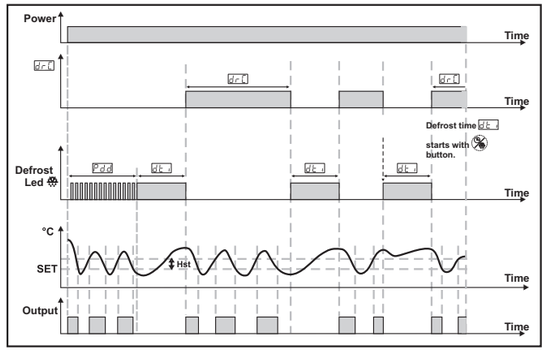
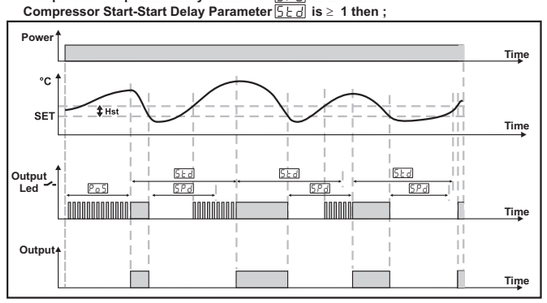
6.4 Operation Graphics of ESM-3711-CN Cooling Controller

1-If defrost time parameter dt ≥ 1 ,
Defrosting repeat cycle dr ≥ 1 ,
Defrost at Power On Parameter Pod = 1 and
Defrost Delay at Power On Parameter Pdd ≥ 1;

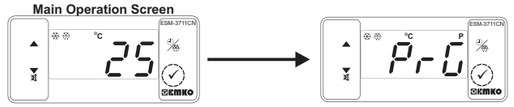


2- If Compressor Start Delay at Power On Parameter Pos is ≥ 1 ,
Compressor Stop-Start Delay Parameter SPd is ≥ 1 and
Compressor Start-Start Delay Parameter Sfd is ≥ 1 then ;



6.5 Entering To The Programming Mode, Changing and Saving Parameter

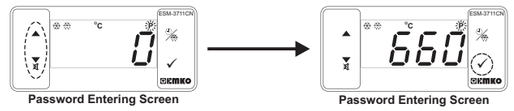
Main Operation Screen



When SET button is pressed for 5 seconds, "PR" led starts to blink. If programming mode entering password is different from 0, programming mode entering screen PrG will be observed.

Note1: If programming mode accessing password is 0, Temperature Unit Selection parameter is observed instead of programming screen PrG.

Programming Mode Entering Screen
Press SET button for accessing to the password entering screen.

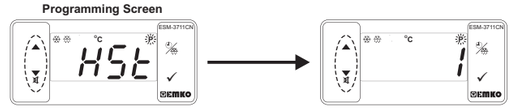


Password Entering Screen
Enter programming mode accessing password with increment and decrement buttons.

Password Entering Screen
Press SET/OK button for entering the password.

Note2: If programming mode accessing password is 0, only three parameters are accessible, and the parameter values can be changed.

Programming Screen



Press SET button for accessing to the parameter value. Press increment button for accessing to the next parameter, press decrement button for accessing to the previous parameter.

Hysteresis Value for Compressor Output
Change the value with increment and decrement buttons.

Hysteresis Value for Compressor Output
Press set button for saving the parameter.

Hysteresis Parameter for Compressor
Press increment button for accessing to the next parameter, press decrement button for accessing to the previous parameter

If no operation is performed in programming mode for 20 seconds, device turns to main operation screen automatically..

EMKO Cooling Controller ESM-3711-CN 77x35 DIN Size

ESM-3711-CN 77 x 35 DIN Size Digital , ON / OFF Cooling Controller

- 4 Digits Display
- NTC Input or PTC Input (Must be determined in order.)
- Adjustable temperature offset
- Set value boundaries
- Operation selection of compressor operates continuously, stops or operates periodically in case of sensor defect
- Compressor protection delays
- Defrost time easily changeable from front panel
- Manual defrost capability from front panel
- Defrost parameters
- Alarm parameters
- Adjustable internal buzzer according to the defrost, sensor defect and alarm status
- Defrost time and/or manual defrost and/or temperature set value protection
- Password protection for programming section
- Installing parameters using Prokey
- Remote access, data collecting and controlling with Modbus RTU
- Having CE mark according to European Norms

Instruction Manual. ENG ESM-3711-CN 01 V05 07/14

1.Preface

ESM-3711-CN series cooling controllers are designed for controlling cooling process. They can be used in many applications with their easy-use, On / Off control form and defrost properties. Some application and application fields which they are used are below:

Application Fields	Applications
Food	Refrigerators
Machine production industries	Air Conditioning
etc...	Storages
	Freezers
	etc...

