single Axis ID</b>	<b>AL-63</b>	<b>Alarm Name</b>	<b>Servo On Command Conflict</b>

<b>Alarm Content</b>	Servo on command conflict		
<b>Possible Cause</b>	1. Drive receives Servo On and Auxiliary function at the same time		
<b>Possible Solution</b>	1. Check if parameter Pn-F10(Fn-00) is set to enable auxiliary functions 2. Avoid Servo On and enabling Auxiliary function at the same time		
<b>Note</b>	<ul style="list-style-type: none"> <li>• Alarm has been delete for single axis drive version V1.6.9 and after.</li> <li>• Alarm has been delete for 4-in-1 drive version 4 in 1 V2.3.0 and after.</li> </ul>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-523</b>		
<b>1st Single Axis ID</b>	<b>AL-3F</b>	<b>Alarm Name</b>	<b>Parameter Saving Command is Illegal</b>
<b>Alarm Content</b>	Parameter saving command is given while Servo On		
<b>Possible Cause</b>	1. Parameter saving command is given while Servo On		
<b>Possible Solution</b>	1. Give parameter saving command while Servo Off		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-524</b>		
<b>1st Single Axis ID</b>	<b>AL-81</b>	<b>Alarm Name</b>	<b>Serious Belt slip</b>
<b>Alarm Content</b>	Speed error between external encoder and estimator is too great		
<b>Possible Cause</b>	1. Belt slip 2. Gear ratio error		
<b>Possible Solution</b>	1. Change or tighten belt 2. Set gear ratio properly		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-525</b>		
<b>1st Single Axis ID</b>	<b>AL-7C</b>	<b>Alarm Name</b>	<b>Electrical Gear Error</b>
<b>Alarm Content</b>	Relative setting error		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter setting error</li> <li>2. Encoder communication type not supported</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. The ratio of Pn-20E/Pn-210 (P6-08/P6-09) should be integral, and be power of 2, and not more than 256.</li> <li>2. If 23 bit TAMAGAWA encoder is used, Pn-20E can not more than 128.</li> <li>3. Pn-210 (P6-09) must set to 1.</li> <li>4. Please check 【Pn-DD4】 Encoder Active Communication Type. If in DualFeedback control, then check 【Pn-DD5】 2nd Encoder Active Communication Type. If version is 1.6.x, this function only supports Nikon encoder; if version is v2.x, then support Nikon, Sankyo, HCFA and 23/25 bit TAMAGAWA, Delta encoders.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-526</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Extremely excessive position error between 1st and 2nd feedback</b>
<b>Alarm Content</b>	Position error between 1st and 2nd feedback exceeds allowed level extremely		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. 2nd encoder pulse loss or no feedback</li> <li>3. Gear ratio set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check belt mechanism.</li> <li>2. Execute "Encoder test" and observe whether any alarms are triggered. Refer to "Auto tuning" section of manual.</li> <li>3. Measure and examine gear ratio again.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-527</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	Gantry control position feedback critical deviation
<b>Alarm Content</b>	The position difference under gantry control exceeds the limit		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Host command polarity setting error</li> <li>2. The origin setting of the gantry axis is not completed</li> <li>3. The position deviation alarm threshold is too strict</li> <li>4. Inertia setting error</li> <li>5. One of axes is stuck mechanically</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the Pn-020 host command polarity of the two axes</li> <li>2. Check the origin setting of the gantry axis</li> <li>3. Confirm Pn-572 position deviation alarm threshold</li> <li>4. Check the rotor and loader inertia or adjust the inertia</li> <li>5. Check if any axis is mechanically stuck</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-528</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	No origin point for gantry control
<b>Alarm Content</b>	No origin point for gantry control		
<b>Possible Cause</b>	No origin point for gantry control		
<b>Possible Solution</b>	Set the correct origin for the incremental encoder through Pn-F46 = 1		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-529</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	Excessive Position Error Overflow
<b>Alarm Content</b>	Excessive overflow of pulse error between position command and feedback		
<b>Possible Cause</b>	1. Torque limit reach, then position error is too large		
<b>Possible Solution</b>	1. Check position target, and set proper position target		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-52F</b>		
<b>1st Single Axis ID</b>	<b>AL-19</b>	<b>Alarm Name</b>	<b>Servo On Timeout</b>
<b>Alarm Content</b>	Servo on longer than normal		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Power of driver is loss or DC bus voltage is too low.</li> <li>2. Drive configuration error.</li> <li>3. Encoder or current sensor is malfunctioned.</li> <li>4. 1st Encoder can't be Syntec Accelerometer. (a.k.a Pn-DD4 = 13, Pn-90D = 3)</li> <li>5. Check Pn-D20, if using absolute encoder, Bit 1 and Bit 2 shall all be ON. Otherwise, it may cause this.</li> <li>6. Check Pn-D20, Bit 6 shall be OFF. Otherwise, it may cause this.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check up input voltage if lower than Pn-640(P5-00) supply voltage. Make sure of specification match between driver rated supply, wiring and Pn-640(P5-00) setting.</li> <li>2. Send back to Syntec or authorized representative.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-530</b>		
<b>1st Single Axis ID</b>	<b>AL-20</b>	<b>Alarm Name</b>	<b>Zero Speed Check Fail</b>
<b>Alarm Content</b>	Zero speed check time longer than normal		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Pn-502(P6-15) Zero Velocity Window is set too small</li> <li>2. External overload</li> <li>3. Tuning result abnormal</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-502(P6-15) settings. Set Pn-502(P6-15) larger.</li> <li>2. Pn-306(P6-10) maximum acceleration and Pn-307(P6-11) maximum JERK time are set too small. Check and set them larger.</li> <li>3. Check auto tuning parameters. Refer to "Auto tuning" section of manual.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-531</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Drive Parameter Loaded to Defaults</b>
<b>Alarm Content</b>	Do load default parameter function, parameters have been loaded to default value.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. If Pn-F43 load default parameter function is modified, this warning will be shown after the parameter is successfully loaded.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please reboot the drive and check if this warning is still exist.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-542</b>		

<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Laser Cruise Mode Failure</b>
<b>Alarm Content</b>	Laser Cruise Mode Failure		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd encoder communication type non altimeter or LVDT</li> <li>2. V/f mode or none of encoder applied do not support laser cruise mode</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-920 and set 2nd encoder as altimeter or LVDT</li> <li>2. Check Pn-330 and encoder setting and correct them</li> </ol>		

<b>All in one ID</b>	<b>AL-543</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>The Proximity Spindle Position DI setting error</b>
<b>Alarm Content</b>	More than one DI set as the Proximity Spindle Position function		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The Proximity Spindle Position function only can set one DI in one axis</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-50A ~ Pn-50D, Close the redundant Proximity Spindle Position</li> </ol>		

<b>All in one ID</b>	<b>AL-544</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Linear Sensor Overflow</b>
<b>Alarm Content</b>	Position feedback discontinuous due to linear sensor overflow		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overflow appearance while linear sensor accrossing zero</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the movement of linear sensor accrossing zero</li> <li>2. If using linear sensor of BiSSC, EnDat, FeeDat, Mitutoyo, set Pn-214 Incremental calculation</li> </ol>		

<b>All in one ID</b>	<b>AL-550</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unexpected disturbance torque</b>
<b>Alarm Content</b>	Unexpected disturbance torque		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Unexpected disturbance torque.</li> <li>2. The detection threshold parameter is set too low.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Confirm whether there is a mechanical collision in this axis. Avoid collision on the motion path.</li> <li>2. Check whether Pn-850 or Pn-851 is set too low. Increase Pn-850 or Pn-851.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-551</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Excessive Dynamic Following Error</b>
<b>Alarm Content</b>	Excessive error between Simulated and Real posfbk		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Disturbance torque is too high.</li> <li>2. The dynamic position err bound (Pn-574) is too low</li> <li>3. Torque limit too low</li> <li>4. Severe speed command change</li> <li>5. Load inertia set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if load ratio is too high. Reduce motor load or avoid collision on the motion path.</li> <li>2. Check parameter Pn-574. Set proper dynamic position err bound.(Pn-574)</li> <li>3. Check parameter Pn-70A. Set proper torque limit(Pn-70A)</li> <li>4. Check if controller's command changes severely. Adjust controller's acceleration time constant, set it larger. Reduce motor load or choose a larger rated torque of motor.</li> <li>5. The simulated position error will be incorrect due to load inertia error. Set the correct load inertia.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-690</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Not support winding selection function</b>
<b>Alarm Content</b>	The switch function of high and low speed coil can't be opened.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The wrong setting of Pn-72C Motor Winding Mode</li> <li>2. CNC version not support winding selection function</li> <li>3. Only induction spindle support winding selection function</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-72C Motor Winding Mode correctly</li> <li>2. Update CNC version correctly</li> <li>3. Set Pn-700 Motor Type and Pn-803 Motor Application correctly, or disable Pn-01E winding selection function</li> </ol>
--------------------------	--

## 12.1 AL-52F Servo On Timeout

All in one ID 2nd Single Axis ID	AL-52F		
1st Single Axis ID	AL-19	Alarm Name	Servo On Timeout
<b>Alarm Content</b>	Servo on longer than normal		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Power of driver is loss or DC bus voltage is too low.</li> <li>2. Drive configuration error.</li> <li>3. Encoder or current sensor is malfunctioned.</li> <li>4. 1st Encoder can't be Syntec Accelerometer. (a.k.a Pn-DD4 = 13, Pn-90D = 3)</li> <li>5. Check Pn-D20, if using absolute encoder, Bit 1 and Bit 2 shall all be ON. Otherwise, it may cause this.</li> <li>6. Check Pn-D20, Bit 6 shall be OFF. Otherwise, it may cause this.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check up input voltage if lower than Pn-640(P5-00) supply voltage. Make sure of specification match between driver rated supply, wiring and Pn-640(P5-00) setting.</li> <li>2. Send back to Syntec or authorized representative.</li> </ol>		

## 12.2 AL-500 Incorrect setting of operational curve for V/f control

All in one ID 2nd Single Axis ID	AL-500		
1st Single Axis ID	AL-2F	Alarm Name	Incorrect setting of operational curve for V/f control
<b>Alarm Content</b>	V/f curve slope setup error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. V/f curve slope setup error, check parameters Pn-112~Pn-115 (P2-31~P2-34)</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Operation points 1 and 2 must increase in order. V and F of point 1 must be greater than those of point 2.</li> <li>2. Frequency of operation point 2 cannot be above rated frequency.</li> <li>3. Voltage of operation point 2 cannot be above rated voltage.</li> <li>4. Voltage of operation point 1 must be higher than minimum VF voltage. ( Observe Pn-D3B (D1-30) for further information)</li> <li>5. V and f of both points cannot be 0.</li> </ol>
--------------------------	--

### 12.3 AL-501 V/f Overcurrent

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-501</b>		
<b>1st Single Axis ID</b>	<b>AL-30</b>	<b>Alarm Name</b>	<b>V/f Overcurrent</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. The current feedback is continuously over the maximum current of motor in V/f mode.</li> <li>2. Triggered when current feedback is greater than 120% of maximum current</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Severe setting of acceleration time or jerk time</li> <li>2. Incorrect V/f curve setting</li> <li>3. The motor is overload.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Increase jerk time(ms) and acceleration time</li> <li>2. Adjust V/f operating curve</li> <li>3. Appropriately decrease the load.</li> </ol>		
<b>Remark</b>	From v2.12.7 , the second trigger mechanism of alarm content has been removed.		

### 12.4 AL-502 Current loop command saturation

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-502</b>		
<b>1st Single Axis ID</b>		<b>Alarm Name</b>	Current loop command saturation
<b>Alarm Content</b>	The voltage command reaches the limit for 150 millisecond after servo on when using open loop control or processing tuning function.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. In dual feedback or semi-closed loop control mode the belt slips.</li> <li>2. Gain tuning result is improper.</li> <li>3. UVW wiring is wrong or not connected.</li> <li>4. UVW phase short circuit, or short to ground.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Tighten or replace the belt.</li> <li>2. Refer to chapter "Auto Tuning" in user manual, tune gain properly.</li> <li>3. Refer to chapter "Wiring and signal" in user manual, and correct wiring.</li> <li>4. Turn off the power, remove power cable, check UVW to P and N is not short circuit. Use multimeter to measure is the driver connector P/N(+/-) to U/V/W phase short circuit, if it is short, this means the phase upper/lower bridge arm transistor was broken.</li> </ol>

## 12.5 AL-505 Control mode not set properly

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-505</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Control mode not set properly</b>
<b>Alarm Content</b>	Control mode should not be able to use with current setting or apparatus		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. None of encoder applied in position control</li> <li>2. Disable position control with V/f mode setting</li> <li>3. Gantry control does not support all control modes except the host position mode</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if used function in position control. Make sure of correct setting on controller or encoder configuration</li> <li>2. Check Pn-330 setting which is allowed to enter position control mode. Correct Pn-330 or avoid position control mode switch by controller</li> <li>3. Check the controller settings or Pn-840</li> </ol>		

## 12.6 AL-510 Spindle Posing Failure

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-510</b>		
<b>1st Single Axis ID</b>	<b>AL-3C</b>	<b>Alarm Name</b>	<b>Spindle Posing Failure</b>
<b>Alarm Content</b>	Spindle posing incomplete in time limit		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Orientation angle setting error, mechanical interference cause spindle diverge.</li> <li>2. Spindle orientation fails to reach window set in Pn-522(P6-12) for 2 seconds after command complete.</li> <li>3. Encoder communication type error.</li> <li>4. Filtering level is too high or signal width is too short. <b>(Only All in one ID/2nd Single Axis support)</b></li> <li>5. Proximity switch orientation failure.</li> <li>6. Proximity switch orientation has wrong gear ratio.</li> <li>7. Orientation is abnormally aborted.</li> <li>8. V/f mode or none of encoder applied do not support spindle orientation.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check orientation angle and mechanical interference.</li> <li>2. Make sure parameter Pn-522(P6-12) is set in a reasonable range. Suggested value is 500. ( 0.5 degrees)</li> <li>3. Make sure Pn-900(P3-20) in single feedback control or Pn-920(P6-80) in dual feedback control is not 3.</li> <li>4. Check up the manual of Pn-03E and adjust it with motor running and monitoring Pn-D35 I Bits Status. <b>(Only All in one ID/2nd Single Axis support)</b></li> <li>5. If using proximity switch orientation Pn-243=1(P6-29=1), check Pn-D97(D1-77) is updated each turn. Assemble proximity switch correctly Pn-50A~Pn-50B(P1-40~P1-41).</li> <li>6. If using proximity switch orientation Pn-243=1(P6-29=1), check the gear ratio from controller is correctly set. Update controller software version to at least 10.116.24R(1st Single Axis) or 10.118.10(All in one/2nd Single Axis) and set gear ratio correctly.</li> <li>7. Record Pn-D53(D1-40), and connect Syntec for further trouble shooting.</li> <li>8. Check Pn-330 and encoder setting and correct them.</li> </ol>

## 12.7 AL-511 Spindle Posing Deviate

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-511</b>		
<b>1st Single Axis ID</b>	<b>AL-62</b>	<b>Alarm Name</b>	<b>Spindle Posing Deviate</b>
<b>Alarm Content</b>	Position deviated after posing complete		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Gain tuning result is improper</li> <li>2. Orientation angle setting error, mechanical interference cause spindle diverge</li> <li>3. Spindle orientation check window is too narrow</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Refer to chapter "Auto Tuning" in user manual, tune gain properly</li> <li>2. Check orientation angle and mechanical interference</li> <li>3. Check whether parameter Pn-522(P6-12) is set in a reasonable range</li> </ol>		



## 12.8 AL-512 Error Digital Input Signal Index Position

All in one ID 2nd Single Axis ID	AL-512		
1st Single Axis ID	-	Alarm Name	Error Digital Input Signal Index Position
<b>Alarm Content</b>	1. Proximity signal may be disturbed, driver can't mark an index position		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Digital Input Sampling Factor too low</li> <li>2. Input signal too noisy</li> <li>3. Gear ratio set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-03E. Please tune up level of Pn-03E and retry your test</li> <li>2. Please check the installation of input wire, or proper material use</li> <li>3. Replace with an more anti-noise material, or change a way of installation</li> <li>4. Check gear ratio, measure and examine gear ratio again(Controller parameter Pr1681~Pr1700 Spindle 1st gear number at screw side and motor side)</li> </ol>		

## 12.9 AL-513 Dual Feedback parameter setting error

All in one ID 2nd Single Axis ID	AL-513		
1st Single Axis ID	-	Alarm Name	Dual Feedback parameter setting error
<b>Alarm Content</b>	1. Parameters setting error in dual feedback control mode.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Enable velocity dual feedback control, while position dual feedback control is disabled.</li> <li>2. 2nd Encoder: Pn-924 is not relative to Pn-920, Pn-335.</li> <li>3. With SYNTEC 2nd encoder, Pn-931 is not illegal according to Pn-335.</li> <li>4. 2nd Encoder application type(linear/rotary) is not compatible with Pn-335 setting.</li> <li>5. Enable 【Pn-810】 Switch of Extended Monitor With Semi-closed loop and 【Pn-22A】 Enable Pos Dual Feedback Control at the same time.</li> <li>6. Linear motor does not support dual feedback control.</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. When enable velocity dual feedback control(Pn-32A = 1), Must enable position dual feedback control(Pn-22A = 1). If velocity dual feedback control is unnecessary, set Pn-32A = 0.</li> <li>2. Check Pn-924, Pn-920, Pn-335 settings. If using linear 2nd encoder, please set Pn-924 into 2 or 0, dependent to Pn-920. If using non-incremental 2nd encoder, please set Pn-924 into 2 or 1 instead of 0.</li> <li>3. Check Pn-931, Pn-335 settings. If Pn-931 is set to 1, Pn-335 must be 0 or 2; if Pn-931 is set to 2, Pn-335 must be 1 and check Pn-284 if legal.</li> <li>4. Check Pn-920 parameter manual to check 2nd encoder application type(linear/rotary) is compatible with Pn-335 setting. If linear encoder, Pn-335 must be 1; if rotary encoder, Pn-355 must be 0 or 2.</li> <li>5. Check the setting of <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop . Under semi-close loop conditions, if <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop is enabled, then the <b>【Pn-22A】</b> Enable Pos Dual Feedback Control should be disabled.</li> <li>6. Check Pn-22A, Pn-700 settings. If enable dual feedback control(Pn-22A = 1), Pn-700 must be 0 or 2.</li> </ol>
<p><b>Remark</b></p>	<p>Alarm has been added after version v2.12.10</p>

## 12.10 AL-520 Excessive position error between 1st and 2nd feedback

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-520</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-38</b></p>	<p><b>Alarm Name</b></p>	<p><b>Excessive position error between 1st and 2nd feedback</b></p>
<p><b>Alarm Content</b></p>	<p>Position error between 1st and 2nd feedback exceeds allowed level</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. 2nd encoder pulse loss, no feedback or encoder polarity error</li> <li>3. Gear ratio set incorrectly</li> <li>4. Pn-51A set too strictly</li> <li>5. Uses ABZ type as 2nd encoder and the resolution value is wrong</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check belt mechanism.</li> <li>2. Execute "Encoder test" and observe whether any alarms are triggered. Refer to "Auto tuning" section of manual.</li> <li>3. Measure and examine gear ratio again.</li> <li>4. Check Pn-51A setting. Refer to 2nd Generation Driver Dual Feedback Tuning Manual(Analysis platform) or "The Pos Dual Feedback Control Of The Linear Scales with Analysis Platform"             <ol style="list-style-type: none"> <li>a. For spindle dual feedback, it is recommended setting this error bound (Pn-51A) as 0.1 times of the 2nd encode resolution.</li> <li>b. For axial dual feedback, if the resolution of the outer feedback linear scale is R pulse/mm and the mechanism has a backlash error of P mm, this parameter setting (Pn-51A) must be greater than P * R, and it is recommended to set 2 to 3 times P * R or more.</li> </ol> </li> <li>5. For axial dual feedback, please check whether 【Pn-922】 2nd Encoder Resolution is set correctly.</li> </ol>
---------------------------------	---

### 12.11 AL-521 Excessive Following Error

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-521</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-1F</b></p>	<p><b>Alarm Name</b></p>	<p><b>Excessive Following Error</b></p>
<p><b>Alarm Content</b></p>	<p>Error between position command and feedback is too large</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Torque limit too low</li> <li>2. Motor overload</li> <li>3. Severe speed command change</li> <li>4. Rotor inertia set incorrectly</li> <li>5. Parameter Pn-22C(P6-41) too low</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check parameter Pn-70A(P3-11).</li> <li>2. Check if load ratio is continuously over 100%.</li> <li>3. Check if controller's command changes severely. Adjust controller's acceleration time constant, set it larger. Reduce motor load or choose a larger rated torque of motor.</li> <li>4. Rotor inertia is set too low, output current is too small, resulting incorrect control behavior.</li> <li>5. Check parameter Pn-22C(P6-41). Pn-22C(P6-41) has its parameter lower bound,the minimum value of Pn-22C is 1/5 of latch frequency.</li> <li>6. Make sure Pn-904/Pn-924(P3-23/P6-83) 1st/2nd encoder incremental/ absolute setup is correct.</li> </ol>		

## 12.12 AL-522 Servo On Command Conflict

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-522</b>		
<b>1st Single Axis ID</b>	<b>AL-63</b>	<b>Alarm Name</b>	<b>Servo On Command Conflict</b>
<b>Alarm Content</b>	Servo on command conflict		
<b>Possible Cause</b>	1. Drive receives Servo On and Auxiliary function at the same time		
<b>Possible Solution</b>	1. Check if parameter Pn-F10(Fn-00) is set to enable auxiliary functions 2. Avoid Servo On and enabling Auxiliary function at the same time		
<b>Note</b>	<ul style="list-style-type: none"> <li>• Alarm has been delete for single axis drive version V1.6.9 and after.</li> <li>• Alarm has been delete for 4-in-1 drive version 4 in 1 V2.3.0 and after.</li> </ul>		

## 12.13 AL-523 Parameter Saving Command is Illegal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-523</b>		
<b>1st Single Axis ID</b>	<b>AL-3F</b>	<b>Alarm Name</b>	<b>Parameter Saving Command is Illegal</b>
<b>Alarm Content</b>	Parameter saving command is given while Servo On		
<b>Possible Cause</b>	1. Parameter saving command is given while Servo On		
<b>Possible Solution</b>	1. Give parameter saving command while Servo Off		

## 12.14 AL-524 Serious Belt slip

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-524</b>		
<b>1st Single Axis ID</b>	<b>AL-81</b>	<b>Alarm Name</b>	<b>Serious Belt slip</b>
<b>Alarm Content</b>	Speed error between external encoder and estimator is too great		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. Gear ratio error</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change or tighten belt</li> <li>2. Set gear ratio properly</li> </ol>

