MULTISPAN

PID CONTROLLER
PID 2303-3C

PV = Process value

SV = Set value

TECHNICAL SPECIFICATION

INPUT SPECIFICATION:

	Input	Range
Input Types	J	0 to 400°C
	K	0 to 500°C
	3 CT	0.0 to 30.0 A
Resolution	J,K = 1°C	
Indication Accuracy	±1% of FSD ± 1°C (FSD:- full scale deflection)	

DISPLAY AND KEYS:

Display	Upper: 4 digit, 7 seg 0.56" white LED Middle: 4 digit, 7 seg, 0.31" green LED Lower: 3 digit, 7 seg, 0.39" red LED
Keys	SET, INC, DEC, ENT

DIMENSION:

Size (mm)	72 (H) x 72 (W) x 85 (D) mm
Panel Cutout	68 (H) x 68 (W) mm

CONTROL METHOD:

Heating	1) PID control with Auto-Tuning 2) ON-OFF control
Cooling	1) BL.TP (Blower Time Proportion) 2) ON-OFF control
Alarm	Heater break alarm, Cold start, High, Absolute low, Inband, Absolute outband

OUTPUT SPECIFICATION:

Relay Output	
Relays	3 Nos
Relay Type	1st Relay 1C/O & 2nd & 3rd Relay (NO-C)
Rating	10A,230V AC/28V DC
SSR Drive Output	
Output Signal	24V DC, 30mA DC (On-Off condition)
	Relay 1 parallel to SSR

POWER SUPPLY:

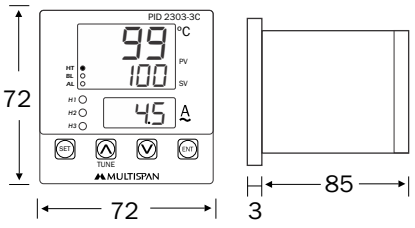
Supply Voltage	100 to 250V AC, 50-60Hz
Power Consuption (VA Rating)	Approx 6VA @ 230V AC

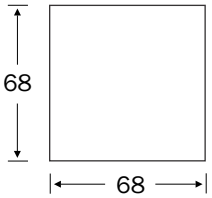
ENVIRONMENT CONDITION:

Operating Temp.	0°C to 55°C
Relative Humidity	UP to 95% RH (non-condensing)
Protection Level	IP-65 (Front side) As per IS/IEC 60529 : 2001

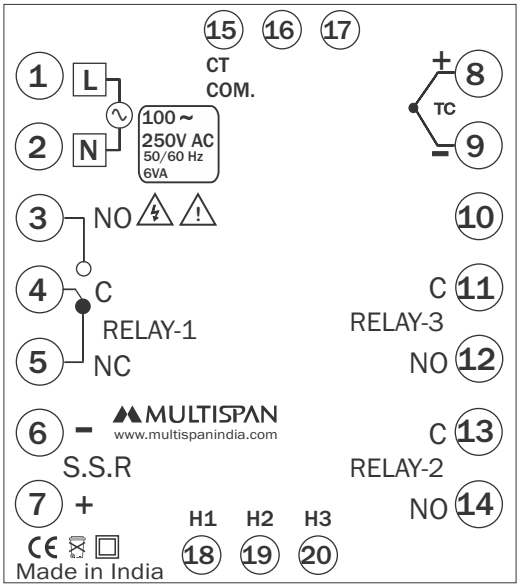
MECHANICAL INSTALLATION

Outline Dimension (mm)	Panel Cutout Dimension (mm)

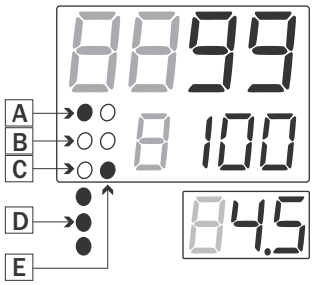




TERMINAL CONNECTION



STATUS LED DESCRIPTION



A - Control output 1 indication (Heating)
B - Control output 2 indication (Cooling)
C - Alarm output indication
D - Heater current indication
E - Auto tuning ON indication

KEY OPERATION

FUNCTION	PRESS KEY
OPERATOR MODE	
To enter in parameter setting	Press SET for 4 sec
For start/stop PID auto tuning	Press ∧ for 6 sec
To go in factory setting mode	∧ + ∨ Press 3 sec
PARAMETER SETTING MODE	
To set parameter value	SET
To increment parameter value.	∧
To decrement parameter value.	∨
Set parameter to be save & exit.	ENT

SAFETY PRECAUTION

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If all the equipment is not handled in a manner specified by the manufacturer, it might impair the protection provided by the equipment.