1.1 Environmental Ratings

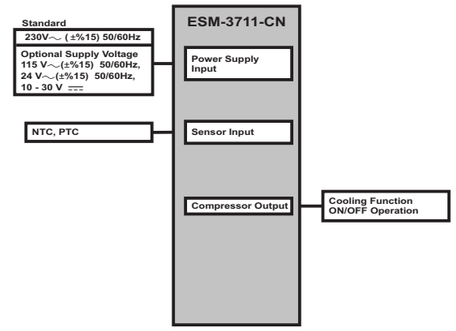
Operating Temperature : 0 to 50 °C

Max. Operating Humidity : 90% Rh (non-condensing)

Altitude : Up to 2000 m.

Forbidden Conditions:
Corrosive atmosphere
Explosive atmosphere
Home applications (The unit is only for industrial applications)

1.2 General Specifications



7. Failure Messages in ESM-3711-CN Cooling Controller

1. Sbr Screen Blinking
Sensor failure . Sensor connection is wrong or there is no sensor connection. If buzzer function selection parameter buF is 3 or 4, internal buzzer starts to operate.

2- Blinking the Screen Value
If temperature higher than the alarm parameters limit, value on the screen starts to blink.

Example-1 : If alarm function selection parameter AtS In programming section is 1(Absolute alarm) and minimum alarm parameter AuL is 20 ;
When temperature is less than 20°C, value on the screen starts to blink. Also if buzzer function selection parameter buF is 2 or 4 , then internal buzzer is on.

Example-2 : If alarm function selection parameter AtS in programming section is 1 (Absolute Alarm) and maximum alarm parameter AuH is 50
When temperature is above 50 °C, value on the screen starts to blink. Also buzzer function selection parameter buF is 2 or 4, then internal buzzer is on.

8. Manual Defrost Operation with Defrost Button

While defrost time parameter value dt ≥1, button protection parameter value Pbt = 0 or 2 and defrost output is inactive, in main operation screen if defrost button is pressed for 3 seconds
defrost operation starts and defrost led becomes active. If defrost button pressed for 3 seconds while defrost continues, defrost is finished and defrost led becomes inactive.

9. Specifications

Device Type	: Cooling Controller
Housing&Mounting	: 76mm x 34.5mm x 71mm plastic housing for panel Mounting. Panel cut-out is 71x29mm.
Protection Class	: NEMA 4X (Ip65 at front, Ip20 at rear).
Weight	: Approximately 0.20 Kg.
Environmental Ratings	: Standard, indoor at an altitude of less than 2000 meters with none condensing humidity.
Storage / Operating Temperature	: -40 °C to +80 °C / -30 °C to +80 °C
Storage / Operating Humidity	: 90 % max. (None condensing)
Installation	: Fixed installation
Overvoltage Category	: II.
Pollution Degree	: II, office or workplace, none conductive pollution
Operating Conditions	: Continuous
Supply Voltage and Power	: 230V~ (±%15) 50/60Hz - 1.5VA : 115V~ (±%15) 50/60Hz - 1.5VA : 24V~ (±%15) 50/60Hz - 1.5VA,10-30V⎓ 1.5W
Temperature Sensor Input	: NTC or PTC
NTC input type	: NTC (10 kΩ @25 °C)
PTC input type	: PTC (1000 Ω @25 °C)
Accuracy	: ± 1 % of full scale for thermoresistance
Sensor Break Protection	: Upscale
Sampling Cycle	: 3 samples per second
Control Form	: ON / OFF
Relay Outputs	: 16(8) A@250 V~ for Resistive load (Compressor output) (Electrical life : 100.000 switching at full load)
Display	: 14 mm Red 4 digits LED Display
LED	: S (Green), P (Green), °C (Yellow), °F(Yellow), Alarm (Red), Defrost (Red), Compressor Output (Red)
Internal Buzzer	: ≥83dB
Approvals	: EAC , CE