## 12.15 AL-525 Electrical Gear Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-525</b>		
<b>1st Single Axis ID</b>	<b>AL-7C</b>	<b>Alarm Name</b>	<b>Electrical Gear Error</b>
<b>Alarm Content</b>	Relative setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter setting error</li> <li>2. Encoder communication type not supported</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. The ratio of Pn-20E/Pn-210 (P6-08/P6-09) should be integral, and be power of 2, and not more than 256.</li> <li>2. If 23 bit TAMAGAWA encoder is used, Pn-20E can not more than 128.</li> <li>3. Pn-210 (P6-09) must set to 1.</li> <li>4. Please check 【Pn-DD4】 Encoder Active Communication Type. If in DualFeedback control, then check 【Pn-DD5】 2nd Encoder Active Communication Type. If version is 1.6.x, this function only supports Nikon encoder; if version is v2.x, then support Nikon, Sankyo, HCFA and 23/25 bit TAMAGAWA, Delta encoders.</li> </ol>		

## 12.16 AL-526 Extremely excessive position error between 1st and 2nd feedback

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-526</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Extremely excessive position error between 1st and 2nd feedback</b>
<b>Alarm Content</b>	Position error between 1st and 2nd feedback exceeds allowed level extremely		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. 2nd encoder pulse loss or no feedback</li> <li>3. Gear ratio set incorrectly</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check belt mechanism.</li> <li>2. Execute "Encoder test" and observe whether any alarms are triggered. Refer to "Auto tuning" section of manual.</li> <li>3. Measure and examine gear ratio again.</li> </ol>

### 12.17 AL-527 Gantry control position feedback critical deviation

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-527</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	Gantry control position feedback critical deviation
<b>Alarm Content</b>	The position difference under gantry control exceeds the limit		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Host command polarity setting error</li> <li>2. The origin setting of the gantry axis is not completed</li> <li>3. The position deviation alarm threshold is too strict</li> <li>4. Inertia setting error</li> <li>5. One of axes is stuck mechanically</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the Pn-020 host command polarity of the two axes</li> <li>2. Check the origin setting of the gantry axis</li> <li>3. Confirm Pn-572 position deviation alarm threshold</li> <li>4. Check the rotor and loader inertia or adjust the inertia</li> <li>5. Check if any axis is mechanically stuck</li> </ol>		

### 12.18 AL-528 Gantry control has no origin point

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-528</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	No origin point for gantry control
<b>Alarm Content</b>	No origin point for gantry control		

<b>Possible Cause</b>	No origin point for gantry control
<b>Possible Solution</b>	Set the correct origin for the incremental encoder through Pn-F46 = 1

### 12.19 AL-529 Excessive Position Error Overflow

<b>All in one ID</b>	<b>AL-529</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	Excessive Position Error Overflow
<b>Alarm Content</b>	Excessive overflow of pulse error between position command and feedback		
<b>Possible Cause</b>	1. Torque limit reach, then position error is too large		
<b>Possible Solution</b>	1. Check position target, and set proper position target		

### 12.20 AL-530 Zero Speed Check Fail

<b>All in one ID</b>	<b>AL-530</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-20</b>	<b>Alarm Name</b>	<b>Zero Speed Check Fail</b>
<b>Alarm Content</b>	Zero speed check time longer than normal		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Pn-502(P6-15) Zero Velocity Window is set too small</li> <li>2. External overload</li> <li>3. Tuning result abnormal</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-502(P6-15) settings. Set Pn-502(P6-15) larger.</li> <li>2. Pn-306(P6-10) maximum acceleration and Pn-307(P6-11) maximum JERK time are set too small. Check and set them larger.</li> <li>3. Check auto tuning parameters. Refer to "Auto tuning" section of manual.</li> </ol>		

## 12.21 AL-531 Drive Parameter Loaded to Defaults

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-531</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Drive Parameter Loaded to Defaults</b>
<b>Alarm Content</b>	Do load default parameter function, parameters have been loaded to default value.		
<b>Possible Cause</b>	1. If Pn-F43 load default parameter function is modified, this warning will be shown after the parameter is successfully loaded.		
<b>Possible Solution</b>	1. Please reboot the drive and check if this warning is still exist.		

## 12.22 AL-532 STO Function Execution

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-532</b>		
<b>1st Single 轴向轴向 ID</b>	--	<b>Alarm Name</b>	<b>STO Function Execution</b>
<b>Alarm Content</b>	STO Function is on. Motor stops running.		
<b>Possible Cause</b>	STO_A or STO_B circuit is triggered.		
<b>Possible Solution</b>	Check up STO_A, STO_B signals are connected or triggered.		

## 12.23 AL-542 Laser Cruise Mode Failure

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-542</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Laser Cruise Mode Failure</b>
<b>Alarm Content</b>	Laser Cruise Mode Failure		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>2nd encoder communication type non altimeter or LVDT</li> <li>V/f mode or none of encoder applied do not support laser cruise mode</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-920 and set 2nd encoder as altimeter or LVDT</li> <li>2. Check Pn-330 and encoder setting and correct them</li> </ol>
--------------------------	--

## 12.24 AL-543 The Proximity Spindle Position DI setting error

<b>All in one ID</b>	<b>AL-543</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>The Proximity Spindle Position DI setting error</b>
<b>Alarm Content</b>	More than one DI set as the Proximity Spindle Position function		
<b>Possible Cause</b>	1. The Proximity Spindle Position function only can set one DI in one axis		
<b>Possible Solution</b>	1. Check Pn-50A ~ Pn-50D, Close the redundant Proximity Spindle Position		

## 12.25 AL-544 Linear Sensor Overflow

<b>All in one ID</b>	<b>AL-544</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Linear Sensor Overflow</b>
<b>Alarm Content</b>	Position feedback discontinuous due to linear sensor overflow		
<b>Possible Cause</b>	1. Overflow appearance while linear sensor accrossing zero		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the movement of linear sensor accrossing zero</li> <li>2. If using linear sensor of BiSSC, EnDat, FeeDat, Mitutoyo, set Pn-214 Incremental calculation</li> </ol>		

## 12.26 AL-550 Unexpected disturbance torque

<b>All in one ID</b>	<b>AL-550</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unexpected disturbance torque</b>

<b>Alarm Content</b>	Unexpected disturbance torque
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Unexpected disturbance torque.</li> <li>2. The detection threshold parameter is set too low.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Confirm whether there is a mechanical collision in this axis. Avoid collision on the motion path.</li> <li>2. Check whether Pn-850 or Pn-851 is set too low. Increase Pn-850 or Pn-851.</li> </ol>

### 12.27 AL-551 Excessive Dynamic Following Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-551</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Excessive Dynamic Following Error</b>
<b>Alarm Content</b>	Excessive error between Simulated and Real posfbk		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Disturbance torque is too high.</li> <li>2. The dynamic position err bound (Pn-574) is too low</li> <li>3. Torque limit too low</li> <li>4. Severe speed command change</li> <li>5. Load inertia set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if load ratio is too high. Reduce motor load or avoid collision on the motion path.</li> <li>2. Check parameter Pn-574. Set proper dynamic position err bound.(Pn-574)</li> <li>3. Check parameter Pn-70A. Set proper torque limit(Pn-70A)</li> <li>4. Check if controller's command changes severely. Adjust controller's acceleration time constant, set it larger. Reduce motor load or choose a larger rated torque of motor.</li> <li>5. The simulated position error will be incorrect due to load inertia error. Set the correct load inertia.</li> </ol>		

### 12.28 AL-690 Not support winding selection function

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-690</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Not support winding selection function</b>

<b>Alarm Content</b>	The switch function of high and low speed coil can't be opened.
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The wrong setting of Pn-72C Motor Winding Mode</li> <li>2. CNC version not support winding selection function</li> <li>3. Only induction spindle support winding selection function</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-72C Motor Winding Mode correctly</li> <li>2. Update CNC version correctly</li> <li>3. Set Pn-700 Motor Type and Pn-803 Motor Application correctly, or disable Pn-01E winding selection function</li> </ol>



# SYNTEC

## 13 Particular Alarm Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-810</b>		
<b>1st Single Axis ID</b>	<b>AL-810</b>	<b>Alarm Name</b>	<b>Encoder Battery Low Voltage Position Loss</b>
<b>Alarm Content</b>	Encoder battery low, position data is lost.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery. <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 2.9V.</li> <li>e. YuHeng: battery voltage is less than 2.75 V.</li> <li>f. HCFA 23 bits optical encoder: battery voltage is less than 2.9 V.</li> </ol> </li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery <ol style="list-style-type: none"> <li>a. With controller: Keep driver power on, change the battery and restart system.</li> <li>b. Without controller: Keep driver power on, change the battery, set parameter Pn-F44(Fn-34) to 1 and restart drive.</li> </ol> </li> <li>2. If not absolute encoder, set parameter Pn-904(P3-23) to 0 and restart drive.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-812</b>		
<b>1st Single Axis ID</b>	<b>AL-56</b>	<b>Alarm Name</b>	<b>2nd Encoder Position Loss</b>
<b>Alarm Content</b>	Second encoder battery less than 2.5V, multi-turn position data loss		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder voltage too low or no battery <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 2.9V.</li> <li>e. YuHeng: battery voltage is less than 2.75 V.</li> <li>f. HCFA 23 bits optical encoder: battery voltage is less than 2.9 V.</li> </ol> </li> <li>2. Parameter set incorrectly</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery             <ol style="list-style-type: none"> <li>a. With controller: Keep driver power on, change the battery and reboot system.</li> <li>b. No controller: Keep driver power on, change the battery, set parameter Pn-F44(Fn-34) to 1 and reboot driver.</li> </ol> </li> <li>2. Check parameter Pn-924(P6-83). If not using an absolute encoder, set Pn-924 to 0, save and reboot driver</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC

<b>All in one ID</b>	<b>AL-830</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-830</b>	<b>Alarm Name</b>	<b>ABS Type Encoder Battery Low Voltage Alarm</b>
<b>Alarm Content</b>	ABS type encoder battery voltage lower than 3V.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery.</li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery and restart drive (No need to restart if equipped with Nikon encoder).</li> <li>2. If not ABS type encoder, set parameter Pn-904(P3-23) to 0 and restart drive.</li> </ol>		

<b>All in one ID</b>	<b>AL-B6B</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Mechatrolink ASIC Malfunction</b>
<b>Alarm Content</b>	Mechatrolink ASIC Malfunction		
<b>Possible Cause</b>	1. Mechatrolink ASIC Malfunction		
<b>Possible Solution</b>	1. Please contact distributor or Syntec representative.		

<b>All in one ID</b>	<b>AL-E02</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Communication Synchronization Error</b>
<b>Alarm Content</b>	Host Communication packet abnormal.		

<b>Possible Cause</b>	1. Host Data exchange time out.		
<b>Possible Solution</b>	1. Check the setting of the Mechatrolink transmission cycle Pr3203.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E30</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Mechatrolink position command error</b>
<b>Alarm Content</b>	Mechatrolink position command error, received position command too large.		
<b>Possible Cause</b>	1. Position command is too large, probably abnormal increment compared with the last command		
<b>Possible Solution</b>	1. Position command varies abnormally or unexpectedly 2. Check up software version of the controller. Please inform the manufacturer.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E40</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver Command Calculation Timeout</b>
<b>Alarm Content</b>	Driver insufficient performance, can't execute controller command.		
<b>Possible Cause</b>	1. Insufficient calculation time. 2. Mechatrolink interpolation time interval setting is outside specified range.		
<b>Possible Solution</b>	1. Disable unnecessary functions. 2. Decrease Pn-643 High Cycle Calculation Level. 3. Raise controller parameter Pr3203 interpolation time interval setting to appropriate value.		
<b>All in one ID</b> <b>2nd Single Axis ID</b> <b>ID</b>	<b>AL-E50</b>		
<b>1st Single Axis ID</b> <b>ID</b>	<b>AL-E50</b>	<b>Alarm Name</b>	<b>Host command not updated</b>
<b>Alarm Content</b>	Host communication WDT check error.		

<b>Possible Cause</b>	1. The controller did not update the packet correctly or the host communication chip is abnormal.		
<b>Possible Solution</b>	1. Check if the host command sends unexpected performance. 2. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID 2nd Single Axis ID</b>	AL-E60		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disturbed by noise(Checked by hardware)</b>
<b>Alarm Content</b>	Host communication CRC check error(Checked by hardware).		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, which makes the packet unusable.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID 2nd Single Axis ID</b>	AL-E61		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Transmission Cycle Error</b>
<b>Alarm Content</b>	The transmission cycle interval varied in tolerance which is out of range.		
<b>Possible Cause</b>	1. Host communication varied in tolerance which is out of 10% of period.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID 2nd Single Axis ID</b>	AL-E62		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disturbed by noise(Checked by software)</b>
<b>Alarm Content</b>	Host communication CRC check error(Checked by software).		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, which makes the packet unusable.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E63</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication sequence error</b>
<b>Alarm Content</b>	Host communication SYNC flag check error.		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, resulting in abnormal synchronization signal.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E65</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disconnect</b>
<b>Alarm Content</b>	Host communication disconnect.		
<b>Possible Cause</b>	1. Wire falling off or loose.		
<b>Possible Solution</b>	1. Check serial wiring, whether connections are firm.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E68</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication continuous error</b>
<b>Alarm Content</b>	Host communication continuous error.		
<b>Possible Cause</b>	1. Host communication is disturbed by noise. 2. The controller did not update the packet correctly. 3. The host communication chip is abnormal.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm. 2. Check if the host command sends unexpected performance.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-E69</b>		



<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication incorrect connect port</b>
<b>Alarm Content</b>	Host communication incorrect connect port.		
<b>Possible Cause</b>	1. Serial wiring are opposing connect port In and port Out.		
<b>Possible Solution</b>	1. Check serial wiring, whether correct connect port In and port Out.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-F10		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power supply line open phase</b>
<b>Alarm Content</b>	One phase of the power supply has low voltage.		
<b>Possible Cause</b>	1. Voltage low for more than 1 second for R, S or T phase with main power on. 2. Parameter setting error.		
<b>Possible Solution</b>	1. Tighten power supply wires. 2. If using single-phase power supply, set parameter Pn-036 to 1 and restart drive.		

### 13.1 AL-810 Encoder Battery Low Voltage Position Loss

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-810		
<b>1st Single Axis ID</b>	AL-810	<b>Alarm Name</b>	<b>Encoder Battery Low Voltage Position Loss</b>
<b>Alarm Content</b>	Encoder battery low, position data is lost.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery. <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 2.9V.</li> <li>e. YuHeng: battery voltage is less than 2.75 V.</li> <li>f. HCFA 23 bits optical encoder: battery voltage is less than 2.9 V.</li> </ol> </li> <li>2. Parameter setting error.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery             <ol style="list-style-type: none"> <li>a. With controller: Keep driver power on, change the battery and restart system.</li> <li>b. Without controller: Keep driver power on, change the battery, set parameter Pn-F44(Fn-34) to 1 and restart drive.</li> </ol> </li> <li>2. If not absolute encoder, set parameter Pn-904(P3-23) to 0 and restart drive.</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC

### 13.2 AL-812 2nd Encoder Battery Low Voltage Position Loss

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-812</b>		
<b>1st Single Axis ID</b>	<b>AL-56</b>	<b>Alarm Name</b>	<b>2nd Encoder Position Loss</b>
<b>Alarm Content</b>	Second encoder battery less than 2.5V, multi-turn position data loss		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder voltage too low or no battery             <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 2.9V.</li> <li>e. YuHeng: battery voltage is less than 2.75 V.</li> <li>f. HCFA 23 bits optical encoder: battery voltage is less than 2.9 V.</li> </ol> </li> <li>2. Parameter set incorrectly</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery             <ol style="list-style-type: none"> <li>a. With controller: Keep driver power on, change the battery and reboot system.</li> <li>b. No controller: Keep driver power on, change the battery, set parameter Pn-F44(Fn-34) to 1 and reboot driver.</li> </ol> </li> <li>2. Check parameter Pn-924(P6-83). If not using an absolute encoder, set Pn-924 to 0, save and reboot driver</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC		

### 13.3 AL-830 ABS Type Encoder Battery Low Voltage Alarm

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-830</b>		
---	---------------	--	--

<b>1st Single Axis ID</b>	<b>AL-830</b>	<b>Alarm Name</b>	<b>ABS Type Encoder Battery Low Voltage Alarm</b>
<b>Alarm Content</b>	ABS type encoder battery voltage lower than 3V.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery.</li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery and restart drive (No need to restart if equipped with Nikon encoder).</li> <li>2. If not ABS type encoder, set parameter Pn-904(P3-23) to 0 and restart drive.</li> </ol>		

### 13.4 AL-B6B Mechatrolink ASIC Malfunction

<b>All in one ID</b>	<b>AL-B6B</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Mechatrolink ASIC Malfunction</b>
<b>Alarm Content</b>	Mechatrolink ASIC Malfunction		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Mechatrolink ASIC Malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please contact distributor or Syntec representative.</li> </ol>		

### 13.5 AL-E02 Host Communication Synchronization Error

<b>All in one ID</b>	<b>AL-E02</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Communication Synchronization Error</b>
<b>Alarm Content</b>	Host Communication packet abnormal.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Host Data exchange time out.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the setting of the Mechatrolink transmission cycle Pr3203.</li> </ol>		

### 13.6 AL-E30 Mechatrolink position command error

<b>All in one ID</b>	<b>AL-E30</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Mechatrolink position command error</b>
<b>Alarm Content</b>	Mechatrolink position command error, received position command too large.		
<b>Possible Cause</b>	1. Position command is too large, probably abnormal increment compared with the last command		
<b>Possible Solution</b>	1. Position command varies abnormally or unexpectedly 2. Check up software version of the controller. Please inform the manufacturer.		

### 13.7 AL-E40 Driver Command Calculation Timeout

<b>All in one ID</b>	<b>AL-E40</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver Command Calculation Timeout</b>
<b>Alarm Content</b>	Driver insufficient performance, can't execute controller command.		
<b>Possible Cause</b>	1. Insufficient calculation time. 2. Mechatrolink interpolation time interval setting is outside specified range.		
<b>Possible Solution</b>	1. Disable unnecessary functions. 2. Decrease Pn-643 High Cycle Calculation Level. 3. Raise controller parameter Pr3203 interpolation time interval setting to appropriate value.		

### 13.8 AL-E50 Host command not updated

<b>All in one ID</b>	<b>AL-E50</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	AL-E50	<b>Alarm Name</b>	<b>Host command not updated</b>

<b>Alarm Content</b>	Host communication WDT check error.
<b>Possible Cause</b>	1. The controller did not update the packet correctly or the host communication chip is abnormal.
<b>Possible Solution</b>	1. Check if the host command sends unexpected performance. 2. Check serial wiring, whether shielding is correct and if connections are firm.

### 13.9 AL-E60 Host communication disturbed by noise(Checked by hardware)

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-E60		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disturbed by noise(Checked by hardware)</b>
<b>Alarm Content</b>	Host communication CRC check error(Checked by hardware).		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, which makes the packet unusable.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		

### 13.10 AL-E61 Host Transmission Cycle Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-E61		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Transmission Cycle Error</b>
<b>Alarm Content</b>	The transmission cycle interval varied in tolerance which is out of range.		
<b>Possible Cause</b>	1. Host communication varied in tolerance which is out of 10% of period.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		

### 13.11 AL-E62 Host communication disturbed by noise(Checked by software)

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-E62		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disturbed by noise(Checked by software)</b>
<b>Alarm Content</b>	Host communication CRC check error(Checked by software).		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, which makes the packet unusable.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		

### 13.12 AL-E63 Host communication sequence error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-E63		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication sequence error</b>
<b>Alarm Content</b>	Host communication SYNC flag check error.		
<b>Possible Cause</b>	1. Host communication is disturbed by noise, resulting in abnormal synchronization signal.		
<b>Possible Solution</b>	1. Check serial wiring, whether shielding is correct and if connections are firm.		

### 13.13 AL-E65 Host communication disconnect

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-E65		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication disconnect</b>
<b>Alarm Content</b>	Host communication disconnect.		
<b>Possible Cause</b>	1. Wire falling off or loose.		

<b>Possible Solution</b>	1. Check serial wiring, whether connections are firm.
--------------------------	---

### 13.14 AL-E68 Host communication continuous error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-E68		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication continuous error</b>
<b>Alarm Content</b>	Host communication continuous error.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Host communication is disturbed by noise.</li> <li>2. The controller did not update the packet correctly.</li> <li>3. The host communication chip is abnormal.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check serial wiring, whether shielding is correct and if connections are firm.</li> <li>2. Check if the host command sends unexpected performance.</li> </ol>		

### 13.15 AL-E69 Host communication incorrect connect port

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-E69		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Host communication incorrect connect port</b>
<b>Alarm Content</b>	Host communication incorrect connect port.		
<b>Possible Cause</b>	1. Serial wiring are opposing connect port In and port Out.		
<b>Possible Solution</b>	1. Check serial wiring, whether correct connect port In and port Out.		