Read complete instructions prior to installation and operation of the unit.

WARNING : Risk of electric shock.

WARNING GUIDELINES

⚠ WARNING : Risk of electric shock.

1. To prevent the risk of electric shock power, supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
2. To reduce electro magnetic interference, use wire with adequate rating and twists of the same of equal size shall be made with shortest connection.
3. Cable used for connection to power source, must have a cross section of 1mm or greater. These wires should have insulations capacity made of at least 1.5kV.
4. When extending the thermocouple lead wires, always use thermocouple compensation wires for wiring for the RTD type, use a wiring material with a small lead resistance (5Ω max per line) and no resistance differentials among three wires should be present.
5. A better anti-noise effect can be expected by using standard power supply cable for the instrument.

INSTALLATION GUIDELINES

1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between power source and supply terminal to facilitate power 'ON' or 'OFF' function. However this mains switch or circuit breaker must be installed at convenient place normally accessible to the operator.
4. Use and store the instrument within the specified ambient temperature and humidity ranges as mentioned in this manual.

MECHANICAL INSTALLATION GUIDELINES

1. Prepare the panel cutout with proper dimensions as shown above.
2. Fit the unit into the panel with the help of clamp given.
3. The equipment in its installed state must not come in close proximity to any heating source, caustic vapors, oil steam, or other unwanted process byproducts.
4. Use the specified size of crimp terminal (M3.5 screws) to wire the terminal block. Tightening the screws on the terminal block using the tightening torque of the range of 1.2 N.m.
5. Do not connect anything to unused terminals.

MAINTENANCE

1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean soft cloth. Do not use isopropyl alcohol or any other cleaning agent.
3. Fusible resistor must not be replaced by operator.

ERROR DISPLAY

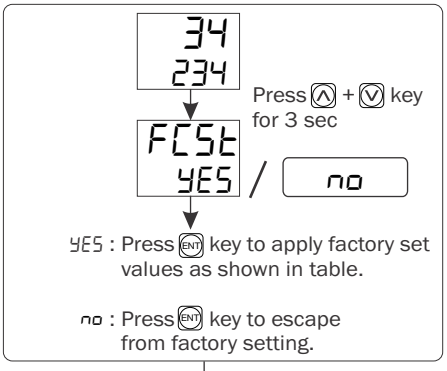
When an error has occurred the display indicates error codes as given below.

ERROR	MEANING
OPEn	Sensor is not connected or Over range condition or sensor break
SrE	Sensor connection is reversed

CORRECTIVE ACTION:

Check the sensor and the input wiring. If problem still exists, replace the sensor. And still if problem is not solved yet by the user, then please contact company person

FACTORY SETTING



FACTORY SETTING		
SR.	PARAMETER	VALUES
1	PB	20.0°C
2	IT	300
3	DT	75
4	CT	15 Sec
5	MR	0°C
6	Offset	0°C
7	Hysteresis	3°C
8	Hysteresis 2	1°C
9	Alarm Time	5 Sec
10	Hysteresis 3	30°C

PARAMETER MESSAGE DESCRIPTION

Parameter	Description
InPt	Input
J	J
K	K
r1Md	Relay 1 Mode
HEAt	Heating
PId	PID Action
OnF	ON-OFF Action
HYS1	Hysterisis 1
r2Md	Relay 2 Mode
COOL	Cooling
b.tP	Blower TP Action
HYS2	Hysterisis 2
r3Md	Relay 3 Mode
ALrM	Alarm
HbA	Heater Break Alarm
CS	Cold Start Alarm
HIG	High Alarm
AbL	Absolute Low Alarm
Inb	In Band Alarm
Ab0	Absolute Outband Alarm
tIME	Time
HbAL	Heater Break Alarm Set Point
Hbl	Heater Break Indication Set Point
H1	Heater 1
H2	Heater 2
H3	Heater 3
Htr	Heater
On	ON
OFF	OFF
Pb	Proportional Band for PID Action
It	Integral Time for PID Action
dt	Derivative Time for PID Action
Ct	Cycle Time for PID Action
rst	Manual Reset for PID Action
Pb2	Proportional Band 2 for B.TP Action
Ct2	Cycle time 2 for B.TP Action
rst2	Manual Reset 2 B.TP Action
PArA	Parameter
PASS	Password