10.Ordering Information

ESM-3711-CN (77x35 DIN Size)	A	BC	D	E	/	FG	HI	/	U	V	W	Z
			0		/	00	00	/	1		0	0

A	Supply Voltage
3	24V~ (±%15) 50/60Hz - 1.5VA
4	115V~ (±%15) 50/60Hz - 1.5VA
5	230V~ (±%15) 50/60Hz - 1.5VA
8	10 - 30 V ⎓

BC	Input Type	Scale(°C)
12	PTC (Note-1)	-50°C/-58°F ; 150°C/302°F
18	NTC (Note-1)	-50°C/-58°F ; 100°C/212°F

E	Compressor Output
1	Relay Output (16(8) A@250 V~ at resistive load, 1 NO)

V	Temp. Sensor which is given with ESM-3711-CN
0	None
1	PTC-M6L40.K1.5 (PTC Air Probe with 1.5 mt silicon cable)
2	PTCS-M6L30.K1.5.1/8" (PTC Liquid Probe with1.5 mt silicon cable)
3	NTC-M5L20.K1.5 (NTC Sensor, thermoplastic moulded with 1.5 m cable for cooling application)
4	NTC-M6L50.K1.5 (NTC Sensor, stainless steel housing with 1.5 m cable for cooling application)
9	Customer

All order information of ESM-3711-CN Cooling Controller are given on the table at left. User may form appropriate device configuration from information and codes that at the table and convert it to the ordering codes. Firstly, supply voltage then other specifications must be determined. Please fill the order code blanks according to your needs.

Please contact us, if your needs are out of the standards.

Note-1:If input type is selected PTC or NTC (BC= 12, 18), Temperature sensor is given with the device.For this reason, if input type is selected as PTC,sensor type (V = 0,1 or 2) or if input type is selected as NTC, sensor type (V = 0,3 or 4) must be declared in ordering information.

11.Optional Accessories

1.RS-485 Module

RS-485 Communication Interface

2.PROKEY Programming Module

The device is programmed(Upload or Download) by using the parameters.

~ ⇒Vac,
⎓ ⇒Vdc
≂ ⇒Vdc or Vac can be applied

Thank you very much for your preference to use Emko Elektronik products, please visit our web page to download detailed user manual.
www.emkoelektronik.com.tr

1.3 Installation

A visual inspection of this product for possible damage occurred during shipment is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product.
If there is danger of serious accident resulting from a failure or defect in this unit, power off the system and separate the electrical connection of the device from the system.
The unit is normally supplied without a power supply switch or a fuse. Use power switch and fuse as required.
Be sure to use the rated power supply voltage to protect the unit against damage and to prevent failure.
Keep the power off until all of the wiring is completed so that electric shock and trouble with the unit can be prevented.
Never attempt to disassemble, modify or repair this unit. Tampering with the unit may results in malfunction, electric shock or fire.
Do not use the unit in combustible or explosive gaseous atmospheres.
During putting equipment in hole on the metal panel while mechanical installation some metal burrs can cause injury on hands, you must be careful.
Montage of the product on a system must be done with it's fixing clamps. Do not do the montage of the device with inappropriate fixing clamp. Be sure that device will not fall while doing the montage.
It is your responsibility if this equipment is used in a manner not specified in this instruction manual.

1.4 Warranty

EMKO Elektronik warrants that the equipment delivered is free from defects in material and workmanship. This warranty is provided for a period of two years. The warranty period starts from the delivery date. This warranty is in force if duty and responsibilities which are determined in warranty document and instruction manual performs by the customer completely.

1.5 Maintenance

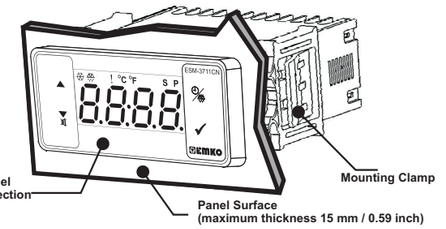
Repairs should only be performed by trained and specialized personnel. Cut power to the device before accessing internal parts.
Do not clean the case with hydrocarbon-based solvents (Petrol, Trichlorethylene etc.). Use of these solvents can reduce the mechanical reliability of the device. Use a cloth dampened in ethyl alcohol or water to clean the external plastic case.