### 13.16 AL-F10 Power supply line open phase

<b>All in one ID</b> <b>2nd Single Axis ID</b> <b>ID</b>	AL-F10		
--	--------	--	--

1st Single Axis ID	-	Alarm Name	Power supply line open phase
<b>Alarm Content</b>	One phase of the power supply has low voltage.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Voltage low for more than 1 second for R, S or T phase with main power on.</li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Tighten power supply wires.</li> <li>2. If using single-phase power supply, set parameter Pn-036 to 1 and restart drive.</li> </ol>		



**SYNTEC**



## 14 AL-9xx Driver Warning Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-910</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>IGBT High Temperature</b>
<b>Alarm Content</b>	The temperature of IGBT is over 90°C for 10 sec continuously		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Severe acceleration change</li> <li>2. Cooling system failure</li> <li>3. Drive output short-circuit</li> <li>4. Ambient temperature overheat</li> <li>5. Heat source nearby</li> <li>6. Continuous use while exceeding drive's rated load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Increase Pn-307</li> <li>2. Check if fan is functioning normally.</li> <li>3. Check drive's output wiring, refer to "Wiring and Signal" section of manual.</li> <li>4. Check if ambient temperature is below 55°C, refer to "Transportation and Installation" section of manual.</li> <li>5. Check environment, remove external heat source or enhance cooling capacity.</li> <li>6. Check for motor overload or over current.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-911</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power Stage Regenerative Resistor High Temperature</b>
<b>Alarm Content</b>	The temperature of regenerative resistor is over 105°C		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The acceleration is too severe.</li> <li>2. Motor or driver model selection is mismatch.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the acceleration time setting is too short. Increase Pn-307.</li> <li>2. Check if the used motor and its load match the driver's built-in regenerative resistor.                             <ol style="list-style-type: none"> <li>a. Reduce the load on the motor or spindle.</li> <li>b. Use external regenerative resistor instead.</li> <li>c. Contact Syntec to assist in replacing the built-in regenerative resistor or driver model with larger resistor.</li> </ol> </li> </ol>		

<b>All in one ID</b>	<b>AL-912</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power supply line open phase</b>
<b>Alarm Content</b>	One phase of the power supply has low voltage.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Voltage low for more than 1 second for R, S or T phase with main power on.</li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Tighten power supply wires.</li> <li>2. If using single-phase power supply, set parameter Pn-036 to 1 and restart drive.</li> </ol>		
<b>All in one ID</b>	<b>AL-913</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver External Motor Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Driver External Motor Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Thermal sensor is not plugged correctly.</li> <li>2. Thermal sensor is broken.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure thermal sensor is wired properly. (b) If thermal sensor is not needed, set parameter Pn-740 to 1.</li> <li>2. Measure the resistance of thermal sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500 Ω to 1500 Ω. If the measured value of resistance appears to be wrong, then please replace thermal sensor with a new one.</li> </ol>		
<b>All in one ID</b>	<b>AL-920</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-920</b>	<b>Alarm Name</b>	<b>Servo On Command Conflict</b>

<b>Alarm Content</b>	Servo On command conflict		
<b>Possible Cause</b>	1. Drive receives Servo ON and auxiliary function command at the same time		
<b>Possible Solution</b>	1. Check if parameter Pn-F10(Fn-00) is set to enable auxiliary functions. 2. Avoid giving Servo ON and auxiliary function command at the same time.		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-921</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power off pull-up function is not supported</b>
<b>Alarm Content</b>	Power off tool retraction function is not supported		
<b>Possible Cause</b>	1. Controller version doesn't support power off pull-up function 2. The setting of weight direction is wrong. 3. Power off detection module damaged 4. V/f mode or none of encoder applied do not support pull-up function 5. Gantry control does not support pull-up function		
<b>Possible Solution</b>	1. If needed, upgrade controller version 2. Please set Pn-805 to 1 or -1 3. Set Pn-804 = 0 to disable power off pull-up function, or send back to Syntec 4. Check Pn-330 and encoder setting and correct them 5. If you do not need to enable gantry control, please disable Pn-830 and Pn-840		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-922</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Proximity Position is not supported</b>
<b>Alarm Content</b>	Proximity Position is not supported		
<b>Possible Cause</b>	1. Controller version doesn't support Proximity Position function 2. Not support Proximity Position function with Dual Feedback Control		
<b>Possible Solution</b>	1. Set Pn-243 = 0 to disable Posing by proximity switch function or upgrade CNC version if needed 2. Set Pn-243 = 0 to disable Posing by proximity switch function or check whether disable dual feedback control(Pn-22A)		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	--		
<b>1st Single Axis ID</b>	<b>AL-923</b>	<b>Alarm Name</b>	<b>Cooling Fan Error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality		
<b>Possible Cause</b>	1. Cooling fan failure		
<b>Possible Solution</b>	1. Send back to Syntec or authorized dealer for repairs		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-925</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Control mode not applicable with tuning function</b>
<b>Alarm Content</b>	Corresponding tuning function is not applicable to the control mode or other settings		
<b>Possible Cause</b>	1. Speed control mode setting is not applicable to tuning function 2. Encoder interface, motor type or parameter setting is not applicable to tuning function		
<b>Possible Solution</b>	1. Check Pn-330 if the tuning function is supported with it and correct it 2. Check using conditions of tuning function and modify setting depending of those conditions. Otherwise, don't use this function with the current apparatus or configuration.		
<b>Note</b>	Please refer to 【Pn-330】 Speed Control Mode or AL-925 警报排查		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-926</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>EEPROM Cannot execute the Function of Write Data</b>
<b>Alarm Content</b>	EEPROM-Write Protect Pin Cannot Pull-Low		
<b>Possible Cause</b>	1. EERPOM's write-protect function cannot be canceled by the software 2. The EEPROM's data of frontstage is incorrect		

<b>Possible Solution</b>	Please contact distributor or Syntec representative.		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-928</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Insufficient permissions</b>
<b>Alarm Content</b>	Permissions check error		
<b>Possible Cause</b>	1. User doesn't have permission to use this feature		
<b>Possible Solution</b>	1. Check if permission parameter Pn-F00 is set correctly		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-930</b>		
<b>1st Single Axis ID</b>	<b>AL-930</b>	<b>Alarm Name</b>	<b>Abs Type Encoder Battery Low Voltage</b>
<b>Alarm Content</b>	ABS encoder battery voltage lower than 3V		
<b>Possible Cause</b>	1. Battery voltage too low or no battery 2. Parameter setting error		
<b>Possible Solution</b>	1. Keep driver power on, change the battery. If using Panasonic encoder or old version HCFA(Pn-900 or Pn-DD4 equals 22), then restart driver. If using Nikon, Mitsubishi, Delta, Tamagawa, YuHeng, HCFA 23 bits optical encoder or new version HCFA encoder(Pn-900 or Pn-DD4 equals 23), then don't need to restart. 2. If not ABS encoder, set drive parameter Pn-904(P3-23) to 0, save and restart.		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-931</b>		
<b>1st Single Axis ID</b>	<b>AL-931</b>	<b>Alarm Name</b>	<b>Encoder Low Voltage</b>
<b>Alarm Content</b>	Encoder power source voltage abnormal		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder power source voltage too great or insufficient</li> <li>2. EnDat encoder power source voltage insufficient</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-932</b>		
<b>1st Single Axis ID</b>	<b>AL-932</b>	<b>Alarm Name</b>	<b>Encoder Signal Abnormal</b>
<b>Alarm Content</b>	Encoder signal amplitude is too low.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder signal amplitude is too low. D+ D- signal may be disturbed.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-933</b>		
<b>Single Axis ID</b>	<b>AL-933</b>	<b>Alarm Name</b>	<b>Encoder Z Index Abnormal</b>
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encode is error possibly.		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Syntec encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is differ from the setting parameter</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>		

<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or above(Multi-Axis Servo Drive is updated to V2.2.5 or above), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>		
<p><b>Detailed Explanations and SOP</b></p>	<p>AL-54 Issue Problem Shooting</p>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-935</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-935</b></p>	<p><b>Alarm Name</b></p>	<p><b>ABS Type 2nd Encoder Battery Low Voltage</b></p>
<p><b>Alarm Content</b></p>	<p>2nd ABS encoder battery voltage lower than 3V</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery</li> <li>2. Parameter setting error</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Keep driver power on, change the battery. If using Panasonic encoder or old version HCFA(Pn-920 or Pn-DD5 equals 22), then restart driver. If using Nikon, Mitsubishi, Delta, Tamagawa, YuHeng, HCFA 23 bits optical encoder or new version HCFA encoder(Pn-920 or Pn-DD5 equals 23), then don't need to restart.</li> <li>2. If not ABS encoder, set drive parameter Pn-924(P6-83) to 0, save and restart.</li> </ol>		
<p><b>Detailed Instructions</b></p>	<p><b>【Pn-D96】 2nd Enc Error Status ALMC</b></p>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-936</b>		
<b>1st Single Axis ID</b>	<b>AL-936</b>	<b>Alarm Name</b>	<b>2nd Encoder Low Voltage</b>
<b>Alarm Content</b>	2nd encoder power source voltage too low		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder power source voltage too great or insufficient</li> <li>2. EnDat encoder power source voltage insufficient</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-937</b>		
<b>1st Single Axis ID</b>	<b>AL-937</b>	<b>Alarm Name</b>	<b>2nd Encoder Signal Abnormal</b>
<b>Alarm Content</b>	2nd Encoder signal amplitude is too low.		
<b>Possible Cause</b>	1. FeeDat encoder signal amplitude is too low. D+ D- signal may be disturbed.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-938</b>		
<b>Single Axis ID</b>	<b>AL-938</b>	<b>Alarm Name</b>	<b>2nd Encoder Z Index Abnormal</b>
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encoder is error possibly .		



<p><b>Possible Cause</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Second encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is different than from the written parameter.</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> <li>6. Hardware malfunction</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>		
<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or more recent(Multi-Axis Servo Drive is updated to V2.2.5), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if second encoder and motor are grounded.</li> <li>3. Check if joining between second encoder cable and motor are is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the second encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>		
<p><b>Detailed Explanations and SOP</b></p>	<p>Refer to AL-54 Issue Problem Shooting</p>		
<p><b>4 in 1 ID</b></p>	<p><b>AL-93A</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Setting Wrong</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder parameters are illegal</p>		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Pn-904 is not relative to Pn-900, Pn-700</li> <li>2. With SYNTEC encoder, Pn-911 is not illegal according to Pn-700</li> <li>3. With SYNTEC encoder, encoder ver. is not compatible with thermal resistance</li> <li>4. With SYNTEC encoder, 2nd encoder ver. is not compatible with thermal resistance</li> <li>5. With HEIDENHAIN encoder, current encoder sensing type is not supported</li> <li>6. Encoder support type(linear/rotary) is not compatible with Pn-700 setting</li> </ol>
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check Pn-904, Pn-900, Pn-700 settings. If using linear encoder, please set Pn-904 into 2 or 0, dependent to Pn-900. If using non-incremental encoder, please set Pn-904 into 2 or 1 instead of 0.</li> <li>2. Check Pn-911, Pn-700 settings. If Pn-911 is set to 1, Pn-700 must be 0 or 2; if Pn-911 is set to 2, Pn-700 must be 1 and check Pn-282 if legal</li> <li>3. Check if the type of resistance used for thermal sensing is PT1000 and encoder ver. is V2.1.0 or lower.             <ol style="list-style-type: none"> <li>a. If using PT1000:Update Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>4. Check if the type of resistance used for thermal sensing is PT1000 and 2nd encoder ver. is V2.1.0 or lower.             <ol style="list-style-type: none"> <li>a. If using PT1000:Update 2nd Encoder firmware to V2.1.1 or higher. And set corresponding thermal type parameters into 1.</li> <li>b. If using KTY84:Please set corresponding thermal type parameters into 0.</li> </ol> </li> <li>5. Check Pn-900 and Pn-920 parameter manual to check whether the encoder sensing type is supported by the driver version             <ol style="list-style-type: none"> <li>a. Update to a compatible driver version for the encoder</li> <li>b. Substitute with a compatible type of encoder</li> </ol> </li> <li>6. Check Pn-900 parameter manual to check encoder support type(linear/rotary) is compatible with Pn-700 setting. If linear encoder, Pn-700 must be 1; if rotary encoder, Pn-700 must be 0 or 2.</li> </ol>

<p><b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b></p>	<p><b>AL-93B</b></p>		
<p><b>1st Single 轴向轴向 ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Motor Rear Cover High Temperature</b></p>



<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Motor Rear Cover Temperature is higher than protection level Pn-742 - 20 degree</li> <li>2. Nikon encoder: Motor Rear Cover Temperature is higher than 75 degree</li> <li>3. Tamagawa 23 bit encoder: Motor Rear Cover Temperature is higher than 65 Celsius degree</li> <li>4. Tamagawa 25 bit encoder: Motor Rear Cover Temperature is higher than 85 Celsius degree</li> <li>5. Hcfa(12k) encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> <li>6. Hcfa(16k) encoder: Motor Rear Cover Temperature is higher than 75 Celsius degree</li> <li>7. Hcfa 23 bit optical encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> <li>8. YuHeng encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> </ol>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, motor rear cover thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC, Nikon, Hcfa(12k/16k), Hcfa 23 bit, YuHeng encoders, please check up Pn-D61.</li> <li>3. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-742(P1-32) to correct protective temperature limit.</li> <li>4. Make sure parameter Pn-742 "Encoder internal(1) KTY84 overheat threshold" is set correctly.</li> <li>5. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>6. If all above solutions fail to solve the problem, KTY84 may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<p><b>Detailed Instructions</b></p>			
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-93C</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Motor Coil Thermal Sensor High Temperature</b></p>
<p><b>Alarm Content</b></p>	<p>The temperature that Motor Coil's Thermal Sensor detect is over drive's protective limit( Pn-743 ) - 20 degree.</p>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, motor coil thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for motor coil thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>Detailed Instructions</b>			
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-93D</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Encoder External(2) Thermal Sensor High Temperature</b>
<b>Alarm Content</b>	Encoder External(2) detects Thermal Sensor's temperature over drive's protective limit( Pn-744 ) - 20 degree.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-748(P1-38) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(2) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(2)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-941</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Motor stop method unsupported</b>
<b>Alarm Content</b>	The setting of MOT_TYPE 、 motor stop method and motor application does not support the selected motor brake method		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Permanent magnet motor applied to spindle cannot support dynamic braking</li> <li>2. Using Induction motor or power stage not support</li> <li>3. Motor Stop Method is ShortBrake when Critical Alarm Stop Method is Free Run</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When Pn-700 = 0 and Pn-803 = 1, Pn-001 cannot be 0</li> <li>2. When Pn-700 = 2, Pn-004 cannot be 1</li> <li>3. When Pn-001 = 2, Pn-004 cannot be 1</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-942</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Abnormal Motor Parameter Estimation - Too Large Test Current</b>
<b>Alarm Content</b>	During motor parameter estimation, the searched current command is greater or equal to 0.707 times rated current.		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Mechanical abnormality or excessive motor load inhibits motor rotation.</li> <li>2. Wrong motor nameplate parameters lead to unexpected voltage command, rotational speed, or current command.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>2. Check the motor nameplate parameters ( rated voltage, rated current, rated speed, and so on ) are correct.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-947</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Parameter Setting Error</b>
<b>Alarm Content</b>	Parameter setting is not correct with specification		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When using driver torque control mode, VLIM option listens to M3 packet</li> <li>2. When STO function is active, part of IO functions are still set</li> <li>3. Speed control mode wrong set</li> <li>4. When regenerator protection is turned-on, driver detects the parameter of regenerative resistor is not complete.</li> <li>5. Pn-10A Feedforward time constant is too small. Filter bandwidth exceeds internal limit.</li> <li>6. RTD protection parameters wrong set.</li> <li>7. Gantry control setting error. <ol style="list-style-type: none"> <li>a. Check Pn-830.</li> <li>b. Check the encoder resolution of gantry control axes.</li> <li>c. If Pn-700 ≠ 1, check that Pn-904 = 1 is a multi-turn absolute encoder.</li> <li>d. If Pn-700 = 1, check that Pn-904 = 2 is a single-turn absolute encoder.</li> <li>e. Check Pn-845.</li> <li>f. Check Pn-846 and Pn-848.</li> </ol> </li> <li>8. Unexpected disturbance torque protect is incorrectly enabled.</li> <li>9. Friction compensation setting error.</li> <li>10. When voltage compensation is turned-on, driver detects the parameter of DTC current commands are not complete.</li> <li>11. 1st encoder is not set when extended monitor with semi-closed loop function is enabled.</li> <li>12. Enable SVON Gravity Compensation function in spindle application.</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. When using driver torque mode, set Pn-003 to zero and set Pn-407 or 0n-480 according to motor type</li> <li>2. Check up the corresponding IO function used by STO function are set to 1000(default). Recover those IO function settings to default value</li> <li>3. Field Orientation Control is not allowed with none of encoder applied. Please correct Pn-330</li> <li>4. When regenerator protection is turned-on and driver don't have an internal resistor, please attach an external resistor and set Pn-647、Pn-648 properly.</li> <li>5. Set Pn-10A = 0 as default, or increase Pn-10A</li> <li>6. Using RTD protection, please check Pn-548~Pn-54A and Pn-752 setting are correct or not.</li> <li>7. Check Gantry control setting             <ol style="list-style-type: none"> <li>a. Set the correct Pn-830.</li> <li>b. The encoder resolution of the gantry control axes should be the same.</li> <li>c. Pn-904 must be set to 1 while using rotary motor with multi-turn absolute encoder.</li> <li>d. Pn-904 must be set to 2 while using linear motor with linear absolute encoder.</li> <li>e. Pn-845 link axis select cannot conflict to Pn-830.</li> <li>f. If Pn-845 is not zero, the difference between Pn-846 and Pn-848 cannot be zero.</li> </ol> </li> <li>8. The Unexpected disturbance torque (Pn-852) function can't enable with spindle axis or induction motor. Set Pn-852 = 0 to disable the unexpected disturbance torque function.</li> <li>9. Set the correct friction compensation parameter             <ol style="list-style-type: none"> <li>a. Check Pn-292 &gt;= Pn-28A &gt;= Pn-29D &gt;= Pn-29A.</li> <li>b. Check Pn-28B &gt;= Pn-29E &gt;= Pn-29B.</li> <li>c. Check Pn-28C &gt;= Pn-29F &gt;= Pn-29C.</li> </ol> </li> <li>10. When voltage compensation is turned-on, please confirm the voltage compensation has been adjusted.</li> <li>11. <b>【Pn-900】</b> Encoder Communication Type must be set when <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop is enabled.</li> <li>12. SVON Gravity Compensation function can not be used in spindle application. Set Pn-470 to 0. ( When Pn-803=1, Pn-470 can not be set to 1 )</li> </ol>		
<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-948</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>STO Function Not Support</b></p>
<p><b>Alarm Content</b></p>	<p>Driver does not support STO function</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Driver does not support STO function</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Please check up driver model in STO user manual</li> <li>2. Please turn off Pn-037 STO Activation</li> </ol>		

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-949</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Function Not Support</b>
<b>Alarm Content</b>	Addon card does not support RTD function		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Addon card does not support RTD function.</li> <li>2. Support RTD port numbers of addon card not match parameter setting.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check addon card spec.</li> <li>2. Make sure the addon card can support RTD function. If the addon card cannot support RTD function, turn off Pn-548~Pn-54A and set Pn-752 to 0.</li> <li>3. Make sure the addon card can support the setting of port number. Depends on supported port numbers, setting Pn-548~Pn-54A and Pn-752 correctly.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-94B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Mechatrolink position command error</b>
<b>Alarm Content</b>	Mechatrolink position command error, received position command too large.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Position command is too large, probably abnormal increment compared with the last command</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Position command varies abnormally or unexpectedly</li> <li>2. Check up software version of the controller. Please inform the manufacturer.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-950</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Regenerative Overload</b>
<b>Alarm Content</b>	The accumulated heat energy of internal or external regenerative resistor is higher than heat dissipation threshold. Regenerative resistor may not be damaged immediately.		



<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, Pn-647、 Pn-648 is not set properly.</li> <li>2. The selection or cooling condition of external regenerative resistor needs to be rechecked.</li> <li>3. When using internal resistor, Pn-647、 Pn-648 is not set to 0.</li> <li>4. When using internal resistor, the frequency of motor acceleration/ deceleration is too high or too intense.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, please check if Pn-647、 Pn-648 is set correctly.</li> <li>2. When using external resistor and parameters are set correctly, please recheck the selection or cooling condition of resistor.</li> <li>3. When using internal resistor, please check if Pn-647 and Pn-648 are set to 0.</li> <li>4. When using internal resistor and parameters are set correctly, please decrease the frequency of motor acceleration/deceleration or increase the value of Pn-306、 Pn-307. If the alarm is raised consistently, please consider using an external resistor.</li> <li>5. If external / internal regenerative resistor protection is not required, please set Pn-649 / Pn-64B to 0.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-95F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver Receive Illegal Command</b>
<b>Alarm Content</b>	Driver receive illegal Host Command.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Mechatrolink communication error. The received Main Command or Sub Command is not recognized.</li> <li>2. EtherCAT communication error. The received control command is not supported in posing mode.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check serial port wiring and shielding</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-961</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>I2C Communication Timeout</b>
<b>Alarm Content</b>	I2C communication timeout between front stage and power stage.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Data reading from micro-controller on power stage failed constantly. <ol style="list-style-type: none"> <li>a. SYNTEC power stage MCU: failure occurs for at least 60 sec.</li> <li>b. M6S power stage MCU: failure occurs for at least 10 sec.</li> </ol> </li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check earthing of driver.</li> <li>2. Send back to Syntec Corp.</li> <li>3. If this alarm shows up while saving dead time compensation table or current calibration table, try saving again to reset alarm.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-970</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Over Voltage</b>
<b>Alarm Content</b>	DC BUS voltage is above drive's warning level 102.5%		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When motor slows, brake resistance cannot deplete regenerated energy</li> <li>2. AC power source input voltage too high</li> <li>3. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check regenerative resistor's specifics, refer to "wiring and signal" section of manual.</li> <li>2. Check if AC power source matches drive specifics.</li> <li>3. Ruling out the above solutions, hardware may be damaged. Send back to Syntec or authorized dealer for repairs.</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-97A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Host Command Inexecutable</b>
<b>Alarm Content</b>	A command is illegal in the current communication phase		
<b>Possible Cause</b>	1. A command that cannot be executed in the current phase was sent by controller		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check software version of host controller.</li> <li>2. Please contact Syntec corp. or retailer</li> </ol>		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-97B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Command or clamp setting beyond limit</b>

<b>Alarm Content</b>	Torque command, Speed command or VLIM beyond maximum value.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When driver is in torque control mode, torque command is larger than motor maximum torque.</li> <li>2. When driver is in torque control mode , VLIM is larger than motor maximum speed ( 【Pn-DDC】 Maximum motor speed ).</li> <li>3. When driver is in laser cruise mode, VLIM is larger than motor maximum speed( 【Pn-DDC】 Maximum motor speed ).</li> <li>4. When driver is in position or speed control mode, speed command is larger than motor maximum speed ( 【Pn-DDC】 Maximum motor speed ).</li> <li>5. When driver is in posing mode, TSPD is larger than motor maximum speed( 【Pn-DDC】 Maximum motor speed ).</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When driver in torque control mode, let the value of torque command smaller than maximum torque of motor.</li> <li>2. When driver is in torque control mode, and if Pn-003 = 1, modify the VLIM from controller. If Pn-003 = 0, then make sure Pn-407 or Pn-480 is smaller than Pn-40E, according to Pn-700.</li> <li>3. When driver is in laser cruise mode, make sure Pn-407 or Pn-480 is smaller than Pn-40E, according to Pn-700. You can also set Pn-809 = 0 to turn off velocity limit.</li> <li>4. When driver is in position or speed control mode, make sure the speed command is smaller than ( 【Pn-DDC】 Maximum motor speed ).</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-980</b>		
<b>1st Single Axis ID</b>	<b>AL-980</b>	<b>Alarm Name</b>	<b>Speed estimator error</b>
<b>Alarm Content</b>	Speed error is greater than 5% of the speed command in steady state		
<b>Possible Cause</b>	1. Motor parameter error resulting in speed estimation error		
<b>Possible Solution</b>	1. Check motor specifics plate for parameters and redo motor tuning		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-981</b>		
<b>1st Single Axis ID</b>	<b>AL-981</b>	<b>Alarm Name</b>	<b>Belt slip</b>
<b>Alarm Content</b>	Speed error between external encoder and estimator is too great		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. Gear ratio error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change or tighten belt</li> <li>2. Set gear ratio correctly</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-982</b>		
<b>1st Single Axis ID</b>	<b>AL-982</b>	<b>Alarm Name</b>	Gantry control position feedback deviation is too large
<b>Alarm Content</b>	Under gantry control, the position deviation of the two axes exceeds the warning check value		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Host command polarity setting error</li> <li>2. The origin setting of the gantry axis is not completed</li> <li>3. The position deviation warning threshold is too strict</li> <li>4. Inertia setting error</li> <li>5. One of axes is stuck mechanically</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the Pn-020 host command polarity of the two axes</li> <li>2. Reset the encoder origin of the gantry axis or set Pn-F44 = 1</li> <li>3. Confirm the position deviation threshold Pn-570 and Pn-572</li> <li>4. Set the correct rotor and loader inertia, or adjust the inertia</li> <li>5. Check if any axis is mechanically stuck</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-983</b>		
<b>1st Single Axis ID</b>	<b>AL-983</b>	<b>Alarm Name</b>	<b>Gear ratio incorrect</b>
<b>Alarm Content</b>	The error of estimated gear ratio and setup gear ratio is too big.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Gear ratio setup error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check gear ratio parameter Pn-20A, Pn-20C and Pn-D5C Gear Ratio Error.</li> <li>2. Set gear ratio correctly.</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-984</b>		