WORKING

R1-Heating

1) Control Mode PID: Relay turning ON/OFF according to heat requirement of the machine.
2) Control Mode ON/OFF: Relay turns ON (and remains ON) when PV < SV. Relay turns OFF when PV > SV. After this there may be overshoot depending on the thermal inertia of the machine. When the PV < SV Minus HYS, Relay turns ON and heating is resumed.

R2-Cooling

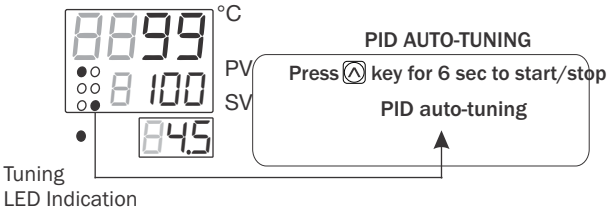
1) Cooling Time proportional Control action: Relay turns ON/OFF as per et Cycle timeand difference between PV and cooling SV.
2) Cooling ON/OFF control action: Relay is initially OFF. When PV > SV, Relay turns ON and when PV < SV Minus HYS relay turns OFF.

Auto Tuning:-

→ The Auto-tuning function automatically computes and sets the Proportional band (Pb) , Integral time (It), Derivative time (dt), and cycle time as per process characteristics.

→ Tuning LED will turn “ON” during Auto-Tuning

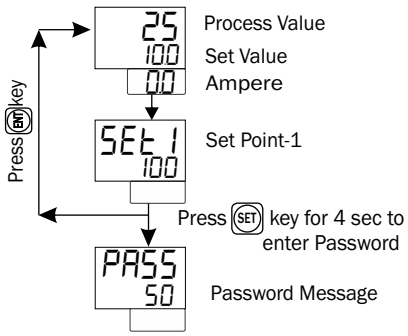
→ If the power goes off before auto-tuning is completed, auto-tuning will be restarted at next power ON.