1.6 Manufacturer Company

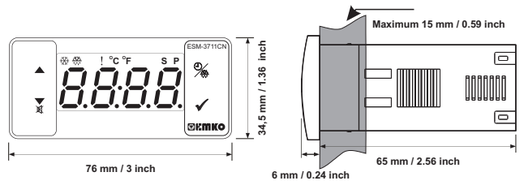
Manufacturer Company Name :
Emko Elektronik A.S .DOSAB Karanfil Sk.No:6 16369 BURSA/TURKEY
Phone : +90 224 261 19 00
Fax : +90 224 261 19 12

Repair and maintenance service information:
Emko Elektronik Sanayi ve Ticaret A.Ş.
Demirtaş Organize Sanayi Bölgesi Karanfil Sk. No:6 16369 BURSA/TURKEY
Phone : +90 224 261 1900
Fax : +90 224 261 1912

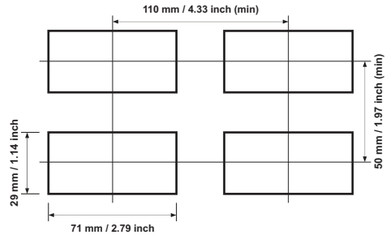
2. General Description



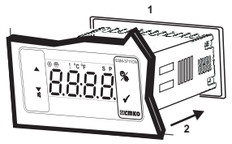
2.1 Front View and Dimensions of ESM-3711-CN Cooling Controller



2.2 Panel Cut-Out

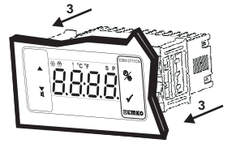


2.3 Panel Mounting



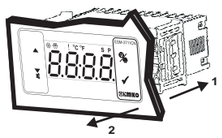
1-Before mounting the device in your panel, make sure that the cut-out is of the right size.

2-Insert the device through the cut-out. If the mounting clamps are on the unit, put out them before inserting the unit to the panel.



3- Insert the mounting clamps to the fixing sockets that located left and right sides of device and make the unit completely immobile within the panel

2.4 Removing from the Panel



1-Pull mounting clamps from left and right fixing sockets.

2-Pull the unit through the front side of the panel

Before starting to remove the unit from panel, power off the unit and the related system.

3. Using Prokey

TO USE PROKEY, VALUE OF THE PrC PARAMETER MUST BE '0'.
IF PrC=1 AND ▼BUTTON IS PRESSED Err MESSAGE WILL BE SHOWN. 10s. LATER DEVICE TURNS BACK TO THE MAIN OPERATION SCREEN OR YOU CAN PRESS SET BUTTON TO TURN BACK TO MAIN OPERATION SCREEN.

DOWNLOADING FROM DEVICE TO PROKEY

1.The device is programmed by using the parameters.
2.Energize the device then put in PROKEY and press ▼ button. UPL Message is shown on the display. When the loading has finished, End message is shown.
3.Press any button to turn back to main operation screen.
4.Remove the PROKEY.

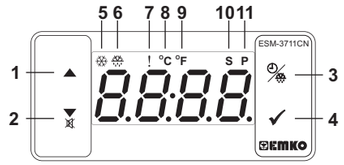
NOTE: Err message is shown when an error occurs while programming. If you want to reload, put in PROKEY and press ▼ button. If you want to quit, remove PROKEY and press ▼ button. The device will turn back to main operation screen.

DOWNLOADING FROM PROKEY TO DEVICE

1.Switch off the device.
2.Put in PROKEY then energize the device.
3.When the device is energized, the parameter values in PROKEY, start downloading to the device automatically. At first, dOL message is shown on the display, when loading has finished, End message is shown.
4.After 10 seconds device starts to operate with new parameter values.
5.Remove the PROKEY.

NOTE: Err message is shown when an error occurs while programming. If you want to reload, switch off the device and put in PROKEY then energize the device. If you want to quit remove PROKEY and press ▼ button. The device will turn back to main operation screen.