<b>1st Single Axis ID</b>	<b>AL-984</b>	<b>Alarm Name</b>	<b>Rotor Position Deviation</b>
<b>Alarm Content</b>	Electrical angle offset error exceeds 45 degree		
<b>Possible Cause</b>	1. Do closed-loop control without encoder-rotor offset tuning.		
<b>Possible Solution</b>	1. Do encoder-rotor offset tuning.		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-990</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Initialization fail when tuning</b>
<b>Alarm Content</b>	Initialization fail when tuning		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter settings error</li> <li>2. Wrong setting of Gear Ratio Estimation</li> <li>3. The settings of Moving Direction Limit and Motion Limit are conflict</li> <li>4. Wrong setting of Cogging Torque Compensation Tuning</li> <li>5. Tuning not support without encoder</li> <li>6. Wrong Encoder-Rotor Offset Detection setting</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameters correctly, set drive parameter Pn-F10 to 0 and redo tuning.</li> <li>2. Gear Ratio Estimation only supports induction motor. Please check Pn-700=2. Gear Ratio Estimation doesn't support the setting without 2nd encoder feedback, Please check.</li> <li>3. The settings of Moving Direction Limit and Motion Limit are conflict. Please check the setting of Pn-504, Pn-F14 and Pn-F16.</li> <li>4. Wrong setting of Cogging Torque Compensation Tuning. Please check the range of Pn-F14 and Pn-F16 is too small, or Pn-F14 and Pn-F16 has the same sign.</li> <li>5. Check encoder communication type and port number of Pn-900, Pn-901, Pn-920 and Pn-921.</li> <li>6. Check whether the parameter Pn-642 is equal to 2. When use Encoder-Rotor Offset Detection Method, set Pn-011 = 0 or 1</li> </ol>		
<b>All in one ID 2nd Single Axis ID</b>	<b>AL-991</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unable to enable High Cycle Calculation</b>
<b>Alarm Content</b>	High Cycle Calculation unsupported		

<b>Possible Cause</b>	1. PWM frequency set above 8000Hz, High Cycle Calculation unsupported		
<b>Possible Solution</b>	1. Set Pn-642 smaller than 8000Hz, or shut off High Cycle Calculation function (Pn-643=0 automatically once alarm is triggered).		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-99A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unexpected disturbance torque protection function is not supported</b>
<b>Alarm Content</b>	Unexpected disturbance torque protection function is not supported		
<b>Possible Cause</b>	CNC version doesn't support Unexpected disturbance torque protection function.		
<b>Possible Solution</b>	Set Pn-852 = 0 to disable Unexpected disturbance torque protection function or upgrade CNC version if needed		
<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-9A0</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Over Travel</b>
<b>Alarm Content</b>	laser cruise mode, location is about to exceed travel limit		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cutting Head Exceeds Workpiece Range</li> <li>2. Capacitive feedback abnormality</li> <li>3. Improper setting of travel limit</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Raise the Z axis after not ready to cut, restart after replacing the workpiece</li> <li>2. Strengthening anti-jamming</li> <li>3. Adjust Controller Travel Limit Settings</li> </ol>		

### 14.1 AL-910 IGBT High Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-910</b>		
---	---------------	--	--

1st Single Axis ID	-	Alarm Name	IGBT High Temperature
<b>Alarm Content</b>	The temperature of IGBT is over 90°C for 10 sec continuously		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Severe acceleration change</li> <li>2. Cooling system failure</li> <li>3. Drive output short-circuit</li> <li>4. Ambient temperature overheat</li> <li>5. Heat source nearby</li> <li>6. Continuous use while exceeding drive's rated load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Increase Pn-307</li> <li>2. Check if fan is functioning normally.</li> <li>3. Check drive's output wiring, refer to "Wiring and Signal" section of manual.</li> <li>4. Check if ambient temperature is below 55°C, refer to "Transportation and Installation" section of manual.</li> <li>5. Check environment, remove external heat source or enhance cooling capacity.</li> <li>6. Check for motor overload or over current.</li> </ol>		

## 14.2 AL-911 Power Stage Regenerative Resistor High Temperature

All in one ID 2nd Single Axis ID	AL-911		
1st Single Axis ID	-	Alarm Name	Power Stage Regenerative Resistor High Temperature
<b>Alarm Content</b>	The temperature of regenerative resistor is over 105°C		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The acceleration is too severe.</li> <li>2. Motor or driver model selection is mismatch.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if the acceleration time setting is too short. Increase Pn-307.</li> <li>2. Check if the used motor and its load match the driver's built-in regenerative resistor.                             <ol style="list-style-type: none"> <li>a. Reduce the load on the motor or spindle.</li> <li>b. Use external regenerative resistor instead.</li> <li>c. Contact Syntec to assist in replacing the built-in regenerative resistor or driver model with larger resistor.</li> </ol> </li> </ol>		

### 14.3 AL-912 Power supply line open phase

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-912		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power supply line open phase</b>
<b>Alarm Content</b>	One phase of the power supply has low voltage.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Voltage low for more than 1 second for R, S or T phase with main power on.</li> <li>2. Parameter setting error.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Tighten power supply wires.</li> <li>2. If using single-phase power supply, set parameter Pn-036 to 1 and restart drive.</li> </ol>		

### 14.4 AL-920 Servo On Command Conflict\_Driver Warning Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-920		
<b>1st Single Axis ID</b>	AL-920	<b>Alarm Name</b>	<b>Servo On Command Conflict</b>
<b>Alarm Content</b>	Servo On command conflict		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Drive receives Servo ON and auxiliary function command at the same time</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-F10(Fn-00) is set to enable auxiliary functions.</li> <li>2. Avoid giving Servo ON and auxiliary function command at the same time.</li> </ol>		

### 14.5 AL-921 Power off pull-up function is not supported

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-921		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Power off pull-up function is not supported</b>



<b>Alarm Content</b>	Power off tool retraction function is not supported
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Controller version doesn't support power off pull-up function</li> <li>2. The setting of weight direction is wrong.</li> <li>3. Power off detection module damaged</li> <li>4. V/f mode or none of encoder applied do not support pull-up function</li> <li>5. Gantry control does not support pull-up function</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If needed, upgrade controller version</li> <li>2. Please set Pn-805 to 1 or -1</li> <li>3. Set Pn-804 = 0 to disable power off pull-up function, or send back to Syntec</li> <li>4. Check Pn-330 and encoder setting and correct them</li> <li>5. If you do not need to enable gantry control, please disable Pn-830 and Pn-840</li> </ol>

## 14.6 AL-922 Proximity Position is not supported

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-922</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Proximity Position is not supported</b>
<b>Alarm Content</b>	Proximity Position is not supported		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Controller version doesn't support Proximity Position function</li> <li>2. Not support Proximity Position function with Dual Feedback Control</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-243 = 0 to disable Posing by proximity switch function or upgrade CNC version if needed</li> <li>2. Set Pn-243 = 0 to disable Posing by proximity switch function or check whether disable dual feedback control(Pn-22A)</li> </ol>		

## 14.7 AL-923 Cooling Fan Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	--		
<b>1st Single Axis ID</b>	<b>AL-923</b>	<b>Alarm Name</b>	<b>Cooling Fan Error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality		

<b>Possible Cause</b>	1. Cooling fan failure
<b>Possible Solution</b>	1. Send back to Syntec or authorized dealer for repairs

## 14.8 AL-928 Insufficient permissions

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-928</b>		
<b>1st Single Axis ID</b>	--	<b>Alarm Name</b>	<b>Insufficient permissions</b>
<b>Alarm Content</b>	Permissions check error		
<b>Possible Cause</b>	1. User doesn't have permission to use this feature		
<b>Possible Solution</b>	1. Check if permission parameter Pn-F00 is set correctly		

## 14.9 AL-925 Control mode not applicable with tuning function

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-925</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Control mode not applicable with tuning function</b>
<b>Alarm Content</b>	Corresponding tuning function is not applicable to the control mode or other settings		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Speed control mode setting is not applicable to tuning function</li> <li>2. Encoder interface, motor type or parameter setting is not applicable to tuning function</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-330 if the tuning function is supported with it and correct it</li> <li>2. Check using conditions of tuning function and modify setting depending of those conditions. Otherwise, don't use this function with the current apparatus or configuration.</li> </ol>		
<b>Note</b>	Please refer to <b>【Pn-330】</b> Speed Control Mode or AL-925 警报排查		

## 14.10 AL-926 EEPROM Cannot Execute the Function of Write Data

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-926</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>EEPROM Cannot execute the Function of Write Data</b>
<b>Alarm Content</b>	EEPROM-Write Protect Pin Cannot Pull-Low		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. EEPROM's write-protect function cannot be canceled by the software</li> <li>2. The EEPROM's data of frontstage is incorrect</li> </ol>		
<b>Possible Solution</b>	Please contact distributor or Syntec representative.		

## 14.11 AL-930 Abs Type Encoder Battery Low Voltage

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-930</b>		
<b>1st Single Axis ID</b>	<b>AL-930</b>	<b>Alarm Name</b>	<b>Abs Type Encoder Battery Low Voltage</b>
<b>Alarm Content</b>	ABS encoder battery voltage lower than 3V		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery</li> <li>2. Parameter setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Keep driver power on, change the battery. If using Panasonic encoder or old version HCFA(Pn-900 or Pn-DD4 equals 22), then restart driver. If using Nikon, Mitsubishi, Delta, Tamagawa, YuHeng, HCFA 23 bits optical encoder or new version HCFA encoder(Pn-900 or Pn-DD4 equals 23), then don't need to restart.</li> <li>2. If not ABS encoder, set drive parameter Pn-904(P3-23) to 0, save and restart.</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC		

## 14.12 AL-931 Encoder Low Voltage

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-931</b>		
<b>1st Single Axis ID</b>	<b>AL-931</b>	<b>Alarm Name</b>	<b>Encoder Low Voltage</b>
<b>Alarm Content</b>	Encoder power source voltage abnormal		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder power source voltage too great or insufficient</li> <li>2. EnDat encoder power source voltage insufficient</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		

## 14.13 AL-932 Encoder Signal Abnormal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-932</b>		
<b>1st Single Axis ID</b>	<b>AL-932</b>	<b>Alarm Name</b>	<b>Encoder Signal Abnormal</b>
<b>Alarm Content</b>	Encoder signal amplitude is too low.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder signal amplitude is too low. D+ D- signal may be disturbed.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		

## 14.14 AL-933 Encoder Z Index Abnormal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-933</b>		
---	---------------	--	--

Single Axis ID	AL-933	Alarm Name	Encoder Z Index Abnormal
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encode is error possibly.		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Syntec encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hallow magnetic ring Zindex position is differ from the setting parameter</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>		
<b>Possible Solution</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or above(Multi-Axis Servo Drive is updated to V2.2.5 or above), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>		
<b>Detailed Explanations and SOP</b>	AL-54 Issue Problem Shooting		

### 14.15 AL-935 ABS Type 2nd Encoder Battery Low Voltage

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-935</b>		
<b>1st Single Axis ID</b>	<b>AL-935</b>	<b>Alarm Name</b>	<b>ABS Type 2nd Encoder Battery Low Voltage</b>
<b>Alarm Content</b>	2nd ABS encoder battery voltage lower than 3V		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Battery voltage too low or no battery</li> <li>2. Parameter setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Keep driver power on, change the battery. If using Panasonic encoder or old version HCFA(Pn-920 or Pn-DD5 equals 22), then restart driver. If using Nikon, Mitsubishi, Delta, Tamagawa, YuHeng, HCFA 23 bits optical encoder or new version HCFA encoder(Pn-920 or Pn-DD5 equals 23), then don't need to restart.</li> <li>2. If not ABS encoder, set drive parameter Pn-924(P6-83) to 0, save and restart.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		

### 14.16 AL-936 2nd Encoder Low Voltage

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-936</b>		
<b>1st Single Axis ID</b>	<b>AL-936</b>	<b>Alarm Name</b>	<b>2nd Encoder Low Voltage</b>
<b>Alarm Content</b>	2nd encoder power source voltage too low		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. FeeDat encoder power source voltage too great or insufficient</li> <li>2. EnDat encoder power source voltage insufficient</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring and grounding</li> <li>2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		

### 14.17 AL-937 2nd Encoder Signal Abnormal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-937</b>		
<b>1st Single Axis ID</b>	<b>AL-937</b>	<b>Alarm Name</b>	<b>2nd Encoder Signal Abnormal</b>
<b>Alarm Content</b>	2nd Encoder signal amplitude is too low.		
<b>Possible Cause</b>	1. FeeDat encoder signal amplitude is too low. D+ D- signal may be disturbed.		
<b>Possible Solution</b>	1. Check encoder wiring and grounding 2. If this is a recurring problem, send back to Syntec or authorized dealer for repairs		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		

### 14.18 AL-938 2nd Encoder Z Index Abnormal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-938</b>		
<b>Single Axis ID</b>	<b>AL-938</b>	<b>Alarm Name</b>	<b>2nd Encoder Z Index Abnormal</b>
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encoder is error possibly .		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Second encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is different than from the written parameter.</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> <li>6. Hardware malfunction</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>		

<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or more recent(Multi-Axis Servo Drive is updated to V2.2.5), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if second encoder and motor are grounded.</li> <li>3. Check if joining between second encoder cable and motor are is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the second encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>
<p><b>Detailed Explanations and SOP</b></p>	<p>Refer to AL-54 Issue Problem Shooting</p>

### 14.19 AL-93A Encoder Setting Wrong

4 in 1 ID	AL-93A		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Setting Wrong</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder parameters are illegal</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Pn-904 is not relative to Pn-900, Pn-700</li> <li>2. With SYNTEC encoder, Pn-911 is not illegal according to Pn-700</li> <li>3. With SYNTEC encoder, encoder ver. is not compatible with thermal resistance</li> <li>4. With SYNTEC encoder, 2nd encoder ver. is not compatible with thermal resistance</li> <li>5. With HEIDENHAIN encoder, current encoder sensing type is not supported</li> <li>6. Encoder support type(linear/rotary) is not compatible with Pn-700 setting</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check Pn-904, Pn-900, Pn-700 settings. If using linear encoder, please set Pn-904 into 2 or 0, dependent to Pn-900. If using non-incremental encoder, please set Pn-904 into 2 or 1 instead of 0.</li> <li>2. Check Pn-911, Pn-700 settings. If Pn-911 is set to 1, Pn-700 must be 0 or 2; if Pn-911 is set to 2, Pn-700 must be 1 and check Pn-282 if legal</li> <li>3. Check if the type of resistance used for thermal sensing is PT1000 and encoder ver. is V2.1.0 or lower.             <ol style="list-style-type: none"> <li>a. If using PT1000:Update Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>4. Check if the type of resistance used for thermal sensing is PT1000 and 2nd encoder ver. is V2.1.0 or lower.             <ol style="list-style-type: none"> <li>a. If using PT1000:Update 2nd Encoder firmware to V2.1.1 or higher. And set corresponding thermal type parameters into 1.</li> <li>b. If using KTY84:Please set corresponding thermal type parameters into 0.</li> </ol> </li> <li>5. Check Pn-900 and Pn-920 parameter manual to check whether the encoder sensing type is supported by the driver version             <ol style="list-style-type: none"> <li>a. Update to a compatible driver version for the encoder</li> <li>b. Substitute with a compatible type of encoder</li> </ol> </li> <li>6. Check Pn-900 parameter manual to check encoder support type(linear/rotary) is compatible with Pn-700 setting. If linear encoder, Pn-700 must be 1; if rotary encoder, Pn-700 must be 0 or 2.</li> </ol>
---------------------------------	---

## 14.20 AL-93B Motor Rear Cover High Temperature

<p><b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b></p>	<p><b>AL-93B</b></p>		
<p><b>1st Single 轴向轴向 ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Motor Rear Cover High Temperature</b></p>
<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Motor Rear Cover Temperature is higher than protection level Pn-742 - 20 degree</li> <li>2. Nikon encoder: Motor Rear Cover Temperature is higher than 75 degree</li> <li>3. Tamagawa 23 bit encoder: Motor Rear Cover Temperature is higher than 65 Celsius degree</li> <li>4. Tamagawa 25 bit encoder: Motor Rear Cover Temperature is higher than 85 Celsius degree</li> <li>5. Hcfa(12k) encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> <li>6. Hcfa(16k) encoder: Motor Rear Cover Temperature is higher than 75 Celsius degree</li> <li>7. Hcfa 23 bit optical encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> <li>8. YuHeng encoder: Motor Rear Cover Temperature is higher than 70 Celsius degree</li> </ol>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, motor rear cover thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC, Nikon, Hcfa(12k/16k), Hcfa 23 bit, YuHeng encoders, please check up Pn-D61.</li> <li>3. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-742(P1-32) to correct protective temperature limit.</li> <li>4. Make sure parameter Pn-742 "Encoder internal(1) KTY84 overheat threshold" is set correctly.</li> <li>5. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>6. If all above solutions fail to solve the problem, KTY84 may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<b>Detailed Instructions</b>	

### 14.21 AL-93C Motor Coil Thermal Sensor High Temperature

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-93C</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Motor Coil Thermal Sensor High Temperature</b>
<b>Alarm Content</b>	The temperature that Motor Coil's Thermal Sensor detect is over drive's protective limit( Pn-743 ) - 20 degree.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, motor coil thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for motor coil thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<p><b>Detailed Instructions</b></p>	

## 14.22 AL-93D Encoder External(2) Thermal Sensor High Temperature

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-93D</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>Encoder External(2) Thermal Sensor High Temperature</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder External(2) detects Thermal Sensor's temperature over drive's protective limit( Pn-744 ) - 20 degree.</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-748(P1-38) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(2) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(2)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
--------------------------	--

### 14.23 AL-940 Parameter was modified in servo-on state

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-940</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Parameter was modified in servo-on state</b>
<b>Alarm Content</b>	Write parameters Pn-001, Pn-004, Pn-01F, Pn-470, Pn-471, Pn-6XX~Pn-9XX while Servo ON		
<b>Possible Cause</b>	1. Check if controller is servo-off or if the drive is in tuning mode		
<b>Possible Solution</b>	1. Servo off the controller or turn off tuning function of drive (Pn-F10=0)		

### 14.24 AL-941 Motor stop method unsupported

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-941</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Motor stop method unsupported</b>
<b>Alarm Content</b>	The setting of MOT_TYPE 、 motor stop method and motor application does not support the selected motor brake method		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Permanent magnet motor applied to spindle cannot support dynamic braking</li> <li>2. Using Induction motor or power stage not support</li> <li>3. Motor Stop Method is ShortBrake when Critical Alarm Stop Method is Free Run</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When Pn-700 = 0 and Pn-803 = 1, Pn-001 cannot be 0</li> <li>2. When Pn-700 = 2, Pn-004 cannot be 1</li> <li>3. When Pn-001 = 2, Pn-004 cannot be 1</li> </ol>

### 14.25 AL-942 Abnormal Motor Parameter Estimation - Too Large Test Current

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-942</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Abnormal Motor Parameter Estimation - Too Large Test Current</b>
<b>Alarm Content</b>	During motor parameter estimation, the searched current command is greater or equal to 0.707 times rated current.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Mechanical abnormality or excessive motor load inhibits motor rotation.</li> <li>2. Wrong motor nameplate parameters lead to unexpected voltage command, rotational speed, or current command.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>2. Check the motor nameplate parameters ( rated voltage, rated current, rated speed, and so on ) are correct.</li> </ol>		

### 14.26 AL-947 Parameter Setting Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-947</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Parameter Setting Error</b>
<b>Alarm Content</b>	Parameter setting is not correct with specification		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. When using driver torque control mode, VLIM option listens to M3 packet</li> <li>2. When STO function is active, part of IO functions are still set</li> <li>3. Speed control mode wrong set</li> <li>4. When regenerator protection is turned-on, driver detects the parameter of regenerative resistor is not complete.</li> <li>5. Pn-10A Feedforward time constant is too small. Filter bandwidth exceeds internal limit.</li> <li>6. RTD protection parameters wrong set.</li> <li>7. Gantry control setting error.             <ol style="list-style-type: none"> <li>a. Check Pn-830.</li> <li>b. Check the encoder resolution of gantry control axes.</li> <li>c. If Pn-700 <math>\neq</math> 1, check that Pn-904 = 1 is a multi-turn absolute encoder.</li> <li>d. If Pn-700 = 1, check that Pn-904 = 2 is a single-turn absolute encoder.</li> <li>e. Check Pn-845.</li> <li>f. Check Pn-846 and Pn-848.</li> </ol> </li> <li>8. Unexpected disturbance torque protect is incorrectly enabled.</li> <li>9. Friction compensation setting error.</li> <li>10. When voltage compensation is turned-on, driver detects the parameter of DTC current commands are not complete.</li> <li>11. 1st encoder is not set when extended monitor with semi-closed loop function is enabled.</li> <li>12. Enable SVON Gravity Compensation function in spindle application.</li> </ol>
------------------------------	---



SYNTEC

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. When using driver torque mode, set Pn-003 to zero and set Pn-407 or 0n-480 according to motor type</li> <li>2. Check up the corresponding IO function used by STO function are set to 1000(default). Recover those IO function settings to default value</li> <li>3. Field Orientation Control is not allowed with none of encoder applied. Please correct Pn-330</li> <li>4. When regenerator protection is turned-on and driver don't have an internal resistor, please attach an external resistor and set Pn-647、Pn-648 properly.</li> <li>5. Set Pn-10A = 0 as default, or increase Pn-10A</li> <li>6. Using RTD protection, please check Pn-548~Pn-54A and Pn-752 setting are correct or not.</li> <li>7. Check Gantry control setting             <ol style="list-style-type: none"> <li>a. Set the correct Pn-830.</li> <li>b. The encoder resolution of the gantry control axes should be the same.</li> <li>c. Pn-904 must be set to 1 while using rotary motor with multi-turn absolute encoder.</li> <li>d. Pn-904 must be set to 2 while using linear motor with linear absolute encoder.</li> <li>e. Pn-845 link axis select cannot conflict to Pn-830.</li> <li>f. If Pn-845 is not zero, the difference between Pn-846 and Pn-848 cannot be zero.</li> </ol> </li> <li>8. The Unexpected disturbance torque (Pn-852) function can't enable with spindle axis or induction motor. Set Pn-852 = 0 to disable the unexpected disturbance torque function.</li> <li>9. Set the correct friction compensation parameter             <ol style="list-style-type: none"> <li>a. Check Pn-292 &gt;= Pn-28A &gt;= Pn-29D &gt;= Pn-29A.</li> <li>b. Check Pn-28B &gt;= Pn-29E &gt;= Pn-29B.</li> <li>c. Check Pn-28C &gt;= Pn-29F &gt;= Pn-29C.</li> </ol> </li> <li>10. When voltage compensation is turned-on, please confirm the voltage compensation has been adjusted.</li> <li>11. <b>【Pn-900】</b> Encoder Communication Type must be set when <b>【Pn-810】</b> Switch of Extended Monitor With Semi-closed loop is enabled.</li> <li>12. SVON Gravity Compensation function can not be used in spindle application. Set Pn-470 to 0. ( When Pn-803=1, Pn-470 can not be set to 1 )</li> </ol>
---------------------------------	---