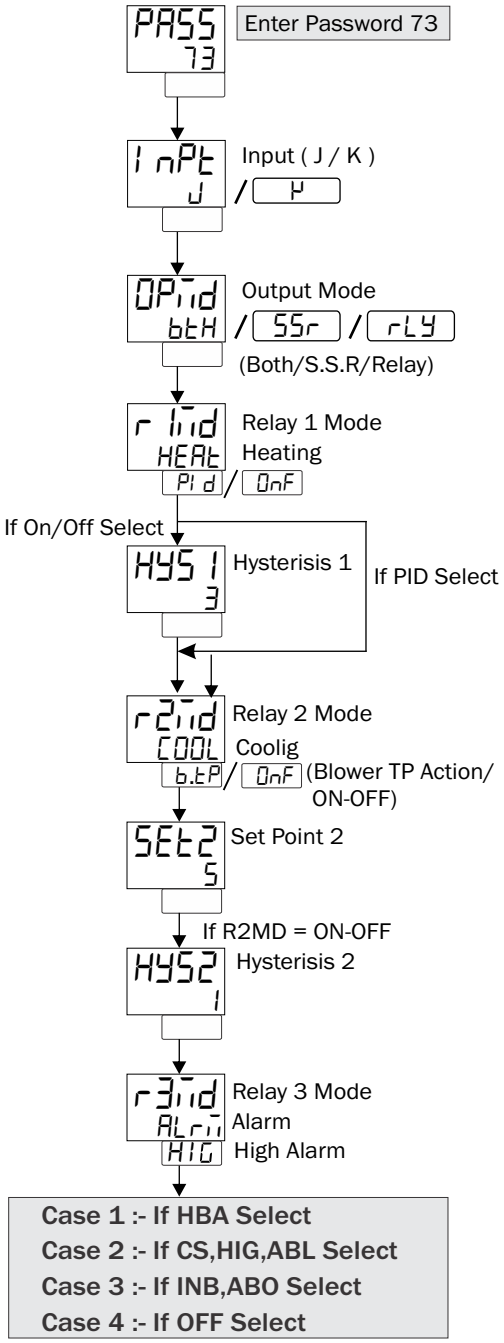
PARAMETER RANGE

Parameter	Range For J, K		
PB	0.0°C to 999.9°C		
IT	0 to 9999		
DT	0 to 9999		
CT	4 sec to 99 sec		
MR	-9 to +9		
Pb2	2°C to 20°C		
Ct2	4°C to 99°C		
Mr2	-9°C to 9°C		
Alarm Time	0 Sec to 99 Sec		
Hysteresis-1	1°C To 100°C		
Hysteresis-2	1°C to 50°C		
Hysteresis-3	1°C to 100°C		
Set 2	1°C to 30°C		
Offset	-20°C to 20°C		
HBAL/HBI H1	0.0 to 30.0A		
HBAL/HBI H2	0.0 to 30.0A		
HBAL/HBI H3	0.0 to 30.0A		
Set 3	R3MD = CS	S3MD = RLT	-50 to 0
		S3MD = IND	0 to set 1
	R3MD = HIG/ABL	S3MD = RLT	-50 to +50
		S3MD = IND	SLL to SHL
Set 3 Low	SLL To SET3 HIGH		
Set 3 High	SET3 LOW To SHL		