5.Front Panel Definition and Accessing to the Menus



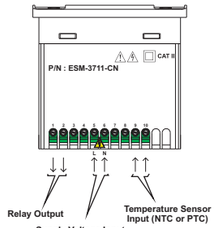
BUTTON DEFINITIONS

1. Increment Button :
** It is used to increase the value in the Set screen, Defrost screen and Programming mode.
2. Decrement, Silencing Buzzer and Downloading to Prokey Button :
** It is used to decrease the value in the Set screen, Defrost screen and Programming mode.
** It is used to silence the buzzer.
** If Prc =0, it is used to download from device to prokey.
3. Defrost Button :
** In the main operation screen; if this button pressed, defrost time value will be displayed.
**In the main operation screen; if this button pressed for 3 seconds, manual defrost starts.
4. Set Button :
** In the main operation screen; if this button pressed, set value will be displayed. Value can be changed using increment and decrement buttons. When Set button pressed again, value is saved and returns back to main operating screen.
** To access the programming screen; in the main operation screen, press this button for 5 seconds.
** It is used to saving value in the Set screen, Defrost screen and programming screen.

LED DEFINITIONS

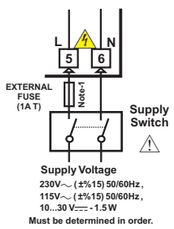
5. Compressor output led :
** This led indicates that compressor output is active. If any of compressor protection time active, this led blinks.
6.Defrost led :
** This led indicates that defrost output is active.
** Blinks once in a second while Defrost delay time.
** Blinks (5 Hz) while entering Defrost time value.
7.Alarm led :
** It is active when low alarm and high alarm statuses.
8.Celcius led :
** Indicates that device is in °C mode.
9.Fahrenheit led :
** Indicates that device is in °F mode.
10.Set led :
** Indicates that device is in Set value changing mode.
11.Program led :
**Blinks in programming mode .

4. Electrical Wiring Diagram



4.1 Supply Voltage Input Connection of the Device

Power Supply Connection



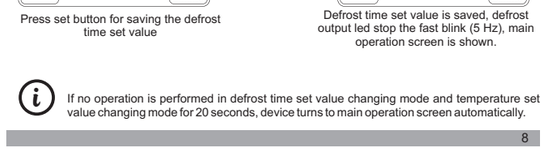
Make sure that the power supply voltage is the same indicated on the instrument.
Switch on the power supply only after that all the electrical connections have been completed.
Supply voltage range must be determined in order. While installing the unit, supply voltage range must be controlled and appropriate supply voltage must be applied to the unit.

There is no power supply switch on the device. So a power supply switch must be added to the supply voltage input.
Power switch must be two poled for seperating phase and neutral, On/Off condition of power supply switch is very important in electrical connection.
External fuse that on ~power supply inputs must be on phase connection.
External fuse that on ⎓power supply inputs must be on (+) connection.

Note-1 : External fuse is recommended.

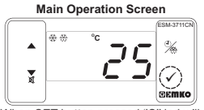
4.2 Device Label and Connection Diagram

230V~ CONNECTION DIAGRAM



6. Changing and Saving Temperature Set Value

Main Operation Screen



When SET button pressed "S" led will be active and temperature set value will be displayed.

SET Value Screen

Temperature set value can be changed with increment and decrement buttons.

When SET button pressed temperature set value can be saved.

Main Operation Screen

"S" will be inactive and goes back to main operation screen.

Temperature set value parameter (Default=50) MODBUS ADDRESS:40001
Temperature set value, can be programmed between minimum temperature set value SuL and maximum temperature set value SuH.

6.1 Changing and Saving Defrost Time Set Value

Main Operating Screen

When defrost button is pressed, defrost time set value is shown and defrost output led starts to fast blink (5 Hz).

Defrost Time Value Screen

Change the defrost time set value with increment and decrement buttons.

Defrost Time Value Screen

Press set button for saving the defrost time set value

Main Operating Screen

Defrost time set value is saved, defrost output led stop the fast blink (5 Hz), main operation screen is shown.

If no operation is performed in defrost time set value changing mode and temperature set value changing mode for 20 seconds, device turns to main operation screen automatically.

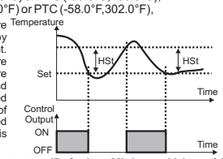
6.2 Programming Mode Parameter List

C-F **Temperature Unit Selection Parameter (Default = 0) MODBUS ADDRESS:40002**
0 °C selected.
1 °F selected.

Pnt **Decimal Seperator Enabling Parameter (Default = 0) MODBUS ADDRESS:40003**
0 Disable.
1 Enable.