## 14.27 AL-948 STO Function Not Support

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-948</b></p>		
<p><b>1st Single Axis ID</b></p>	<p>-</p>	<p><b>Alarm Name</b></p>	<p><b>STO Function Not Support</b></p>
<p><b>Alarm Content</b></p>	<p>Driver does not support STO function</p>		
<p><b>Possible Cause</b></p>	<p>1. Driver does not support STO function</p>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check up driver model in STO user manual</li> <li>2. Please turn off Pn-037 STO Activation</li> </ol>
--------------------------	--

## 14.28 AL-949 RTD Function Not Support

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-949</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>RTD Function Not Support</b>
<b>Alarm Content</b>	Addon card does not support RTD function		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Addon card does not support RTD function.</li> <li>2. Support RTD port numbers of addon card not match parameter setting.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Please check addon card spec.</li> <li>2. Make sure the addon card can support RTD function. If the addon card cannot support RTD function, turn off Pn-548~Pn-54A and set Pn-752 to 0.</li> <li>3. Make sure the addon card can support the setting of port number. Depends on supported port numbers, setting Pn-548~Pn-54A and Pn-752 correctly.</li> </ol>		

## 14.29 AL-94B Mechatrolink position command error\_Driver Warning Description

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-94B</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Mechatrolink position command error</b>
<b>Alarm Content</b>	Mechatrolink position command error, received position command too large.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Position command is too large, probably abnormal increment compared with the last command</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Position command varies abnormally or unexpectedly</li> <li>2. Check up software version of the controller. Please inform the manufacturer.</li> </ol>		



### 14.30 AL-950 Regenerative Overload

All in one ID 2nd Single Axis ID	AL-950		
1st Single Axis ID	-	Alarm Name	Regenerative Overload
<b>Alarm Content</b>	The accumulated heat energy of internal or external regenerative resistor is higher than heat dissipation threshold. Regenerative resistor may not be damaged immediately.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, Pn-647、 Pn-648 is not set properly.</li> <li>2. The selection or cooling condition of external regenerative resistor needs to be rechecked.</li> <li>3. When using internal resistor, Pn-647、 Pn-648 is not set to 0.</li> <li>4. When using internal resistor, the frequency of motor acceleration/ deceleration is too high or too intense.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When using external resistor, please check if Pn-647、 Pn-648 is set correctly.</li> <li>2. When using external resistor and parameters are set correctly, please recheck the selection or cooling condition of resistor.</li> <li>3. When using internal resistor, please check if Pn-647 and Pn-648 are set to 0.</li> <li>4. When using internal resistor and parameters are set correctly, please decrease the frequency of motor acceleration/deceleration or increase the value of Pn-306、 Pn-307. If the alarm is raised consistently, please consider using an external resistor.</li> <li>5. If external / internal regenerative resistor protection is not required, please set Pn-649 / Pn-64B to 0.</li> </ol>		

### 14.31 AL-95A Unsatisfied Command Condition

All in one ID 2nd Single 轴向轴向 ID	AL-95A		
1st Single 轴向轴向 ID	-	Alarm Name	Unsatisfied Command Condition
<b>Alarm Content</b>	When entering or leaving torque command mode, the condition is not satisfied.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Before entering torque command mode, the speed of motor is not zero.</li> <li>2. Before leaving torque command mode, the speed of motor is not zero.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure the speed of motor is zero before entering torque command mode.</li> <li>2. Make sure the speed of motor is zero before leaving torque command mode.</li> </ol>
--------------------------	---

### 14.32 AL-95F Driver Receive Illegal Command

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-95F</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver Receive Illegal Command</b>
<b>Alarm Content</b>	Driver receive illegal Host Command.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Mechatrolink communication error. The received Main Command or Sub Command is not recognized.</li> <li>2. EtherCAT communication error. The received control command is not supported in posing mode.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check serial port wiring and shielding</li> </ol>		

### 14.33 AL-961 I2C Communication Timeout

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-961</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>I2C Communication Timeout</b>
<b>Alarm Content</b>	I2C communication timeout between front stage and power stage.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Data reading from micro-controller on power stage failed constantly. <ol style="list-style-type: none"> <li>a. SYNTEC power stage MCU: failure occurs for at least 60 sec.</li> <li>b. M6S power stage MCU: failure occurs for at least 10 sec.</li> </ol> </li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check earthing of driver.</li> <li>2. Send back to Syntec Corp.</li> <li>3. If this alarm shows up while saving dead time compensation table or current calibration table, try saving again to reset alarm.</li> </ol>		

### 14.34 AL-970 Over Voltage

All in one ID 2nd Single Axis ID	AL-970		
1st Single Axis ID	-	Alarm Name	Over Voltage
<b>Alarm Content</b>	DC BUS voltage is above drive's warning level 102.5%		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When motor slows, brake resistance cannot deplete regenerated energy</li> <li>2. AC power source input voltage too high</li> <li>3. Encoder hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check regenerative resistor's specifics, refer to "wiring and signal" section of manual.</li> <li>2. Check if AC power source matches drive specifics.</li> <li>3. Ruling out the above solutions, hardware may be damaged. Send back to Syntec or authorized dealer for repairs.</li> </ol>		

### 14.35 AL-97A Host Command Inexecutable

All in one ID 2nd Single Axis ID	AL-97A		
1st Single Axis ID	-	Alarm Name	Host Command Inexecutable
<b>Alarm Content</b>	A command is illegal in the current communication phase		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. A command that cannot be executed in the current phase was sent by controller</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check software version of host controller.</li> <li>2. Please contact Syntec corp. or retailer</li> </ol>		

### 14.36 AL-97B Command or clamp setting beyond limit

All in one ID 2nd Single Axis ID	AL-97B		
-------------------------------------	--------	--	--

1st Single Axis ID	-	Alarm Name	Command or clamp setting beyond limit
<b>Alarm Content</b>	Torque command, Speed command or VLIM beyond maximum value.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. When driver is in torque control mode, torque command is larger than motor maximum torque.</li> <li>2. When driver is in torque control mode , VLIM is larger than motor maximum speed ( 【Pn-DDC】 Maximum motor speed ).</li> <li>3. When driver is in laser cruise mode, VLIM is larger than motor maximum speed( 【Pn-DDC】 Maximum motor speed ).</li> <li>4. When driver is in position or speed control mode, speed command is larger than motor maximum speed ( 【Pn-DDC】 Maximum motor speed ).</li> <li>5. When driver is in posing mode, TSPD is larger than motor maximum speed( 【Pn-DDC】 Maximum motor speed ).</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. When driver in torque control mode, let the value of torque command smaller than maximum torque of motor.</li> <li>2. When driver is in torque control mode, and if Pn-003 = 1, modify the VLIM from controller. If Pn-003 = 0, then make sure Pn-407 or Pn-480 is smaller than Pn-40E, according to Pn-700.</li> <li>3. When driver is in laser cruise mode, make sure Pn-407 or Pn-480 is smaller than Pn-40E, according to Pn-700. You can also set Pn-809 = 0 to turn off velocity limit.</li> <li>4. When driver is in position or speed control mode, make sure the speed command is smaller than ( 【Pn-DDC】 Maximum motor speed ).</li> </ol>		

### 14.37 AL-980 Speed estimator error

All in one ID 2nd Single Axis ID	AL-980		
1st Single Axis ID	AL-980	Alarm Name	Speed estimator error
<b>Alarm Content</b>	Speed error is greater than 5% of the speed command in steady state		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor parameter error resulting in speed estimation error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor specifics plate for parameters and redo motor tuning</li> </ol>		

### 14.38 AL-981 Belt slip

All in one ID 2nd Single Axis ID	AL-981		
1st Single Axis ID	AL-981	Alarm Name	Belt slip
<b>Alarm Content</b>	Speed error between external encoder and estimator is too great		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. Gear ratio error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change or tighten belt</li> <li>2. Set gear ratio correctly</li> </ol>		

### 14.39 AL-982 Gantry control position feedback deviation is too large

All in one ID 2nd Single Axis ID	AL-982		
1st Single Axis ID	AL-982	Alarm Name	Gantry control position feedback deviation is too large
<b>Alarm Content</b>	Under gantry control, the position deviation of the two axes exceeds the warning check value		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Host command polarity setting error</li> <li>2. The origin setting of the gantry axis is not completed</li> <li>3. The position deviation warning threshold is too strict</li> <li>4. Inertia setting error</li> <li>5. One of axes is stuck mechanically</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check the Pn-020 host command polarity of the two axes</li> <li>2. Reset the encoder origin of the gantry axis or set Pn-F44 = 1</li> <li>3. Confirm the position deviation threshold Pn-570 and Pn-572</li> <li>4. Set the correct rotor and loader inertia, or adjust the inertia</li> <li>5. Check if any axis is mechanically stuck</li> </ol>		

### 14.40 AL-983 Gear ratio incorrect

All in one ID 2nd Single Axis ID	AL-983		
1st Single Axis ID	AL-983	Alarm Name	Gear ratio incorrect
<b>Alarm Content</b>	The error of estimated gear ratio and setup gear ratio is too big.		
<b>Possible Cause</b>	1. Gear ratio setup error.		
<b>Possible Solution</b>	1. Check gear ratio parameter Pn-20A, Pn-20C and Pn-D5C Gear Ratio Error. 2. Set gear ratio correctly.		

### 14.41 AL-990 Initialization fail when tuning

All in one ID 2nd Single Axis ID	AL-990		
1st Single Axis ID	-	Alarm Name	Initialization fail when tuning
<b>Alarm Content</b>	Initialization fail when tuning		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter settings error</li> <li>2. Wrong setting of Gear Ratio Estimation</li> <li>3. The settings of Moving Direction Limit and Motion Limit are conflict</li> <li>4. Wrong setting of Cogging Torque Compensation Tuning</li> <li>5. Tuning not support without encoder</li> <li>6. Wrong Encoder-Rotor Offset Detection setting</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set parameters correctly, set drive parameter Pn-F10 to 0 and redo tuning.</li> <li>2. Gear Ratio Estimation only supports induction motor. Please check Pn-700=2. Gear Ratio Estimation doesn't support the setting without 2nd encoder feedback, Please check.</li> <li>3. The settings of Moving Direction Limit and Motion Limit are conflict. Please check the setting of Pn-504, Pn-F14 and Pn-F16.</li> <li>4. Wrong setting of Cogging Torque Compensation Tuning. Please check the range of Pn-F14 and Pn-F16 is too small, or Pn-F14 and Pn-F16 has the same sign.</li> <li>5. Check encoder communication type and port number of Pn-900, Pn-901, Pn-920 and Pn-921.</li> <li>6. Check whether the parameter Pn-642 is equal to 2. When use Encoder-Rotor Offset Detection Method, set Pn-011 = 0 or 1</li> </ol>		

### 14.42 AL-991 Unable to enable High Cycle Calculation

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-991</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unable to enable High Cycle Calculation</b>
<b>Alarm Content</b>	High Cycle Calculation unsupported		
<b>Possible Cause</b>	1. PWM frequency set above 8000Hz, High Cycle Calculation unsupported		
<b>Possible Solution</b>	1. Set Pn-642 smaller than 8000Hz, or shut off High Cycle Calculation function (Pn-643=0 automatically once alarm is triggered).		

### 14.43 AL-99A Unexpected disturbance torque protection function is not supported

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-99A</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Unexpected disturbance torque protection function is not supported</b>
<b>Alarm Content</b>	Unexpected disturbance torque protection function is not supported		
<b>Possible Cause</b>	CNC version doesn't support Unexpected disturbance torque protection function.		
<b>Possible Solution</b>	Set Pn-852 = 0 to disable Unexpected disturbance torque protection function or upgrade CNC version if needed		

### 14.44 AL-9A0 Over Travel

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-9A0</b>		
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Over Travel</b>

<b>Alarm Content</b>	laser cruise mode, location is about to exceed travel limit
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cutting Head Exceeds Workpiece Range</li> <li>2. Capacitive feedback abnormality</li> <li>3. Improper setting of travel limit</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Raise the Z axis after not ready to cut, restart after replacing the workpiece</li> <li>2. Strengthening anti-jamming</li> <li>3. Adjust Controller Travel Limit Settings</li> </ol>

### 14.45 AL-913 Driver External Motor Thermal Sensor is Unplugged

<b>All in one ID</b>	<b>AL-913</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	-	<b>Alarm Name</b>	<b>Driver External Motor Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Driver External Motor Thermal Sensor is Unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Thermal sensor is not plugged correctly.</li> <li>2. Thermal sensor is broken.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure thermal sensor is wired properly. (b) If thermal sensor is not needed, set parameter Pn-740 to 1.</li> <li>2. Measure the resistance of thermal sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500 Ω to 1500 Ω. If the measured value of resistance appears to be wrong, then please replace thermal sensor with a new one.</li> </ol>		

### 14.46 AL-984 Rotor Position Deviation

<b>All in one ID</b>	<b>AL-984</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-984</b>	<b>Alarm Name</b>	<b>Rotor Position Deviation</b>



<b>Alarm Content</b>	Electrical angle offset error exceeds 45 degree
<b>Possible Cause</b>	1. Do closed-loop control without encoder-rotor offset tuning.
<b>Possible Solution</b>	1. Do encoder-rotor offset tuning.



**SYNTEC**

## 15 AL-XX description

### 15.1 AL-1A Power Module Over Current

All in one ID 2nd Single Axis ID	AL-121		
1st Single Axis ID	AL-1A	Alarm Name	Power Module Over Current
<b>Alarm Content</b>	Drive detects excessive current on power module.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Internal motor UVW short or UVW to ground short</li> <li>2. Wire UVW short or UVW to ground short</li> <li>3. Drive connector UVW short or UVW to ground short</li> <li>4. Motor is mechanically stuck which leads to abnormally heavy load to drive</li> <li>5. Power module failure</li> <li>6. Unbalanced motor 3 phase resistance</li> <li>7. Current module becomes aged</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Bad insulation in motor, replace motor</li> <li>2. Wire short, replace wire</li> <li>3. Drive failure, replace drive</li> <li>4. Eliminate mechanical reason, increase acceleration time and jerk time, decrease load</li> <li>5. Turn off drive power, remove motor and wire, measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> <li>6. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite). Or do the encoder function test to see the IA IB IC current feedback.</li> <li>7. If rotation is below 100rpm, the drive still sends alarm. It means current module may become aged and is related to hardware life.</li> </ol> <p>Make sure the above seven are checked and no special historical alarms, turn off drive, remove the motor and wire then restart. Once certain of damage, contact distributor or Syntec representative to check hardware.</p>		

### 15.2 AL-1D Hall sensor error 1

All in one ID 2nd Single Axis ID	AL-122		

1st Single Axis ID	AL-1D	Alarm Name	Hall sensor error 1
<b>Alarm Content</b>	Hall Current Sensor(IA) failure		
<b>Possible Cause</b>	1. U phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		

### 15.3 AL-1E Hall sensor error 2

All in one ID 2nd Single Axis ID	AL-123		
1st Single Axis ID	AL-1E	Alarm Name	Hall sensor error 2
<b>Alarm Content</b>	Hall Current Sensor(IB) failure		
<b>Possible Cause</b>	1. V phase current senses loop failure		
<b>Possible Solution</b>	1. Contact distributor or Syntec representative to check hardware.		

### 15.4 AL-1F Excessive Following Error

All in one ID 2nd Single Axis ID	AL-521		
1st Single Axis ID	AL-1F	Alarm Name	Excessive Following Error
<b>Alarm Content</b>	Error between position command and feedback is too large		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Torque limit too low</li> <li>2. Motor overload</li> <li>3. Severe speed command change</li> <li>4. Rotor inertia set incorrectly</li> <li>5. Parameter Pn-22C(P6-41) too low</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check parameter Pn-70A(P3-11).</li> <li>2. Check if load ratio is continuously over 100%.</li> <li>3. Check if controller's command changes severely. Adjust controller's acceleration time constant, set it larger. Reduce motor load or choose a larger rated torque of motor.</li> <li>4. Rotor inertia is set too low, output current is too small, resulting incorrect control behavior.</li> <li>5. Check parameter Pn-22C(P6-41). Pn-22C(P6-41) has its parameter lower bound,the minimum value of Pn-22C is 1/5 of latch frequency.</li> <li>6. Make sure Pn-904/Pn-924(P3-23/P6-83) 1st/2nd encoder incremental/ absolute setup is correct.</li> </ol>
--------------------------	---

## 15.5 AL-2A Motor Parameter Estimation Failure-Abnormal Motor Speed

All in one ID 2nd Single Axis ID	AL-401		
1st Single Axis ID	AL-2A	Alarm Name	Motor Parameter Estimation Failure-Abnormal Motor Speed
<b>Alarm Content</b>	The motor speed is lower than 80% of the motor rated speed during the parameter estimation.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Motor rated speed is too high</li> <li>4. Abnormal current control</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If the environment is equipped with encoder, confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. During the rotation estimation process, the motor speed does not exceed 80% of the rated speed. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. Check whether the motor rated speed exceeds 10000 RPM. It is recommended to use "static induction motor tuning", or manually enter the motor parameters to avoid using the existing Motor tuning function.</li> <li>4. Check whether the current error is too high. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps.</li> </ol>		

## 15.6 AL-2D Power Cable Disconnected

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-112</b>		
<b>1st Single Axis ID</b>	<b>AL-2D</b>	<b>Alarm Name</b>	<b>Power Cable Disconnected</b>
<b>Alarm Content</b>	1. Power cable disconnection detected at motor non-zero speed		
<b>Possible Cause</b>	1. 3 phase power cables are loose		
<b>Possible Solution</b>	1. Check UVW cables between motor and drive for damage or looseness.		

## 15.7 AL-2E Control Board Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-132</b>		
<b>1st Single Axis ID</b>	<b>AL-2E</b>	<b>Alarm Name</b>	<b>Control Board Error</b>
<b>Alarm Content</b>	Triggered when drive's control board has internal communication error.		
<b>Possible Cause</b>	1. Control board is failure.		
<b>Possible Solution</b>	1. Send back to distributor or Syntec representative for hardware repair.		

## 15.8 AL-2F Incorrect setting of operational curve for V/f control

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-500</b>		
<b>1st Single Axis ID</b>	<b>AL-2F</b>	<b>Alarm Name</b>	<b>Incorrect setting of operational curve for V/f control</b>
<b>Alarm Content</b>	V/f curve slope setup error		
<b>Possible Cause</b>	1. V/f curve slope setup error, check parameters Pn-112~Pn-115 (P2-31~P2-34)		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Operation points 1 and 2 must increase in order. V and F of point 1 must be greater than those of point 2.</li> <li>2. Frequency of operation point 2 cannot be above rated frequency.</li> <li>3. Voltage of operation point 2 cannot be above rated voltage.</li> <li>4. Voltage of operation point 1 must be higher than minimum VF voltage. (Observe Pn-D3B (D1-30) for further information)</li> <li>5. V and f of both points cannot be 0.</li> </ol>
--------------------------	---

### 15.9 AL-3A Encoder Pitch Compensation Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-431</b>		
<b>1st Single Axis ID</b>	<b>AL-3A</b>	<b>Alarm Name</b>	<b>Encoder Pitch Compensation Error</b>
<b>Alarm Content</b>	Adjacent compensation value varies too greatly		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder's original position feedback fluctuates severely</li> <li>2. Encoder's compensation fixture error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if 1st and 2nd feedback mechanical angle match. Change encoder polarity while ensuring motor direction is correct. Check if 1st and 2nd encoder's position error is greater than 20 during compensation. Redo compensation. Replace encoder if it keeps failing.</li> <li>2. Make sure fixture is correctly mounted. Rotate motor and check if 1st feedback mechanical angle changes.</li> <li>3. Rotate motor and check if 2nd feedback mechanical angle changes. If not, replace encoder and send defective to Syntec or authorized representative for repairs.</li> </ol>		

### 15.10 AL-3C Spindle Posing Failure

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-510</b>		
<b>1st Single Axis ID</b>	<b>AL-3C</b>	<b>Alarm Name</b>	<b>Spindle Posing Failure</b>
<b>Alarm Content</b>	Drive couldn't complete spindle orientation within time limit		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Spindle orientation fails to reach window set in Pn-522(P6-12) for 2 seconds after command complete</li> <li>2. Encoder communication type error</li> <li>3. Filtering level is too high or signal width is too short (<b>Only All in one ID/2nd Single Axis support</b>)</li> <li>4. Proximity switch orientation failure</li> <li>5. Proximity switch orientation has wrong gear ratio</li> <li>6. Orientation is abnormally aborted</li> <li>7. V/f mode or none of encoder applied do not support spindle orientation</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure parameter Pn-522(P6-12) is set in a reasonable range. Suggested value is 500( 0.5 degrees)</li> <li>2. Make sure Pn-900(P3-20) in single feedback control or Pn-920(P6-80) in dual feedback control is not 3</li> <li>3. Check up the manual of Pn-03E and adjust it with motor running and monitoring Pn-D35 I Bits Status (<b>Only All in one ID/2nd Single Axis support</b>)</li> <li>4. If using proximity switch orientation Pn-243=1(P6-29=1), check Pn-D97(D1-77) is updated each turn. Assemble proximity switch correctly Pn-50A~Pn-50B(P1-40~P1-41).</li> <li>5. If using proximity switch orientation Pn-243=1(P6-29=1), check the gear ratio from controller is correctly set. Update controller software version to at least 10.116.24R(1st Single Axis) or 10.118.10(All in one/2nd Single Axis) and set gear ratio correctly.</li> <li>6. Record Pn-D53(D1-40), and connect Syntec for further trouble shooting</li> <li>7. Check Pn-330 and encoder setting and correct them</li> </ol>

### 15.11 AL-3D Encoder Offset Searching Failure

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-420</b>		
<b>1st Single Axis ID</b>	<b>AL-3D</b>	<b>Alarm Name</b>	<b>Encoder Offset Searching Failure</b>
<b>Alarm Content</b>	Drive fails to detect accurate motor pole position		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder mount loose, causing position shift</li> <li>2. Motor stall</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Make sure encoder index and motor shaft angle are fixed</li> <li>2. Motor should rotate twice during searching process                     <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> </ol>		

### 15.12 AL-3E Inertia Tuning Startup Failure

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-412</b>		
<b>1st Single Axis ID</b>	<b>AL-3E</b>	<b>Alarm Name</b>	<b>Inertia Tuning Startup Failure</b>
<b>Alarm Content</b>	triggered when motor doesn't run during Inertia tuning		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder wiring error</li> <li>2. Motor stall</li> <li>3. Default torque is too small(50%) that can't drive the load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and signal" section of manual</li> <li>2. The mtor should rotate during tuning with direction that Pn-504 allows (PS: Only 2nd Single Axis has this function)                         <ol style="list-style-type: none"> <li>a. Check if UVW cables are wired correctly</li> <li>b. Check for mechanical locks</li> </ol> </li> <li>3. Increase <b>【Pn-F32】</b> Torque Command in Test Mode( <b>【Fn-22】</b> Torque Command in Test Mode) progressively. When the output torque is enough, the inertia tuning is finished.</li> </ol>		

### 15.13 AL-3F Parameter Saving Command is Illegal

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-523</b>		
<b>1st Single Axis ID</b>	<b>AL-3F</b>	<b>Alarm Name</b>	<b>Parameter Saving Command is Illegal</b>
<b>Alarm Content</b>	Parameter saving command is given while Servo On		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter saving command is given while Servo On</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Give parameter saving command while Servo Off</li> </ol>		

### 15.14 AL-4A Syntec Encoder Runs in Bootloader Mode

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-336</b>		
---	---------------	--	--



1st Single Axis ID	AL-4A	Alarm Name	Syntec Encoder Runs in Bootloader Mode
<b>Alarm Content</b>	When 1st encoder is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		

### 15.15 AL-4B 2nd Syntec Encoder Runs in Bootloader Mode

All in one ID 2nd Single Axis ID	AL-337		
1st Single Axis ID	AL-4B	Alarm Name	2nd Syntec Encoder Runs in Bootloader Mode
<b>Alarm Content</b>	When 2nd is Syntec Encoder and is Running in Bootloader Mode, alarm occurs.		
<b>Possible Cause</b>	1. Power failure or disconnection during firmware update process		
<b>Possible Solution</b>	1. Update firmware again and restart.		