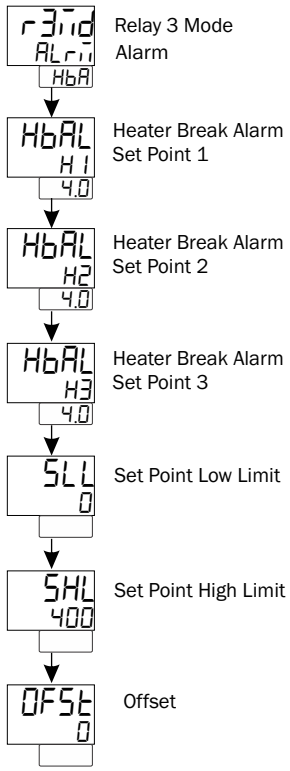
Set Point Setting



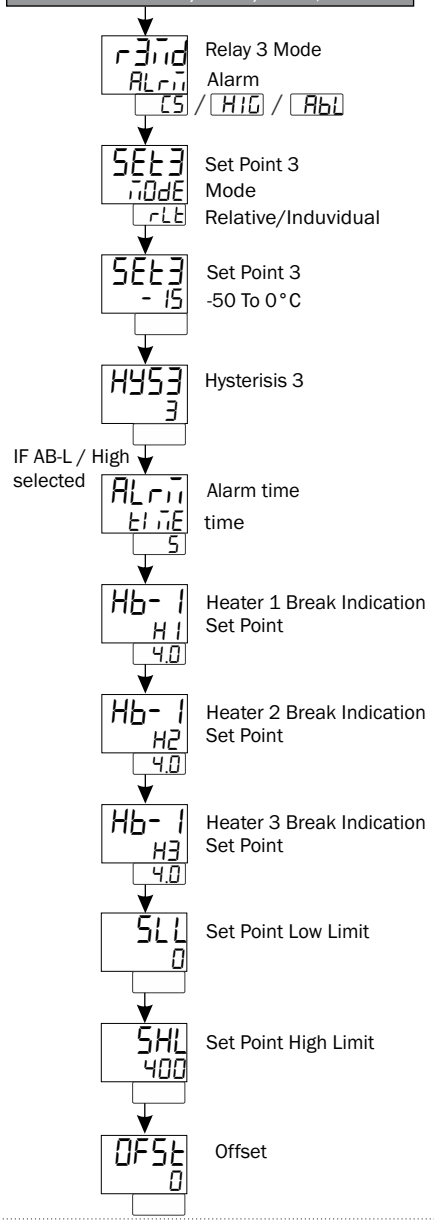
Basic configuration



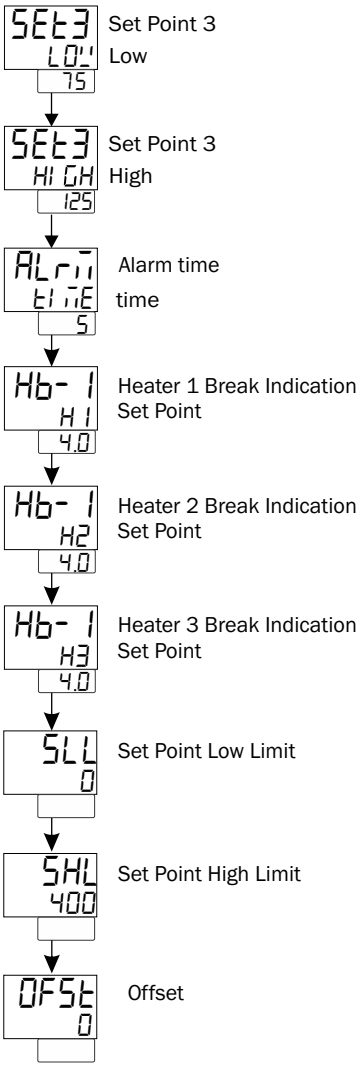
Case 1 :- If HBA Select



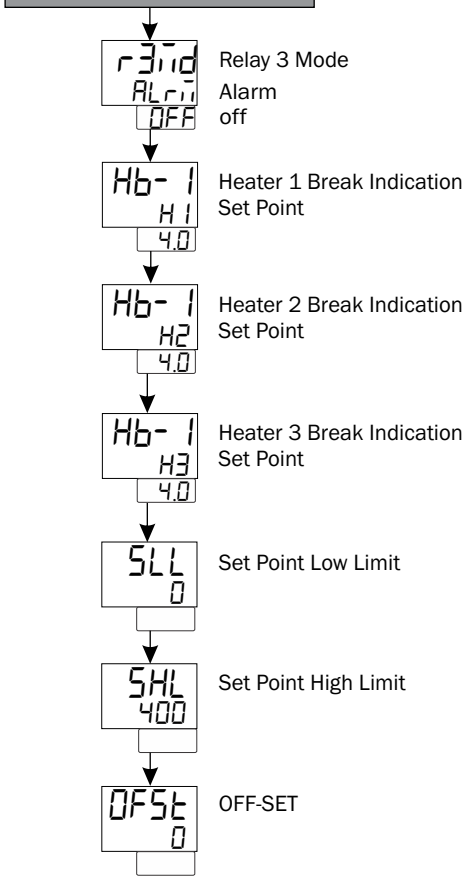
Case 2 :- If CS / HIG / ABL; Select



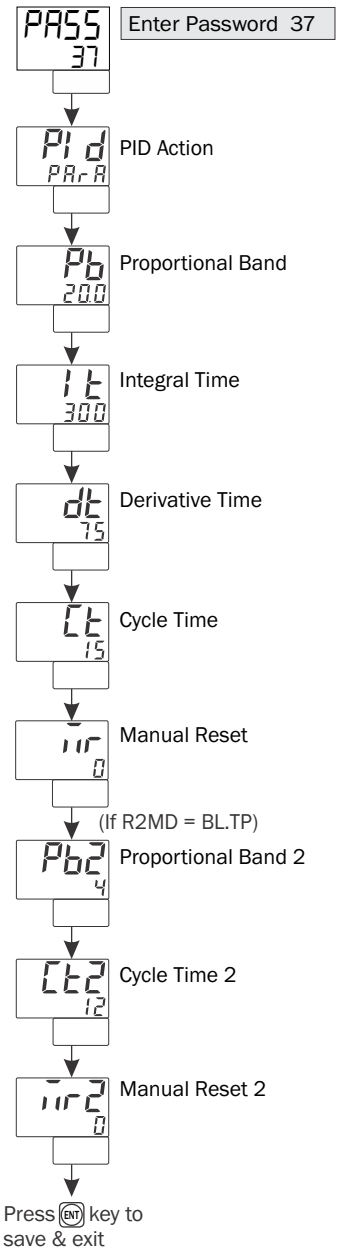
Case 3 :- INB, ABO



Case 4 :- If OFF Select



Control Parameter



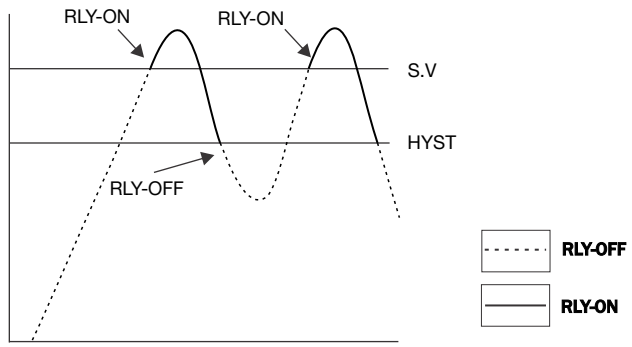
ALARM OPERATION

R3-Alarms

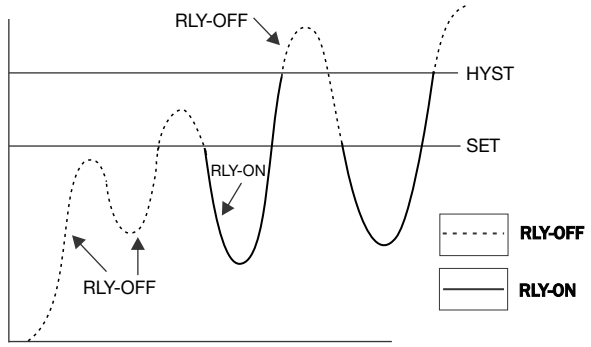
1) Heater Break alarm: - If the current of the Heater < AMP SV (unhealthy condition) then Relay turns ON and Upper Display will show **hbr**, middle display will blink