HSt **Hysteresis Parameter for Compressor Output (Default = 1) MODBUS ADDRESS:40004**
from 1 to 20°C for NTC (-50°C, 100°C) or PTC (-50°C, 150°C),
from 1 to 36°F for NTC (-58°F, 212°F) or PTC (-58°F, 302°F),
from 0.1 to 10.0°C for NTC(-50.0°C,100.0°C) or PTC (-50.0°C,150.0°C),
from 0.1 to 18.0°F for NTC (-58.0°F,212.0°F) or PTC (-58.0°F,302.0°F),

In ON/OFF control algorithm, temperature value is tried to keep equal to set value by opening or closing the last control element. ON/OFF controlled system, temperature value oscillates continuously. Temperature value's oscillation period or amplitude around set value changes according to controlled system. For reducing oscillation period of temperature value, a threshold zone is formed below or around set value and this zone is named hysteresis.



SuL **Minimum Temperature Set Value Parameter (Default = Minimum Value of Device Scale) MODBUS ADDRESS:40005**
Temperature set value can not be lower than this value.
This parameter value can be adjusted from minimum value of device scale to maximum temperature set value parameter SuH

SuH **Maximum Temperature Set Value Parameter (Default = Maximum Value of Device Scale)MODBUS ADDRESS:40006**
Temperature set value can not be greater than this value.
This parameter value can be adjusted from minimum temperature set value parameter SuL to maximum value of the device scale

oFt **Sensor Offset Parameter (Default = 0) MODBUS ADDRESS:40007**
from -20 to 20 °C for NTC(-50°C, 100°C) or PTC(-50°C, 150°C),
from -36 to 36 °F for NTC(-58°F,212°F) or PTC(-58°F, 302°F),
from -10.0 to 10.0°C for NTC(-50.0°C,100.0°C) or PTC(-50.0°C,150.0°C),
from -18.0 to 18.0°F for NTC(-58.0°F,212.0°F) or PTC(-58.0°F,302.0°F),

HCS **Operating Type Parameter (Default = 1) MODBUS ADDRESS:40008**
If parameter value is '0' device skips to ALS parameter
0 Heating
1 Cooling

dti **Defrost Time Parameter (Default = 1 0) MODBUS ADDRESS:40009**
It can be adjusted from 0 to 999 minutes. If it is selected 0 automatic or manual defrost is not performed.

drC **Defrost Repeat Cycle Parameter (Default = 1) MODBUS ADDRESS:40010**
It can be adjusted from 1 to 99 hours.

Pod **Defrost at Power On Parameter (Default = 0) MODBUS ADDRESS:40011**
0 System does not go through a defrost cycle at start up
1 System goes through a defrost cycle at start up

Pdd **Defrost Delay at Power On Parameter (Default = 0) MODBUS ADDRESS:40012**
It can be adjusted from 0 to 99 minutes. This parameter can be observed if defrost at power on parameter Pod is 1.

ddA **Display Status During Defrost Parameter (Default = 3) MODBUS ADDRESS:40013**
0 The temperature is displayed during defrost.
1 Temperature value at the start of a defrost is displayed during defrost.
2 Set value is displayed during defrost.
3 dEF Is displayed to indicate a defrost is in progress.

PoS **Compressor Start Delay at Power On Parameter (Default = 0) MODBUS ADDRESS:40014**
When power is first applied to the device, compressor is on when this time delay is expired. It can be adjusted from 0 to 20 minutes.

SPd **Compressor Stop-Start Delay Parameter (Default = 0) MODBUS ADRES:40015**
When compressor is inactive, this time delay must be expired for activation of the compressor. It can be adjusted from 0 to 20 minutes.

Std **Compressor Start-Start Delay Parameter (Default = 0) MODBUS ADRES:40016**
This time delay must be expired between two activation of the compressor. It can be adjusted from 0 to 20 minutes.

P.dF **Sensor Defect Parameter (Default = 0) MODBUS ADRES:40017**
0 Compressor is OFF in case of sensor defect.
1 Compressor is ON in case of sensor defect.
2 Compressor operates periodically according to Pon and PoF Time periods in case of sensor defect.

P.on **Compressor is active during this time period in case of probe defect (Default = 0) MODBUS ADRES:40018**
If probe defect parameter PdF is 2, then this parameter is observed. It can be adjusted from 0 to 99 minutes.

P.oF **Compressor is inactive during this time period in case of probe defect (Default = 0)MODBUS ADRES:40019**
If probe defect parameter PdF is 2, then this parameter is observed. It can be adjusted from 0 to 99 minutes.