### 15.16 AL-4C Serial Encoder Communication Type is Wrong

All in one ID 2nd Single Axis ID	AL-309		
1st Single Axis ID	AL-4C	Alarm Name	Serial Encoder Communication Type is Wrong
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using serial encoder</li> <li>2. If Pn-900(P3-20) is set to 12 and connected with a Nikon encoder, then it is communication issue.</li> <li>3. If the Pn-900 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-900 can not be used at the setting of Pn-901</li> <li>6. FPGA version doesn't support this encoder type</li> </ol>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface (Pn-900(P3-20) ) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-901 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-900(P3-20) setting.</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-900(P3-20) correctly and reboot drive.</li> <li>2. Reassemble cables, make sure there is no interference and then restart</li> <li>3. Set Pn-900 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-900(P3-20). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-901 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type</li> </ol>

### 15.17 AL-4D 2nd Serial Encoder Communication Type is Wrong

<b>All in one ID</b>	<b>AL-319</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-4D</b>	<b>Alarm Name</b>	<b>2nd Serial Encoder Communication Type is Wrong</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder communication interface setting is incorrect while using second serial encoder.</li> <li>2. If Pn-920(P6-80) is set to 12 and connected with a Nikon encoder, then the problem is with communication there is a communication problem</li> <li>3. If the Pn-920 is set to 23 and connected to the HCFA encoder, then perhaps the encoder does not support high-cycle communication.</li> <li>4. This alarm occurs when power-up with HCFA/ Sankyo encoders. Please check Pn-642, Pn-643 settings if correct.</li> <li>5. Setting of Pn-920 can not be used at the setting of Pn-921</li> <li>6. FPGA version doesn't support this encoder type.</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter of encoder communication interface Pn-920(P6-80) and encoder's serial communication are mismatched.</li> <li>2. Check if encoder cables are indeed grounded and the wire has breakage or not.</li> <li>3. Check if the specifications of HCFA motor support high-cycle communication.</li> <li>4. With HCFA/ Sankyo encoders, frequency of communication is not legal.</li> <li>5. Check if Pn-921 is set correctly</li> <li>6. FPGA version doesn't support the encoder type Pn-920(P6-80) setting encoder type.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set Pn-920(P6-80) correctly and reboot driver</li> <li>2. Reassemble cables, make sure there is no interference and then reboot driver</li> <li>3. Set Pn-920 to 22, and then reboot the drive</li> <li>4. Please look up manual of Pn-920(P6-80). Refresh setting with correct ones.</li> <li>5. Setup correct Pn-921 and restart Drive. Refer to "Syntec Parameter Manual" for setup detail</li> <li>6. Upgrade drive installation package according to encoder type.</li> </ol>
--------------------------	--

### 15.18 AL-4F Encoder Calibration Stall Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-430</b>		
<b>1st Single Axis ID</b>	<b>AL-4F</b>	<b>Alarm Name</b>	<b>Encoder Calibration Stall Error</b>
<b>Alarm Content</b>	No motor rotation even as current output reaches limit		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor overload</li> <li>2. UVW wiring error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor for mechanical interferences</li> <li>2. Check Pn-441/Pn-444, Reset correct Pn-441/Pn-444</li> <li>3. Check UVW wiring from drive to motor</li> </ol>		

### 15.19 AL-5A Encoder Internal Thermal Sensor Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-328</b>		
<b>1st Single Axis ID</b>	<b>AL-5A</b>	<b>Alarm Name</b>	<b>Encoder Internal Thermal Sensor Error</b>
<b>Alarm Content</b>	Encoder Internal Thermal Sensor Error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder Internal Thermal Sensor Error</li> <li>2. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. If encoder Internal Thermal Sensor is not needed, set parameter Pn-74A(P1-70) to 1.</li> <li>2. Check the type of resistance used for encoder internal thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>b. If using KTY84:Please set Pn-75A into 0.</li> </ol> </li> <li>3. Send back to dealer or Syntec Corp.</li> </ol>
--------------------------	--

## 15.20 AL-5B Encoder External(1) Thermal Sensor is Unplugged

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-329</b>		
<b>1st Single Axis ID</b>	<b>AL-5B</b>	<b>Alarm Name</b>	<b>Encoder External(1) Thermal Sensor is Unplugged</b>
<b>Alarm Content</b>	Encoder External(1) Thermal Sensor is unplugged		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder External(1) Thermal Sensor is not plugged correctly</li> <li>2. Encoder external(1) Thermal Sensor is broken</li> <li>3. Abnormal power supply voltage of 1st encoder</li> <li>4. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. (a) Make sure encoder external(1) Thermal Sensor is wired properly. (b) If encoder External(1) Thermal Sensor is not needed, set parameter Pn-74B(P1-71) to 1.</li> <li>2. Measure the resistance of encoder external(1) Thermal Sensor at ambient temperature, and check if the measured value of resistance is in the operating range from 500Ω to 1500Ω. If the measured value of resistance appears to be wrong, then please replace encoder external(1) Thermal Sensor with a new one.</li> <li>3. Check if the value of drive parameter Pn-D70 <b>【The 5V Detection of 1st Encoder】</b> is lower than 5V. If so, please check the power supply voltage of 1st encoder port on the drive by probing the output pin. If the supply voltage is normal, then the 1st encoder may be broken; otherwise, check if the drive is working correctly.</li> <li>4. Check the type of resistance used for encoder external(1) thermal sensing             <ol style="list-style-type: none"> <li>a. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>b. If using KTY84:Please set Pn-75B into 0.</li> </ol> </li> </ol>		

## 15.21 AL-6A Encoder not recognized

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-332</b>		
<b>1st Single Axis ID</b>	<b>AL-6A</b>	<b>Alarm Name</b>	<b>Encoder not recognized</b>
<b>Alarm Content</b>	Drive doesn't support the version of encoder version. Do not run this motor and modify any parameters about this motor.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps: <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>		

## 15.22 AL-6B 2nd Encoder not recognized

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-333</b>		
<b>1st Single Axis ID</b>	<b>AL-6B</b>	<b>Alarm Name</b>	<b>2nd Encoder not recognized</b>
<b>Alarm Content</b>	Drive doesn't support the version of second encoder version. Do not run this motor and modify any parameters about this motor		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The version of encoder is outdated.</li> <li>2. Parameter specifics cannot be recognized if the motor is not supplied by Syntec.</li> <li>3. Data read from encoder is unable to be interpreted.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Upgrade driver version.</li> <li>2. Problems from the motor not supplied by Syntec shall be resolved in following steps:             <ol style="list-style-type: none"> <li>a. First ensure the encoder communication type is supported by the current software version of Syntec driver.</li> <li>b. Then inquire the retailer or manufacturer for trouble shooting.</li> </ol> </li> <li>3. Inquire the retailer or manufacturer for trouble shooting.</li> </ol>
--------------------------	---

### 15.23 AL-7A Sensor Test Fail

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-450</b>		
<b>1st Single Axis ID</b>	<b>AL-7A</b>	<b>Alarm Name</b>	<b>Sensor Test Fail</b>
<b>Alarm Content</b>	Sensor test setting error or motor stall		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motion limit is set too small             <ol style="list-style-type: none"> <li>a. Linear motor: Whether position limit larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Whether position limit larger than 2.5 electrical period.</li> </ol> </li> <li>2. Lmotor stall</li> <li>3. Encoder no feedback</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Set motion limit:             <ol style="list-style-type: none"> <li>a. Linear motor: Reserve a travel distance larger than 1.5 magnetic pitch.</li> <li>b. Rotary motor: Reserve a travel distance larger than 2.5 electrical period.</li> </ol> </li> <li>2. Check rotor position, Check Pn-441/Pn-444:             <ol style="list-style-type: none"> <li>a. Move motor to suitable position</li> <li>b. Reset Pn-441/Pn-444</li> </ol> </li> <li>3. Connect and wire encoder correctly</li> </ol>		

### 15.24 AL-7B Linear Motor Magnetic Pitch Setting Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-451</b>		
<b>1st Single Axis ID</b>	<b>AL-7B</b>	<b>Alarm Name</b>	<b>Linear Motor Magnetic Pitch Setting Error</b>

<b>Alarm Content</b>	Detected magnetic pitch (Pn-D85) and set value (Pn-702) are mismatched
<b>Possible Cause</b>	1. Magnetic pitch or encoder resolution setup error
<b>Possible Solution</b>	1. Set parameters correctly

### 15.25 AL-7C Electrical Gear Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-525</b>		
<b>1st Single Axis ID</b>	<b>AL-7C</b>	<b>Alarm Name</b>	<b>Electrical Gear Error</b>
<b>Alarm Content</b>	Relative setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Parameter setting error</li> <li>2. Encoder communication type not supported</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. The ratio of Pn-20E/Pn-210 (P6-08/P6-09) should be integral, and be power of 2, and not more than 256.</li> <li>2. If 23 bit TAMAGAWA encoder is used, Pn-20E can not more than 128.</li> <li>3. Pn-210 (P6-09) must set to 1.</li> <li>4. Please check Pn-900(P3-20). If in DualFeedback control, then check Pn-920(P6-80). If version is 1.6.x, this function only supports Nikon encoder; if version is v2.x, then support Nikon, Sankyo, HCFA and 23/25 bit TAMAGAWA encoders.</li> </ol>		

### 15.26 AL-8A5 2nd Encoder Over Speed

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-31A</b>		
<b>1st Single Axis ID</b>	<b>AL-8A5</b>	<b>Alarm Name</b>	<b>2nd Encoder Over Speed</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Nikon second encoder speed exceeds 6000RPM</li> <li>2. FeeDat second encoder over speed</li> <li>3. Motor with Panasonic second encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo second encoder exceeds maximum speed</li> </ol>		
<b>Possible Cause</b>	1. Check motor is over speed once or not. command		

<b>Possible Solution</b>	1. Avoid having encoder run at maximum speed
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC

## 15.27 AL-8A6 2nd Encoder Internal Over Temperature

All in one ID 2nd Single Axis ID	AL-324		
1st Single Axis ID	AL-8A6	Alarm Name	2nd Encoder Internal Over Temperature
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-746.</li> <li>2. Nikon encoder: Encoder internal temperature is higher than operation temperature or protection level Pn-746.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius or protection level Pn-746.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius or protection level Pn-746.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 105 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree or protection level Pn-746.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree or protection level Pn-746.</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, 2nd encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>		

SYNTEC



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi encoders, please check up Pn-D65.</li> <li>3. If using FeeDat, Tamagawa or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-746 "Syntec Encoder internal(1) thermal sensor overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for 2nd encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75E into 1.</li> <li>7. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC

## 15.28 AL-10 IGBT Overheat

All in one ID 2nd Single Axis ID	AL-100		
1st Single Axis ID	AL-10	Alarm Name	IGBT Overheat
<b>Alarm Content</b>	Generation I single axis drive power module exceeds 90°C IGBT temperature stays above 100°C		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Drive output short-circuit</li> <li>3. Ambient temperature overheat</li> <li>4. Heat source nearby</li> <li>5. Continuous use while exceeding drive's rated load</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if fan is functioning normally.</li> <li>2. Check drive's output wiring, refer to "Wiring and Signal" section of manual.</li> <li>3. Check if ambient temperature is below 55°C, refer to "Transportation and Installation" section of manual.</li> <li>4. Check environment, remove external heat source or enhance cooling capacity.</li> <li>5. Check for motor overload or over current.</li> </ol>		

## 15.29 AL-11 Motor Overheat

All in one ID 2nd Single Axis ID	AL-200		
1st Single Axis ID	AL-11	Alarm Name	Motor Overheat
<b>Alarm Content</b>	Drive detects motor overheat.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system malfunction</li> <li>2. Digital temperature sensor setting error</li> <li>3. KTY84 thermal sensor setting error</li> <li>4. Motor rated current setting error</li> <li>5. Insufficient acceleration time</li> <li>6. Overload</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motor cooling system.</li> <li>2. Correct parameter Pn-50A(P1-40) to Pn-50F(P1-61) according to digital temperature feedback(A or B).</li> <li>3. Check if KTY84 is wired properly and if parameters P1-30 and Pn1-31 are set correctly. PS: Only 1st Single Axis have this solution.</li> <li>4. Check rated current parameter Pn-710(P3-14).</li> <li>5. Check acceleration parameter Pn-306(P6-10) , add acceleration/ deceleration time.</li> <li>6. Check if load rate Pn-D2A(D1-10) is over 100%, consider switching to a motor with higher power.</li> </ol>		
<b>Detailed Instructions</b>	AL-11 Issue Trouble Shooting		

## 15.30 AL-12 Critical Over Voltage

All in one ID 2nd Single Axis ID	AL-110		
1st Single Axis ID	AL-12	Alarm Name	Critical Over Voltage
<b>Alarm Content</b>	DC BUS voltage exceeds drive's protective level		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Excess DC BUS voltage caused by braking resistor when motor slows</li> <li>2. AC power input exceeds drive's rated input voltage</li> <li>3. Drive hardware failure</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check regenerative resistor's specs, refer to "Wiring and Signals" section of manual.</li> <li>2. Check if AC power supply is compatible with drive.</li> <li>3. If the above two scenarios are ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>
--------------------------	---

### 15.31 AL-13 Low Voltage

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-111</b>		
<b>1st Single Axis ID</b>	<b>AL-13</b>	<b>Alarm Name</b>	<b>Low Voltage</b>
<b>Alarm Content</b>	Power supply voltage is lower than driver's rated input voltage		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. AC power supply is too low</li> <li>2. Drive hardware failure</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. check if AC power supply matches drive specs.</li> <li>2. If the above scenario is ruled out, contact distributor or Syntec representative to check hardware.</li> </ol>		

### 15.32 AL-14 Motor Over Speed

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-201</b>		
<b>1st Single Axis ID</b>	<b>AL-14</b>	<b>Alarm Name</b>	<b>Motor Over Speed</b>
<b>Alarm Content</b>	Motor speed is above 120% of it's maximum speed.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor power cable U,V,W phase order incorrect</li> <li>2. Encoder malfunction</li> <li>3. Motor parameter loading error</li> <li>4. Sever system severe overshoot</li> <li>5. Severe speed command change</li> <li>6. Drive software outdated</li> <li>7. Encoder misses packets causing acceleration to be too great</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Execute " Encoder test ", check if alarm AL-302(AL-24) appears. Refer to "Auto tuning" section of manual. Execute " Encoder test ", check if any alarms appear. Refer to "Auto tuning" section of manual.             <ol style="list-style-type: none"> <li>a. Correct power cord phase order or change parameter Pn-021(P3-22)(0 to 1 and 1 to 0).</li> <li>b. Once certain polarity is correct, please consider the following causes of this alarm.</li> </ol> </li> <li>2. Check whether drive parameter Pn-7XX match motor label parameter. If there is a mismatch between motor parameters and those on the label, please record the motor model and contact Suzhou or Taiwan Technical Center(Syntec) for correct motor parameters and load them.</li> <li>3. If vibration of the machine can be observed, tune gain parameters Pn-100 to Pn-102(P2-01 to P2-03).</li> <li>4. Check if controller's commands shift too frequently, increase controller's acceleration and deceleration time constant.</li> <li>5. We have corrected drive alarm specs, please upgrade to versions 2.0.25(1.4.12).</li> <li>6. Capture JOG speed wave form and observe if speed change is not continuous. Check inside the junction box where the encoder is attached, make sure the shielding wire is connected to the motor's ground wire. Observe whether there is value Pn-D73~Pn-D76 (D1-28,D1-29,D1-46,D1-47).</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-14 Issue Trouble Shooting</p>

### 15.33 AL-15 Driver Over Current

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-120</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-15</b></p>	<p><b>Alarm Name</b></p>	<p><b>Driver Over Current</b></p>
<p><b>Alarm Content</b></p>	<p>Current feedback exceeds 150% of the drive's peak current</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Overload</li> <li>2. Encoder and/or motor cable assembly error</li> <li>3. Encoder error</li> <li>4. Current loop gain mismatch while Encoder test, Magnetic Pole Offset Tuning or Motor Parameter Estimation</li> <li>5. Unbalanced motor 3 phase resistance</li> <li>6. Power module failure</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if <math>I_{dq}</math> current feedback is greater than 150% drive's peak current.</li> <li>2. Check encoder and motor U,V, W cables. Refer to "Wiring and signals" section of manual.</li> <li>3. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>4. Use oscilloscope to check if current feedback fluctuate badly. Lower Tuning Gain (Pn-F2D) to 20. If the problem still persist, gradually decrease Drive parameter Pn-F2D to 5.</li> <li>5. Check if motor 3 phase's resistances are equal. If not, this may indicate motor coil damage, which activates this alarm. Measure if UV, UW, VW resistances are equal (Not recommended when resistance to ground is infinite).</li> <li>6. Turn off drive power and measure if P/N(+/-) and U/V/W are shorted. Short circuits indicate a broken transistor. Once certain of damage, contact distributor or Syntec representative to check hardware.</li> </ol>
<b>Detailed Instructions</b>	AL-15 Issue Troubleshooting
<b>备注</b>	<ul style="list-style-type: none"> <li>• Alarm is deleted for Single Axis version V1.6.6 and after.</li> <li>• Alarm is deleted for 4-in-1 version V2.2.0 and after.</li> <li>• Alarm is restored for 4-in-1 version V2.12.3 and after.</li> </ul>

### 15.34 AL-16 Overload

<b>All in one ID</b> <b>2nd Single Axis ID</b>	AL-202		
<b>1st Single Axis ID</b>	AL-16	<b>Alarm Name</b>	<b>Overload</b>
<b>Alarm Content</b>	Motor exceeds S2(short time duty) time limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation</li> <li>2. Continuous operation while exceeding drive's rated current</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder malfunction</li> </ol>		

<b>Possible Solution</b>	<p>1. Check if difference between command and motor speed feedback is too great.</p> <p>2.1 Check if load rate is over 100%, enhance motor capacity, lower motor load or increase acceleration/ deceleration time constant.</p> <p>2.2. Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.Refer to motor specification to correctly set Pn-72A(P4-50) values. Increase allowed overload time limit so the alarm doesn't frequently go off when limit standards are too high.</p> <p>3.Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</p> <p>4.Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</p>
--------------------------	--

### 15.35 AL-18 DSP Watchdog Reset

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-135</b>		
<b>1st Single Axis ID</b>	<b>AL-18</b>	<b>Alarm Name</b>	<b>DSP Watchdog Reset</b>
<b>Alarm Content</b>	Drive DSP detects internal watchdog reset.		
<b>Possible Cause</b>	1. System operation is malfunction.		
<b>Possible Solution</b>	1. Send back to distributor or Syntec representative for hardware repair.		

### 15.36 AL-19 Servo On Timeout

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-52F</b>		
<b>1st Single Axis ID</b>	<b>AL-19</b>	<b>Alarm Name</b>	<b>Servo On Timeout</b>
<b>Alarm Content</b>	Servo on longer than normal		
<b>Possible Cause</b>	<p>1. Power of driver is loss or DC bus voltage is too low.</p> <p>2. Drive configuration error.</p>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check up input voltage if lower than Pn-640(P5-00) supply voltage. Make sure of specification match between driver rated supply, wiring and Pn-640(P5-00) setting.</li> <li>2. Send back to Syntec or authorized representative.</li> </ol>
--------------------------	---

### 15.37 AL-20 Zero Speed Check Fail

<b>All in one ID</b>	<b>AL-530</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-20</b>	<b>Alarm Name</b>	<b>Zero Speed Check Fail</b>
<b>Alarm Content</b>	Zero speed check time longer than normal		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Pn-502(P6-15) Zero Velocity Window is set too small</li> <li>2. External overload</li> <li>3. Tuning result abnormal</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check Pn-502(P6-15) settings. Set Pn-502(P6-15) larger.</li> <li>2. Pn-306(P6-10) maximum acceleration and Pn-307(P6-11) maximum JERK time are set too small. Check and set them larger.</li> <li>3. Check auto tuning parameters. Refer to "Auto tuning" section of manual.</li> </ol>		

### 15.38 AL-21 Regenerative resistance error

<b>All in one ID</b>	<b>AL-130</b>		
<b>2nd Single Axis ID</b>			
<b>1st Single Axis ID</b>	<b>AL-21</b>	<b>Alarm Name</b>	<b>Regenerative resistance error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Switching transistor of regenerator is failure.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if transistor of regenerator is shorted, if so, send back to distributor or Syntec representative for hardware repair.</li> </ol>		

### 15.39 AL-22 Cooling Fan error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-131</b>		
<b>1st Single Axis ID</b>	<b>AL-22</b>	<b>Alarm Name</b>	<b>Cooling Fan error</b>
<b>Alarm Content</b>	Triggered when power stage reports abnormality.		
<b>Possible Cause</b>	1. Cooling fan is malfunction or failure.		
<b>Possible Solution</b>	1. Check If cooling fan is damage, if so, send back to distributor or Syntec representative for hardware repair.		