showing **h**. To manually turn off Relay, press ENT key 4 sec. Display will continue showing **hbr** till the fault is rectified.

2) Cold start (CS) alarm: Relay is initially OFF. When PV > Alarm SV, Relay turns ON. When PV < Alarm SV MINUS HYS, Relay turns OFF.

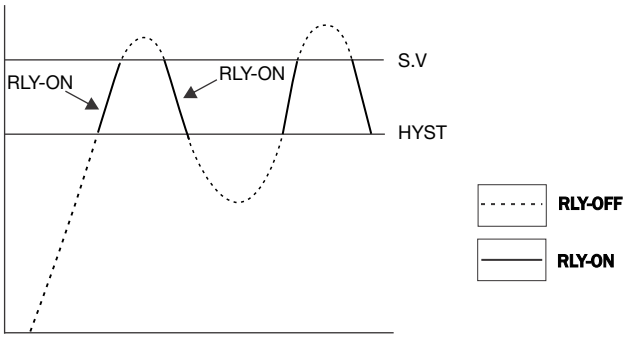
HIGH ALARM:



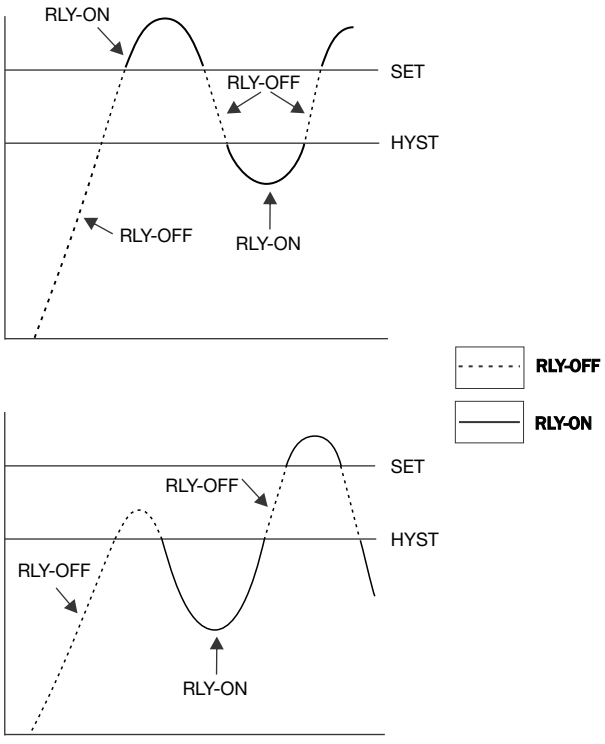
ABSOLUTE LOW ALARM



INBAND ALARM



ABSOLUTE OUTBAND ALARM



Specifications are subject to change, since development is a continuous process,
So for more updated operating information and Support,
Please contact our Helpline: 9081078683/9081078681 or
Email at service@multispanindia.com Ver:191201