ALS **Temperature Alarm Function Selection Parameter (Default = 0) MODBUS ADRES:40020**
0 Alarm function is inactive.
1 Absolute alarm is selected. If temperature lower than AuL and higher than AuH, then alarm is on.
2 Relative alarm is selected. Alarm operates according to the set value. If temperature is below (Set - AuL) or above (Set + AuH), alarm occurs.

AuL **Temperature Minimum Alarm Parameter (Default =Minimum Value of Device Scale) MODBUS ADRES:40021**
For temperature alarm function selection parameter ALS = 1(Absolute alarm), this parameter value is can be adjust from minimum value of device scale to temperature alarm maximum parameter AuH value , for temperature alarm function selection parameter ALS = 2(Relative alarm), this parameter value is can be adjusted 0 to %50 of the device scale

AuH **Temperature Alarm Maximum Parameter (Default = Maximum Value of Device Scale) MODBUS ADRES:40022**
For temperature alarm function selection parameter ALS = 1(Absolute alarm), this parameter value is can be adjust from temperature alarm minimum parameter AuL value to maximum value of device scale, for temperature alarm function selection parameter ALS = 2(Relative alarm), this parameter value is can be adjusted 0 to %50 of the device scale

AdL **Temperature Alarm On Delay Time Parameter(Default = 0)MODBUS ADDRESS:40023**
Temperature alarm on delay time can be defined with this parameter.
It can be adjusted from 0 to 99 minutes.

APd **Temperature Alarm Delay After Power On Parameter (Default = 0) MODBUS ADRES:40024**
When power is first applied to the device, this time delay must be expired for activation of temperature alarm. It can be adjusted from 0 to 99 minutes.

buF **Buzzer Function Selection Parameter (Default = 0) MODBUS ADDRESS:40025**
0 Buzzer is inactive.
1 Buzzer is active during defrost operation.
2 Buzzer is active if an alarm occurs.
3 Buzzer is active during sensor failures.
4 Buzzer is active during defrost operation, alarm or sensor failures.

bon **Buzzer is active during this time (Default = ---) MODBUS ADDRESS:40026**
If buzzer function selection parameter value buF=0, this parameter can not be observed. Buzzer stays active during this time. It can be adjusted from 1 to 99 minutes When this parameter is 1, if decrement button is pressed, --- is observed. In this condition buzzer is active till buzzer silence button is pressed.

Prt **Button Protection Parameter (Default = 4) MODBUS ADDRESS:40027**
0 There is no protection.
1 Defrost time can not be changed and manual defrost is not available.
2 Temperature Set value can not be changed.
3 Defrost time set value and temperature set value can not be changed. Manual defrost is not available.
4 Defrost time value can not be changed, manual defrost is available..

PrC **Communication Mode Selection Parameter (Default = 0) MODBUS ADDRESS:40028**
0 PROKEY communication selected.
1 Rs485 communication selected.

SAd **Slave ID Parameter (Default = 1) MODBUS ADDRESS=40029**
Device communication address parameter (1 to 247).

onF **ON/OFF Parameter (Default = 0) MODBUS ADDRESS:40030**
When device energized; if ▲(increment button) pressed for 10 seconds, device stops controlling and ... screen will be displayed. If ▲(increment button) pressed again for 10 seconds, device continues controlling and display changes back to main operating screen.
0 ON/OFF function with ▲ button is not available.
1 ON/OFF function with ▲ button is available.

PAS **Programming Section Accessing Password (Default = 0) MODBUS ADDRESS:40031**
It is used for accessing to the programming section. It can be adjusted from 0 to 999. If it is selected 0, password will not be asked. If password selected '12', only HSt, dti and drC parameters will be accessible.

6.3 Modbus Adresses of Device Status Parameters (Read Input Register)

MODBUS ADDRESS:30001	Temperature Value
MODBUS ADDRESS:30002	Reserved
MODBUS ADDRESS:30003	Led Status : 0.bit °C Led, 5.bit Defrost Led, 6.bit Compressor Led, 7.bit Alarm Led 13.bit Program Led, 14.bit Set Led
MODBUS ADDRESS:30004	Device Status : 0.bit Alarm Status 1.bit Buzzer Status 2.bit Sensor Lost Status 7.bit Defrost Status
MODBUS ADDRESS:30005	Output Status
MODBUS ADDRESS:30006	Device Type and Device Version