### 15.40 AL-23 Encoder Index Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-301</b>		
<b>1st Single Axis ID</b>	<b>AL-23</b>	<b>Alarm Name</b>	<b>Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong</li> <li>2. Incorrect encoder setting</li> <li>3. Encoder pole number (Pn-90A/P3-30) setting error</li> <li>4. Communication interference</li> <li>5. Encoder Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test" and check for alarms . If any alarm goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>		
<b>Detailed Instructions</b>	AL-23 Issue Trouble Shooting		



### 15.41 AL-23 Encoder Index Error\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-301</b>		
<b>1st Single Axis ID</b>	<b>AL-23</b>	<b>Alarm Name</b>	<b>Encoder Index Error</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong</li> <li>2. Encoder malfunction</li> <li>3. Syntec encoder pole number (Pn-90A/P3-30) setting error</li> <li>4. Communication interference</li> <li>5. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder wiring, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test" and check for alarms . If any alarm goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> <li>4. Set encoder pole number correctly and reboot driver.</li> <li>5. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>6. Replace encoder</li> </ol>		
<b>Detailed Instructions</b>	AL-23 Issue Trouble Shooting		

### 15.42 AL-24 Encoder Direction Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter "Encoder Polarity " setting error.</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-021(P3-22) (0 to 1、 1 to 0) and reboot driver.</li> </ol> <p>⚠️ If motor is PMSM type, set parameter Pn-021(P3-22) is not recommended.</p>
--------------------------	--

### 15.43 AL-24 Encoder Direction Error\_Tuning Alarm Description

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-302</b>		
<b>1st Single Axis ID</b>	<b>AL-24</b>	<b>Alarm Name</b>	<b>Encoder Direction Error</b>
<b>Alarm Content</b>	Encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Encoder Polarity " setting error.		
<b>Possible Solution</b>	1. Check if machanical angle is correct or not. If not, set parameter Pn-021(P3-22) (0 to1, 1 to 0) and reboot driver.		

### 15.44 AL-25 Encoder Resolution Error

<b>All in one ID 2nd Single Axis ID</b>	<b>AL-303</b>		
<b>1st Single Axis ID</b>	<b>AL-25</b>	<b>Alarm Name</b>	<b>Encoder Resolution Error</b>
<b>Alarm Content</b>	Encoder resolution error.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder resolution Pn-902(P3-21) setting error</li> <li>2. Encoder pole number Pn-90A(P3-30) setting error</li> <li>3. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-902(P3-21) is equal to resolution or not. If not, set encoder resolution to correct value and reboot driver</li> <li>2. Check parameter Pn-90A(P3-30), set encoder pole pair number correctly and reboot driver</li> <li>3. Send back to distributor or Syntec representative to check hardware</li> </ol>		

### 15.45 AL-25 Encoder Resolution Error\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-303</b>		
<b>1st Single 轴向轴向 ID</b>	<b>AL-25</b>	<b>Alarm Name</b>	<b>Encoder Resolution Error</b>
<b>Alarm Content</b>	The parameter "Encoder Resolution" setting error		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameter "Encoder Resolution" setting error</li> <li>2. Hardware malfunction</li> <li>3. Encoder pole number(Pn-90A/P3-30) setting error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-902(P3-21) is equal to and resolution or not. If not, set encoder resolution to correct value and reboot driver</li> <li>2. Send back to distributor or Syntec representative to check hardware</li> <li>3. Set encoder pole pair number correctly and reboot driver</li> </ol>		

### 15.46 AL-26 Motor Pole Number Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-210</b>		
<b>1st Single Axis ID</b>	<b>AL-26</b>	<b>Alarm Name</b>	<b>Motor Pole Number Error</b>
<b>Alarm Content</b>	Triggered when motor pole number or encoder pole pair number and parameter settings are mismatched		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor pole number setup error</li> <li>2. Encoder pole pair number setup error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if value of parameter Pn-701(P3-01) equals pole number on lable.</li> <li>2. Check if value of parameter Pn-90A(P3-30) setup correct.</li> </ol>		

### 15.47 AL-26 Motor Pole Number Error\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-210</b>		
---	---------------	--	--

1st Single 轴向轴 ID	AL-26	Alarm Name	Motor Pole Number Error
<b>Alarm Content</b>	Triggered when determined motor pole number and parameter settings are mismatched.		
<b>Possible Cause</b>	1. Motor pole number setup error		
<b>Possible Solution</b>	1. Check if value of parameter Pn-701 equals pole number on lable.		

### 15.48 AL-27 Encoder No Feedback

All in one ID 2nd Single Axis ID	AL-304		
1st Single Axis ID	AL-27	Alarm Name	Encoder No Feedback
<b>Alarm Content</b>	Drive fails to receive signals from the encoder .		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. Encoder wire is untied or unconnected</li> <li>3. Encoder communication interface setting error</li> <li>4. Encoder port number setting error</li> <li>5. Wire failure (shor circuit, wire breakage)</li> <li>6. Encoder malfunction</li> <li>7. Driver's pre-circuit board malfunction</li> <li>8. Noise generated in QEP encoder</li> <li>9. Encoder's baud rate is unsupported</li> <li>10. Encoder firmware update failed</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check if encoder wiring and pin definitions are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>3. Refer to "Driver Parameter Manual", set parameters correctly and restart drive.</li> <li>4. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>5. Replace motor</li> <li>6. Replace driver</li> <li>7. Set Pn-52E(P6-65) to change the speed in startup.</li> <li>8. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BiSSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>9. If the alarm happend after encoder firmware update, please contact syntec or authorized representative</li> <li>10. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please using Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-27 Issue Trouble Shooting</p>

### 15.49 AL-28 Encoder Pulse Loss

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-305</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-28</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Pulse Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Pulse number detected is different in each revolution</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Encoder cable malfunction</li> <li>2. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Encoder malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

### 15.50 AL-28 Encoder Pulse Loss\_Tuning Alarm Description

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-305</b>		
<b>1st Single 轴向轴向 ID</b>	<b>AL-28</b>	<b>Alarm Name</b>	<b>Encoder Pulse Loss</b>
<b>Alarm Content</b>	Pulse number detected is different in each revolution		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder cable malfunction</li> <li>2. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Send to Syntec or authorized representative.</li> </ol>		

### 15.51 AL-29 Motor Parameter Estimation Failure - Abnormal Output Command

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-400</b>		
<b>1st Single Axis ID</b>	<b>AL-29</b>	<b>Alarm Name</b>	<b>Motor Parameter Estimation Failure - Abnormal Output Command</b>
<b>Alarm Content</b>	The search for the estimated current command fails during parameter estimation		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder malfunction</li> <li>2. Mechanical abnormality or excessive motor load inhibits motor rotation</li> <li>3. Abnormal current control</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Confirm whether any alarm occurs in the "encoder function test" test. Handle the alarm during the "encoder function test" test.</li> <li>2. Check whether the current reaches the 120% rated current of the motor during the estimation process. Ensure that the motor parameters are estimated when the motor is no-load. If the load cannot be removed, it is recommended to use "static induction motor tuning".</li> <li>3. The voltage command exceeds 40% of the rated motor voltage during the tuning process. The setting of the internal gain ratio Pn-F2D (Fn-18) of the tuning machine starts from 100% and is gradually lowered by 20% steps</li> </ol>		

## 15.52 AL-30 V/f Overcurrent

All in one ID 2nd Single Axis ID	AL-501		
1st Single Axis ID	AL-30	Alarm Name	V/f Overcurrent
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. The current feedback is continuously over the maximum current of motor in V/f mode.</li> <li>2. Triggered when current feedback is greater than 120% of maximum current</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Severe setting of acceleration time or jerk time</li> <li>2. Incorrect V/f curve setting</li> <li>3. The motor is overload.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Increase jerk time(ms) and acceleration time</li> <li>2. Adjust V/f operating curve</li> <li>3. Appropriately decrease the load.</li> </ol>		
<b>Remark</b>	From v2.12.7 , the second trigger mechanism of alarm content has been removed.		

## 15.53 AL-31 Over Torque 1

All in one ID 2nd Single Axis ID	AL-203		
1st Single Axis ID	AL-31	Alarm Name	Over Torque 1
<b>Alarm Content</b>	Motor torque exceeds torque level 1 continuously for over torque check time 1.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		

### 15.54 AL-32 Over Torque 2

All in one ID 2nd Single Axis ID	AL-204		
1st Single Axis ID	AL-32	Alarm Name	Over Torque 2
<b>Alarm Content</b>	Motor torque exceeds torque level 2 continuously for over torque check time 2		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor is stuck due to mechanical factors, leading to overload during operation</li> <li>2. Encoder or motor wiring error</li> <li>3. Encoder malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if difference between command and motor speed feedback is too great.</li> <li>2. Check wiring between encoder and U,V,W cables, refer to "Wiring and Signal" section of manual.</li> <li>3. Execute "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> </ol>		

### 15.55 AL-33 2nd Encoder Index Error

All in one ID 2nd Single Axis ID	AL-31 1		
1st Single Axis ID	AL-33	Alarm Name	2nd Encoder Index Error
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Encoder didn't detect reference signal during encoder test.</li> <li>2. Encoder-rotor offset calibration takes too long.</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Connector wiring is poor contact, or connection is wrong.</li> <li>2. Second encoder setting error.</li> <li>3. Second encoder pole number(Pn-92A/P6-90) setting error.</li> <li>4. Communication interference</li> <li>5. Second encoder hardware malfunction</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check wiring of second encoder, refer to "Wiring and Signal" section of manual.</li> <li>2. Execute "Encoder test". If any alarms goes off, refer to "Syntec auto tuning" section of manual.</li> <li>3. Set encoder pole number correctly and reboot driver.</li> <li>4. Refer to "Syntec motor encoder grounding program" section of manual</li> <li>5. Slowly shift axis by MPG (manual pulse generator) and confirm whether Index Counter equals encoder resolution or not. If not , send back to distributor or Syntec representative to check hardware.</li> </ol>
--------------------------	--

### 15.56 AL-34 2nd Encoder Direction Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-312</b>		
<b>1st Single Axis ID</b>	<b>AL-34</b>	<b>Alarm Name</b>	<b>2nd Encoder Direction Error</b>
<b>Alarm Content</b>	Second encoder's direction is opposite of UVW phase sequence.		
<b>Possible Cause</b>	1. The parameter "Second encoder polarity " setting error		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check whether mechanical angle is correct or not. If mechanical angle is incorrect and motor is PMSM type, change any two of UVW power cable. If motor is NOT PMSM type, set parameter Pn-022(P6-82) ( 0 to 1、 1 to 0 ) and reboot driver.</li> </ol> <p>⚠ If motor is PMSM type, set parameter Pn-022(P6-82) is not recommended.</p>		

### 15.57 AL-35 2nd Encoder resolution error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-313</b>		
<b>1st Single Axis ID</b>	<b>AL-35</b>	<b>Alarm Name</b>	<b>2nd Encoder resolution error</b>
<b>Alarm Content</b>	Second encoder resolution error.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. 2nd encoder resolution Pn-922(P6-81) setting error</li> <li>2. 2nd Encoder pole number Pn-92A(P6-90) setting error.</li> <li>3. Second encoder hardware malfunction</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check if parameter Pn-922(P6-81) is equal to and resolution or not. If they differ not, set encoder resolution to correct value correct encoder resolution value and restart drive and reboot drive.</li> <li>2. Check parameter Pn-92A(P6-90), set encoder pole pair number correctly and reboot driver</li> <li>3. Send back to authorized dealer or Syntec Corp. for repairs.</li> </ol>
--------------------------	---

### 15.58 AL-36 2nd Encoder no feedback

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-314</b>		
<b>1st Single Axis ID</b>	<b>AL-36</b>	<b>Alarm Name</b>	<b>2nd Encoder no feedback</b>
<b>Alarm Content</b>	Drive fails to receive signals from the second encoder .		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Second encoder wire is untied or unconnected.</li> <li>2. Encoder communication interface setting error.</li> <li>3. Encoder port number setting error.</li> <li>4. Wire failure (shor circuit, wire breakage)</li> <li>5. Encoder malfunction</li> <li>6. Driver's pre-circuit board malfunction</li> <li>7. In dual feedback control and 2nd encoder type is QEP, mechanical problem and machining condition may cause alarm</li> <li>8. Encoder's baud rate is unsupported</li> <li>9. Encoder firmware update failed</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if serial encoder wiring and pin definitions for errors are correct or not. Refer to "Wiring and signal" section of manual.</li> <li>2. Refer to "Drive Parameter Manual", set parameters correctly and reboot driver.</li> <li>3. Replace encoder cable (encoder's green wire between the drive and motor), and send broken one to Suzhou Syntec.</li> <li>4. Replace motor</li> <li>5. Replace driver</li> <li>6. Refer to "Dual feedback control and outer feedback using linear scale" section of manual, change Pn-52F properly</li> <li>7. Currently supported encoder baud rates are as follows: TAMAGAWA、SYNTEC、SANKYO、BISSC: 2.5MHz Nikon: 2.5MHz、4MHz HIWIN: 2.35MHz</li> <li>8. If the alarm happend after encoder firmware update, please contact syntec or authorized representative</li> <li>9. If using BiSSC encoder, and the alarm happens during Encoder Offset Searching 2-4 tuning. With there is another encoder plugged, please reboot the drive. With none of encoder plugged, that means the encoder used probably not support 2-4 tuning. In this case, please using Encoder Offset Searching 3-4 tuning or contact distributor or Syntec representative.</li> </ol>
---------------------------------	---

### 15.59 AL-38 Excessive position error between 1st and 2nd feedback

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-520</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-38</b></p>	<p><b>Alarm Name</b></p>	<p><b>Excessive position error between 1st and 2nd feedback</b></p>
<p><b>Alarm Content</b></p>	<p>Position error between 1st and 2nd feedback exceeds allowed level</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. 2nd encoder pulse loss, no feedback or encoder polarity error</li> <li>3. Gear ratio set incorrectly</li> <li>4. Pn-51A set too strictly</li> <li>5. Uses ABZ type as 2nd encoder and the resolution value is wrong</li> </ol>		

<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check belt mechanism.</li> <li>2. Execute "Encoder test" and observe whether any alarms are triggered. Refer to "Auto tuning" section of manual.</li> <li>3. Measure and examine gear ratio again.</li> <li>4. Check Pn-51A setting. Refer to 2nd Generation Driver Dual Feedback Tuning Manual(Analysis platform) or "The Pos Dual Feedback Control Of The Linear Scales with Analysis Platform"             <ol style="list-style-type: none"> <li>a. For spindle dual feedback, it is recommended setting this error bound (Pn-51A) as 0.1 times of the 2nd encode resolution.</li> <li>b. For axial dual feedback, if the resolution of the outer feedback linear scale is R pulse/mm and the mechanism has a backlash error of P mm, this parameter setting (Pn-51A) must be greater than P * R, and it is recommended to set 2 to 3 times P * R or more.</li> </ol> </li> <li>5. For axial dual feedback, please check whether <b>【Pn-922】</b> 2nd Encoder Resolution is set correctly.</li> </ol>
---------------------------------	--

### 15.60 AL-39 2nd Encoder Pulse Loss

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-315</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-39</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder Pulse Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Pulse number detected is different in each revolution</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Second encoder's cable problem</li> <li>2. Second encoder's signal is interfering by rotor's axis with magnetic</li> <li>3. Second encoder malfunction</li> </ol>		
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Replace cable.</li> <li>2. Check if joining between encoder cable and motor is double end grounded. Check if encoder and motor are grounded.</li> <li>3. Send back to Syntec or authorized representative.</li> </ol>		

### 15.61 AL-41 Encoder external(1) Thermal Sensor Over Temperature

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-321</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-41</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder external(1) Thermal Sensor Over Temperature</b></p>

<b>Alarm Content</b>	The temperature that encoder external(1)'s Thermal Sensor detect is over drive's protective limit.
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatability</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-743(P1-33) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-743 "Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. <i>If floating, alarms will be prone to happen as temperature display will be 145 degrees.</i></li> <li>5. Check the type of resistance used for encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75B into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting

## 15.62 AL-42 Encoder External(2) Thermal Sensor Over Temperature

All in one ID 2nd Single Axis ID	AL-322		
1st Single Axis ID	AL-42	Alarm Name	Encoder External(2) Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that encoder external(2)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Parameter error</li> <li>4. With SYNTEC encoder, encoder external(2) thermal sensor type setting error</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-744(P1-34) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-744 "Syntec Encoder external(2) Thermal Sensor overheat threshold" is not 0. If temperature sensing wires are floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>4. Check the type of resistance used for encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75C into 1.</li> </ol>
<b>Detailed Instructions</b>	AL-40, AL-41, AL-42 Issue Trouble Shooting

### 15.63 AL-45 2nd Encoder External(1) Thermal Sensor Over Temperature

All in one ID 2nd Single Axis ID	AL-325		
1st Single Axis ID	AL-45	Alarm Name	2nd Encoder External(1) Thermal Sensor Over Temperature
<b>Alarm Content</b>	The temperature that 2nd encoder external(1)'s Thermal Sensor detect is over drive's protective limit.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(1)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(1) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		



<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-746(P1-36) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(1) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(1)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(1) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75F into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
--------------------------	--

### 15.64 AL-46 2nd Encoder External(2) Thermal Sensor Over Temperature

All in one ID 2nd Single Axis ID	AL-326		
1st Single Axis ID	AL-46	Alarm Name	2nd Encoder External(2) Thermal Sensor Over Temperature
<b>Alarm Content</b>	Encoder External(2) detects Thermal Sensor's temperature over drive's protective limit		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. Motor's Thermal Sensor wire unconnected to Encoder external(2)'s temperature sensing wire(the yellow and green line of the encoder, respectively)</li> <li>5. With SYNTEC encoder, 2nd encoder external(2) thermal sensor type setting error</li> <li>6. Encoder hardware malfunction</li> </ol>		



<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change cooling system.</li> <li>2. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-748(P1-38) to correct protective temperature limit.</li> <li>3. Make sure parameter Pn-748 (P1-38)"Syntec Encoder internal(2) Thermal Sensor overheat threshold" is set correctly.</li> <li>4. Connect Thermal Sensor wire and Encoder external(2)'s temperature sensing wire. If floating, alarms will be prone to happen as temperature display will be 145 degrees.</li> <li>5. Check the type of resistance used for 2nd encoder external(2) thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-760 into 1.</li> <li>6. If all above solutions fail to solve the problem, Thermal Sensor may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
---------------------------------	--

### 15.65 AL-48 Encoder Status Extreme Error

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-307</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-48</b></p>	<p><b>Alarm Name</b></p>	<p><b>Encoder Status Extreme Error</b></p>
<p><b>Alarm Content</b></p>	<p>Encoder status has extreme errors to operate normally</p>		
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Serial encoder communication interference</li> <li>2. Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Encoder's cable grounding failure</li> <li>5. Encoder communication type setting error</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. if the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>8. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Encoder's firmware malfunction</li> <li>10. Encoder's hardware malfunction</li> </ol>		





<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D73~Pn-D76(D1-28,D1-29,D1-46,D1-47) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive is defected has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions:             <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b. try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-900(P3-20) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D95 and other encode's alarms first.</li> <li>11. if using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-48 Issue Problem Shooting</p>

### 15.66 AL-49 2nd Encoder Status Extreme Error

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-317</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-49</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder Status Extreme Error</b></p>
<p><b>Alarm Content</b></p>	<p>2nd Encoder status has extreme errors to operate normally</p>		

<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Second encoder communication interference.</li> <li>2. Second Serial encoder wire is untied or unconnected</li> <li>3. Connector between drive and encoder has solder empty or code solder</li> <li>4. Second encoder's cable grounding failure</li> <li>5. Second encoder communication type setting error.</li> <li>6. Automatic search for BiSSC data length is failure</li> <li>7. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>8. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then probably occurs "Encoder extreme over temperature".</li> <li>9. Second encoder's firmware malfunction</li> <li>10. Second encoder's hardware malfunction</li> </ol>
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check if drive's status parameter Pn-D77~Pn-D7A(D1-42,D1-43,D1-59,D1-60) is zero or not.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor double end grounded.</li> <li>4. Check welding wire at the interface between encoder and drive.</li> <li>5. Check welding wire at the interface between encoder and motor.</li> <li>6. Check conduction between metal part of first encoder port and drive case. If it's not conduction , the drive has defects. Please contact Suzhou or Taiwan Technical Center for changing procedure.</li> <li>7. If it didn't work by the above solutions,             <ol style="list-style-type: none"> <li>a. Attach magnetic ring to both sides of the encoder cable</li> <li>b.try to separate the encoder cable from the motor power cable or other powerful cables.</li> </ol> </li> <li>8. Refer to chapter "Drive Parameter" in user manual, set Pn-920(P6-80) to right value, and reboot</li> <li>9. Check BiSSC Encoder data length. Support 18, 26, 32, 36bit BiSSC Encoder only.</li> <li>10. If the drive is v2.x servo drive with a Nikon encoder, check drive's status parameter Pn-D96 and other encode's alarms first.</li> <li>11. If using Syntec encoder and version from 2.0.8 or 2.1.1, which support "over temperature self-diagnosis", then check temperature feedback and settings.</li> <li>12. Backup motor's parameters and record drive's and encoder's versions. Update encoder firmware's version to V1.8.14 or above.</li> <li>13. Please contact Suzhou or Taiwan Technical Center.</li> </ol>

## SYNTEC

### 15.67 AL-50 Current Tuning Error

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-402</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-50</b></p>	<p><b>Alarm Name</b></p>	<p><b>Current Tuning Error</b></p>
<p><b>Alarm Content</b></p>	<p>Current tuning error</p>		

<b>Possible Cause</b>	1. Excess current during tuning.
<b>Possible Solution</b>	1. Redo the "Current Tuning" test 2. Send back to Syntec or authorized representative

### 15.68 AL-51 Encoder Halt Alarm

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-300</b>		
<b>1st Single Axis ID</b>	<b>AL-51</b>	<b>Alarm Name</b>	<b>Encoder Halt Alarm</b>
<b>Alarm Content</b>	Encoder crashed and can't correctly send back position data.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder crash and watchdog restart encoder. Non-Syntec encoder internal error.</li> <li>2. Motor overheating</li> <li>3. Noise interference</li> <li>4. Hardware malfunction</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Reboot driver and observe encoder for abnormality</li> <li>2. Check Pn-90E(P3-34) Encoder Reset Counter. If encoder abnormal, check whether the motor is overheated or not.</li> <li>3. Make sure the shielding wire attached to encoder inside the junction box is connected to the motor's ground wire.</li> <li>4. Replace encoder.</li> <li>5. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	AL-15 Issue Trouble Shooting <b>【Pn-D95】</b> Enc Error Status ALMC		

### 15.69 AL-52 2nd Encoder Halt Alarm

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-310</b>		
<b>1st Single Axis ID</b>	<b>AL-52</b>	<b>Alarm Name</b>	<b>2nd Encoder Halt Alarm</b>

<b>Alarm Content</b>	Second encoder crashes, unable to send back position data
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Syntec encoder crash and watchdog restart encoder. Non-Syntec encoder internal error.</li> <li>2. Motor overheating</li> <li>3. Noise interference</li> <li>4. Hardware malfunction</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Restart and observe second encoder for abnormality</li> <li>2. Check Pn-92E(P6-94) 2nd Encoder Reset Counter. If encoder abnormal, check whether the motor is overheated or not</li> <li>3. Check whether the motor is overheated or not, if the parameter Pn-92E(P6-94) is 5</li> <li>4. Make sure the shielding wire attached to encoder inside the junction box is connected to the motor's ground wire.</li> <li>5. Replace encoder.</li> <li>6. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC

### 15.70 AL-53 Inverter Type Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-133</b>		
<b>1st Single Axis ID</b>	<b>AL-53</b>	<b>Alarm Name</b>	<b>Inverter Type Error</b>
<b>Alarm Content</b>	<p><b>1st Single Axis:</b> Triggered when power stage parameters and the parameter, which is detected from power stage, is mismatch.</p> <p><b>All in one/2nd Single Axis:</b> Triggered while accessing power stage information.</p>		
<b>Possible Cause</b>	<p><b>1st Single Axis:</b></p> <ol style="list-style-type: none"> <li>1. Control board is incompatible with Power Stage ID(P5-07)</li> <li>2. Parameter Power Stage ID(P5-07) setting error</li> </ol> <p><b>All in one/2nd Single Axis:</b></p> <ol style="list-style-type: none"> <li>1. Triggered when power stage information stored on power stage cannot be read.</li> <li>2. Triggered when the number of detected current sensors is abnormal.</li> <li>3. The inverter informations of current sensor is wrong</li> </ol>		

<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Send back to distributor or Syntec representative for hardware repair.</li> <li>2. 1st Single Axis:             <ol style="list-style-type: none"> <li>a. Change the value of Power Stage ID(P5-07) to Power Stage ID read(D1-70) if not consistent</li> <li>b. If Power Stage ID read(D1-70) is equal to zero, please send back to Syntec Corp.</li> </ol> </li> </ol>
--------------------------	---

### 15.71 AL-54 Encoder Z Index Shift

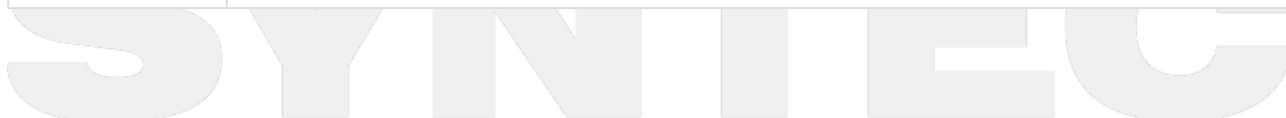
All in one ID 2nd Single Axis ID	AL-306		
1st Single Axis ID	AL-54	Alarm Name	Encoder Z Index Shift
<b>Alarm Content</b>	Relative position between A/B phase and Z index is different in each revolution, so feedback position of encode is error possibly.		
<b>Possible Cause</b>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Syntec encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is differ from the setting parameter</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>		



<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or above(Multi-Axis Servo Drive is updated to V2.2.5 or above), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if encoder and motor are grounded.</li> <li>3. Check if joining between encoder cable and motor is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-54 Issue Trouble Shooting</p>

### 15.72 AL-55 2nd Encoder Z Index Shift

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-316</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-55</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder Z Index Shift</b></p>
<p><b>Alarm Content</b></p>	<p>Relative position between A/B phase and Z index is different in each revolution, so feedback position of encoder is error possibly .</p>		



<p><b>Possible Cause</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Second encoder's firmware version is outdated</li> <li>2. Encoder is under noise interference, which causing feedback signal error.</li> <li>3. Encoder's signal is interfering by rotor's axis with magnetic</li> <li>4. Hollow magnetic ring Zindex position is different than from the written parameter.</li> <li>5. Magnetic ring's non-Zindex zone has magnetic field distribution</li> <li>6. Hardware malfunction</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. The circuit board of non-Syntec encoder is broken.</li> <li>2. Non-Syntec sensor and encoder are wrong assembly.</li> </ol>
<p><b>Possible Solution</b></p>	<p><b>Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Update drive's version to 1.6.14 or more recent(Multi-Axis Servo Drive is updated to V2.2.5), and update encoder's version to 2.0.7 or above.</li> <li>2. Check if second encoder and motor are grounded.</li> <li>3. Check if joining between second encoder cable and motor are is double end grounded.</li> <li>4. Short term countermeasure: Magnetic axle center causing AL-54 SOP Long term countermeasure: Cross-Strait motor plants import axle center inspections starting 2016/7</li> <li>5. Short term countermeasure: Raise Z index trigger level of P6-60/Pn-940 encoder to 35, and position axle after executing encoder test(rated current 150%). make sure alarm AL54/AL306 doesn't go off. Long term countermeasure: Imported ultimate solution into manufacture process since 2018/1/11</li> <li>6. Send the second encoder to Syntec or authorized representative for repair.</li> </ol> <p><b>Non-Syntec encoder:</b></p> <ol style="list-style-type: none"> <li>1. Check the encoder is contaminated by dust or oil.</li> <li>2. Check the gap between sensor and encoder is correctly.</li> <li>3. Send back to Syntec Corp.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-54 Issue Trouble Shooting</p>

### 15.73 AL-56 2nd Encoder Battery Low Voltage Position Loss

<p><b>All in one ID</b> <b>2nd Single Axis ID</b></p>	<p><b>AL-812</b></p>		
<p><b>1st Single Axis ID</b></p>	<p><b>AL-56</b></p>	<p><b>Alarm Name</b></p>	<p><b>2nd Encoder Position Loss</b></p>
<p><b>Alarm Content</b></p>	<p>Second encoder battery less than 2.5V, multi-turn position data loss</p>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder voltage too low or no battery             <ol style="list-style-type: none"> <li>a. Nikon, Panasonic: battery voltage is less than 2.5 V.</li> <li>b. Mitsubishi: battery voltage is less than 2.9V.</li> <li>c. HCFA: battery voltage is less than 1.7V.</li> <li>d. Delta: battery voltage is less than 3.1V.</li> </ol> </li> <li>2. Parameter set incorrectly</li> </ol>
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change battery             <ol style="list-style-type: none"> <li>a. With controller: Change battery and reboot system.</li> <li>b. No controller: Change battery, set parameter Pn-F44(Fn-34) to 1 and reboot driver.</li> </ol> </li> <li>2. Check parameter Pn-924(P6-83). If not using an absolute encoder, set Pn-924 to 0, save and reboot driver</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC

### 15.74 AL-58 Encoder Download Parameters Fail

All in one ID 2nd Single Axis ID	AL-334		
1st Single Axis ID	AL-58	Alarm Name	Encoder Download Parameters Fail
<b>Alarm Content</b>	Encoder parameter download process is unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, the older driver may not support its communication.</li> <li>2. The parameters read back from encoder is incorrect.</li> <li>3. Signal transfer error due to the poor contact of the first encoder's pin</li> <li>4. With hallow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. With Syntec motors after manufacturing date of 2021/05, it is recommended that upgrade driver version at least 3.0.13.</li> <li>2. Check status parameter "First encoder parameter read back status", single axis' parameter is <a href="#">D2-97</a>, four in one's status parameter is <a href="#">Pn-E5F</a>.</li> <li>3. Check if encoder is wired correctly and whether there are interferences.</li> <li>4. Check connectivity of encoder connector pins</li> <li>5. with hallowed encoder, please set motor serial number as 0 and reboot</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently. If alarm doesn't occur after rebooting, parameters have been read correctly. If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p>		



## 15.75 AL-59 2nd Encoder Download Parameters Fail

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-335</b>		
<b>1st Single Axis ID</b>	<b>AL-59</b>	<b>Alarm Name</b>	<b>2nd Encoder Download Parameters Fail</b>
<b>Alarm Content</b>	2nd Encoder parameter download process unsuccessful		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. The parameters read back from 2nd encoder is incorrect.</li> <li>2. Signal transfer error due to the poor contact of the 2nd encoder's pin</li> <li>3. With hollow type encoder(mini encoder), check whether motor serial number is not zero</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check status parameter "2nd encoder parameter read back status", single axis' parameter is <a href="#">D2-98</a>, four in one's status parameter is <a href="#">Pn-E60</a>.</li> <li>2. Check if encoder is wired correctly and whether there are interferences.</li> <li>3. Check connectivity of encoder connector pins</li> </ol> <p>*With this alarm occurring, we would not recommend saving parameters permanently.</p> <p>If alarm doesn't occur after rebooting, parameters have been read correctly.</p> <p>If this problem reoccurs, please contact dealer or Syntec Corp. for repairs.</p> <p>Refer to AL-58<a href="#">问题处置</a> for alarm trouble shooting.</p>		

## 15.76 AL-62 Spindle Posing Deviate

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-511</b>		
<b>1st Single Axis ID</b>	<b>AL-62</b>	<b>Alarm Name</b>	<b>Spindle Posing Deviate</b>
<b>Alarm Content</b>	Position deviated after posing complete		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Orientation angle setting error, mechanical interference cause spindle diverge</li> <li>2. Spindle orientation check window is too narrow</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check orientation angle and mechanical interference</li> <li>2. Check whether parameter Pn-522(P6-12) is set in a reasonable range</li> </ol>		

### 15.77 AL-63 Servo On Command Conflict

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-522</b>		
<b>1st Single Axis ID</b>	<b>AL-63</b>	<b>Alarm Name</b>	<b>Servo On Command Conflict</b>
<b>Alarm Content</b>	Servo on command conflict		
<b>Possible Cause</b>	1. Drive receives Servo On and Auxiliary function at the same time		
<b>Possible Solution</b>	1. Check if parameter Pn-F10(Fn-00) is set to enable auxiliary functions 2. Avoid Servo On and enabling Auxiliary function at the same time		
<b>Note</b>	<ul style="list-style-type: none"> <li>• Alarm has been delete for single axis drive version V1.6.9 and after.</li> <li>• Alarm has been delete for 4-in-1 drive version 4 in 1 V2.3.0 and after.</li> </ul>		

### 15.78 AL-66 Encoder multi-turn data error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-30C</b>		
<b>1st Single Axis ID</b>	<b>AL-66</b>	<b>Alarm Name</b>	<b>Encoder multi-turn data error</b>
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder's multi-turn data is incompatible to single-turn data</li> <li>2. Panasonic encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Mitsubishi encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. Tamagawa encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. HIWIN encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. Sankyo encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. HCFA encoder's multi-turn data is incompatible to single-turn data.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder for dust or oil contamination</li> <li>2. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		

### 15.79 AL-67 2nd Encoder multi-turn data error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-31C</b>		
<b>1st Single Axis ID</b>	<b>AL-67</b>	<b>Alarm Name</b>	<b>2nd Encoder multi-turn data error</b>
<b>Alarm Content</b>	Encoder module error, causing encoder unable to read multi-turn data.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon 2nd encoder's multi-turn data is incompatible to single-turn data</li> <li>2. Panasonic 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>3. Mitsubishi 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>4. Tamagawa 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>5. HIWIN 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>6. Sankyo 2nd encoder's multi-turn data is incompatible to single-turn data.</li> <li>7. HCFA 2nd encoder's multi-turn data is incompatible to single-turn data.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check encoder for dust or oil contamination</li> <li>2. If this is a recurring issue, send back to authorized dealer or Syntec Corp. for repairs</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D96】 2nd Enc Error Status ALMC		

### 15.80 AL-68 1st Encoder over speed when power on

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-308</b>		
<b>1st Single Axis ID</b>	<b>AL-68</b>	<b>Alarm Name</b>	<b>1st Encoder over speed when power on</b>
<b>Alarm Content</b>	<p>Position changes too fast leads to unfinished initialization.</p> <p>Note: If alarm occurs right after power on, encoder will not complete parameter readback.</p>		

<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder's speed exceeds 250RPM when power is on</li> <li>2. If alarm occurs when motor isn't running, there is possibly encoder malfunction.</li> <li>3. If the first encoder is Panasonic Encoder,the motor's speed must run below 100RPM when power is on.</li> <li>4. If the first encoder is Mitutoyo Encoder,the motor's speed must run below 100RPM when power is on.</li> </ol>
<b>Check</b>	Check if motor is running before drive is plugged in
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Once the motor stops, reset alarm.</li> <li>2. Contact motor company for repair.</li> </ol>
<b>Detailed Instructions</b>	<b>【Pn-D95】</b> Enc Error Status ALMC

### 15.81 AL-69 2nd Encoder over speed when power on

All in one ID 2nd Single Axis ID	AL-318		
1st Single Axis ID	AL-69	Alarm Name	2nd Encoder over speed when power on
<b>Alarm Content</b>	Position changes too fast leads to unfinished initialization. Note: If alarm occurs right after power on, encoder will not complete parameter readback.		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder speed exceeds 250RPM right after power on.</li> <li>2. If alarm occurs when motor isn't running, encoder malfunction is possible</li> <li>3. If the second encoder is Panasonic Encoder,the motor's speed must run below 100RPM when power is on.</li> <li>4. If the second encoder is Mitutoyo Encoder,the motor's speed must run below 100RPM when power is on.</li> </ol>		
<b>Check</b>	Observe if motor is running before drive power-on.		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Once the motor stops, reset alarm.</li> <li>2. Contact motor company for repairs.</li> </ol>		
<b>Detailed Instructions</b>	<b>【Pn-D96】</b> 2nd Enc Error Status ALMC		

## 15.82 AL-72 Drive Overload

All in one ID 2nd Single Axis ID	AL-101		
1st Single Axis ID	AL-72	Alarm Name	Drive Overload
<b>Alarm Content</b>	Drive senses power module overload		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Overload during operation due to mechanical factors</li> <li>2. Overload</li> <li>3. Encoder or motor wiring error</li> <li>4. Encoder failure</li> <li>5. Current gain mismatch while running encoder test, magnetic encoder correction or induction motor parameter estimation</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Eliminate mechanical factors.</li> <li>2. Check if <math>I_{dq}</math> current feedback Pn-D30(D1-16) has been greater than the parameter Pn-651(P5-02), if so we suggest lowering motor load.</li> <li>3. Refer to "Wiring and Signal" section of manual for cable re-connection.</li> <li>4. Redo "Encoder test" and check for alarms, refer to "Auto tuning" section of manual.</li> <li>5. Lower Tuning Gain (Pn-F2D/Fn-18) to 20, if problem doesn't improve, gradually tune drive parameter (Pn-F2D/Fn-18) to 5.</li> </ol>		

## 15.83 AL-74 Inertia Tuning Loading Too Large

All in one ID 2nd Single Axis ID	AL-413		
1st Single Axis ID	AL-74	Alarm Name	Inertia Tuning Loading Too Large
<b>Alarm Content</b>	Displacement exceeds half the motion limit while estimating gravity		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Motion limit is set too small or motor power is insufficient</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Check motion limit Pn-F14(Fn-04) and motor power. Raise motion limit or choose motor with larger power</li> </ol>		

### 15.84 AL-75 Encoder Register Access Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-338</b>		
<b>1st Single Axis ID</b>	<b>AL-75</b>	<b>Alarm Name</b>	<b>Encoder Register Access Error</b>
<b>Alarm Content</b>	Encoder Register Access Error		
<b>Possible Cause</b>	1. Error count is too high while accessing encoder register		
<b>Possible Solution</b>	1. Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:                             <ul style="list-style-type: none"> <li>i. Pn-D73(D1-28) Serial Encoder CRC error count(hardware)</li> <li>ii. Pn-D74(D1-29) Serial Encoder CRC error count(software)</li> <li>iii. Pn-D76(D1-47) Serial Encoder overtime error count</li> </ul> </li> <li>b. If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c. If issue is recurring, contact dealer or Syntec Corp. for repairs.</li> </ul>		

### 15.85 AL-76 2nd Encoder Register Access Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-339</b>		
<b>1st Single Axis ID</b>	<b>AL-76</b>	<b>Alarm Name</b>	<b>2nd Encoder Register Access Error</b>
<b>Alarm Content</b>	2nd Encoder Register Access Error		
<b>Possible Cause</b>	1. Error count is too high while accessing 2nd encoder register		
<b>Possible Solution</b>	Preclude encoder wiring interferences, reinforce grounding <ul style="list-style-type: none"> <li>a. Status surveillance:                             <ul style="list-style-type: none"> <li>i.Pn-D77(D1-42) Serial Encoder CRC error count(hardware)</li> <li>ii.Pn-D78(D1-43) Serial Encoder CRC error count(software)</li> <li>iii.Pn-D7A(D1-60) Serial Encoder overtime error count</li> </ul> </li> <li>b.If this alarm occurs when saving parameters, reset alarm and permanently resave parameters again.</li> <li>c.If issue is recurring, contact dealer or Syntec Corp. for repairs</li> </ul>		

### 15.86 AL-77 Rotor Position Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-230</b>		
<b>1st Single Axis ID</b>	<b>AL-77</b>	<b>Alarm Name</b>	<b>Rotor Position Error</b>
<b>Alarm Content</b>	Torque integral direction and acceleration direction are inconsistent		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Encoder polarity error</li> <li>2. Encoder-rotor pole offset error</li> <li>3. Pn-502 is set too low</li> <li>4. Motor vibration while servo on, speed feedback is above Pn-502</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Redo "Encoder test"</li> <li>2. Redo encoder-rotor offset tuning</li> <li>3. Pn-502 should be set between 5~25RPM(mm/sec)</li> <li>4. Tune motor or set lower speed loop gain Pn-100(P2-02) and position loop gain Pn102(P2-01).</li> </ol>		
<b>Remark</b>	<ul style="list-style-type: none"> <li>• Alarm threshold can be adjusted via Pn-502 (Zero speed check window) for 4-in1 version V2.4.6 and after.</li> <li>• When linear motor monitors the initial signal of the encoder, it may cause motor goes out of control. Re-boot the power can solve the problem.</li> </ul>		

### 15.87 AL-78 Load Inertia Value Error

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-414</b>		
<b>1st Single Axis ID</b>	<b>AL-78</b>	<b>Alarm Name</b>	<b>Load Inertia Value Error</b>
<b>Alarm Content</b>	Load inertia value out of range		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Rotor inertia value error</li> <li>2. Linear motor load inertia value out of range</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Re-enter specifics' rotor inertia parameter, or re-execute rotor inertia estimation during idling.</li> <li>2. Refer to "linear motor SOP Q and A", restart rotor inertia tuning instead of load inertia tuning.</li> </ol>		

### 15.88 AL-81 Serious Belt slip

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-524</b>		
<b>1st Single Axis ID</b>	<b>AL-81</b>	<b>Alarm Name</b>	<b>Serious Belt slip</b>
<b>Alarm Content</b>	Speed error between external encoder and estimator is too great		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Belt slip</li> <li>2. Gear ratio error</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Change or tighten belt</li> <li>2. Set gear ratio properly</li> </ol>		

### 15.89 AL-850 Encoder Over Speed

<b>All in one ID</b> <b>2nd Single Axis ID</b>	<b>AL-30A</b>		
<b>1st Single Axis ID</b>	<b>AL-850</b>	<b>Alarm Name</b>	<b>Encoder Over Speed</b>
<b>Alarm Content</b>	<ol style="list-style-type: none"> <li>1. Nikon encoder speed exceeds 6000RPM</li> <li>2. FeeDat encoder over speed</li> <li>3. Motor with Panasonic encoder probably revolved over 6500RPM</li> <li>4. Motor with Mitutoyo encoder exceeds maximum speed</li> </ol>		
<b>Possible Cause</b>	<ol style="list-style-type: none"> <li>1. Check motor is over speed once or not.</li> </ol>		
<b>Possible Solution</b>	<ol style="list-style-type: none"> <li>1. Avoid having encoder run at maximum speed.</li> </ol>		
<b>Detailed Instructions</b>	【Pn-D95】 Enc Error Status ALMC		

### 15.90 AL-860 Encoder Internal Over Temperature

<b>All in one ID</b> <b>2nd Single 轴向轴向 ID</b>	<b>AL-320</b>		
<b>1st Single 轴向轴向 ID</b>	<b>AL-860</b>	<b>Alarm Name</b>	<b>Encoder Internal Over Temperature</b>



<p><b>Alarm Content</b></p>	<ol style="list-style-type: none"> <li>1. Syntec encoder: Encoder temperature is higher than protection level Pn-742.</li> <li>2. Nikon encoder: Encoder internal temperature is higher than operation temperature or protection level Pn-742.</li> <li>3. FeeDat encoder: Encoder internal is overheating</li> <li>4. Panasonic encoder: Encoder internal temperature over 100 degrees Celsius or protection level Pn-742.</li> <li>5. Mitutoyo encoder: Encoder internal temperature over 65 degrees Celsius.</li> <li>6. Mitsubishi encoder: Encoder internal temperature over 115 degrees Celsius or protection level Pn-742.</li> <li>7. Delta encoder: Encoder internal temperature is higher than 105 Celsius degree.</li> <li>8. Tamagawa 23 bit encoder: Encoder internal temperature is higher than 85 Celsius degree or protection level Pn-742.</li> <li>9. Tamagawa 25 bit encoder: Encoder internal temperature is higher than 105 Celsius degree or protection level Pn-742.</li> </ol>
<p><b>Possible Cause</b></p>	<ol style="list-style-type: none"> <li>1. Motor cooling system failure</li> <li>2. Version compatibility</li> <li>3. Thermal sensor signal error</li> <li>4. With SYNTEC encoder, encoder internal thermal sensor type setting error</li> <li>5. Encoder hardware malfunction</li> </ol>
<p><b>Possible Solution</b></p>	<ol style="list-style-type: none"> <li>1. Check and change motor cooling system.</li> <li>2. If using SYNTEC, Nikon, Panasonic, Mitsubishi encoders, please check up Pn-D61.</li> <li>3. If using FeeDat, Tamagawa or Delta encoders, please resolve problem and restart driver.</li> <li>4. If recently updated from V1.2.27~V1.2.31 to V1.2.32 or above, set parameter Pn-742(P1-32) to correct protective temperature limit.</li> <li>5. Make sure parameter Pn-742 "Syntec Encoder internal(1) KTY84 overheat threshold" is set correctly.</li> <li>6. Check the type of resistance used for encoder internal thermal sensing. If using PT1000:Update drive firmware to V3.0.0 or higher, and 2nd Encoder firmware to V2.1.1 or higher. And set Pn-75A into 1.</li> <li>7. If all above solutions fail to solve the problem, KTY84 may have malfunctioned. Please contact Suzhou or Taiwan Tech Center.</li> </ol>
<p><b>Detailed Instructions</b></p>	<p>AL-40, AL-41, AL-42 Issue Trouble Shooting</p> <p>【Pn-D95】 Enc Error Status ALMC</p>