



**ESM-3711-CL 77 x 35 DIN Size,  
Minimum & Maximum Temperature Record,  
Digital, ON / OFF Cooling Controller**

- 3 Digits display
- NTC input or,  
PTC input or,  
2 Wire PT-100 input or,  
2 Wire PT-1000 input (It must be determined in order.)
- ON / OFF Control
- Adjustable process offset value
- Set value boundaries
- Relay or SSR driver output
- Digital Input (Door switch input)
- Open door alarm
- Logging starting option parameter
- Operation selection of compressor operate continuously, stops  
or operates periodically in case of probe defect
- Compressor protection delays
- Defrost (Off-Cycle) function
- Adjustable defrost time from front panel
- Manual defrost from front panel
- Defrost parameters
- Alarm parameters
- Adjustable internal buzzer according to the defrost, prob defect  
And alarm status
- Button protection
- Password protection for programming mode

## ABOUT INSTRUCTION MANUAL

Instruction manual of ESM-3711-CL Cooling Controller consists of two main sections. Explanation of these sections are below. Also, there are other sections which include order information and technical specifications of the device. All titles and page numbers in instruction manual are in “**CONTENTS**” section. User can reach to any title with section number.

### **Installation:**

In this section, physical dimensions of the device, panel mounting, electrical wiring, physical and electrical installation of the device to the system are explained.

### **Operation and Parameters:**

In this section user interface of the device, accessing to the parameters, description of the parameters are explained.

Also in these sections, there are warnings to prevent serious injury while doing the physical and electrical mounting or using the device.

Explanation of the symbols which are used in these sections are given below.



This symbol is used for safety warnings. User must pay attention to these warnings.



This symbol is used to determine the dangerous situations as a result of an electric shock. User must pay attention to these warnings definitely.



This symbol is used to determine the important notes about functions and usage of the device.

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## EU DECLARATION OF CONFORMITY

**Manufacturer Company Name** : Emko Elektronik A.S.

**Manufacturer Company Address:** DOSAB, Karanfil Sokak, No:6, 16369 Bursa, Turkiye

The manufacturer hereby declares that the product conforms to the following standards and conditions.

**Product Name** : Cooling Controller

**Model Number** : ESM-3711-CL

**Type Number** : ESM-3711-CL

**Product Category** : Electrical equipment for measurement, control and laboratory use

**Conforms to the following directives :**

2006 / 95 / EC The Low Voltage Directive

2004 / 108 / EC The Electromagnetic Compatibility Directive

**has been designed and manufactured to the following specifications :**

EN 61000-6-4:2007 EMC Generic Emission Standard for the Industrial Environments

EN 61000-6-2:2005 EMC Generic Immunity Standard for the Industrial Environments

EN 61010-1:2001 Safety Requirements for electrical equipment for measurement, control And laboratory use

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### When and Where Issued

16<sup>th</sup> October 2009

Bursa-TURKEY

### Authorized Signature

Name : Serpil YAKIN

Position : Quality Manager

## 1.Preface

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

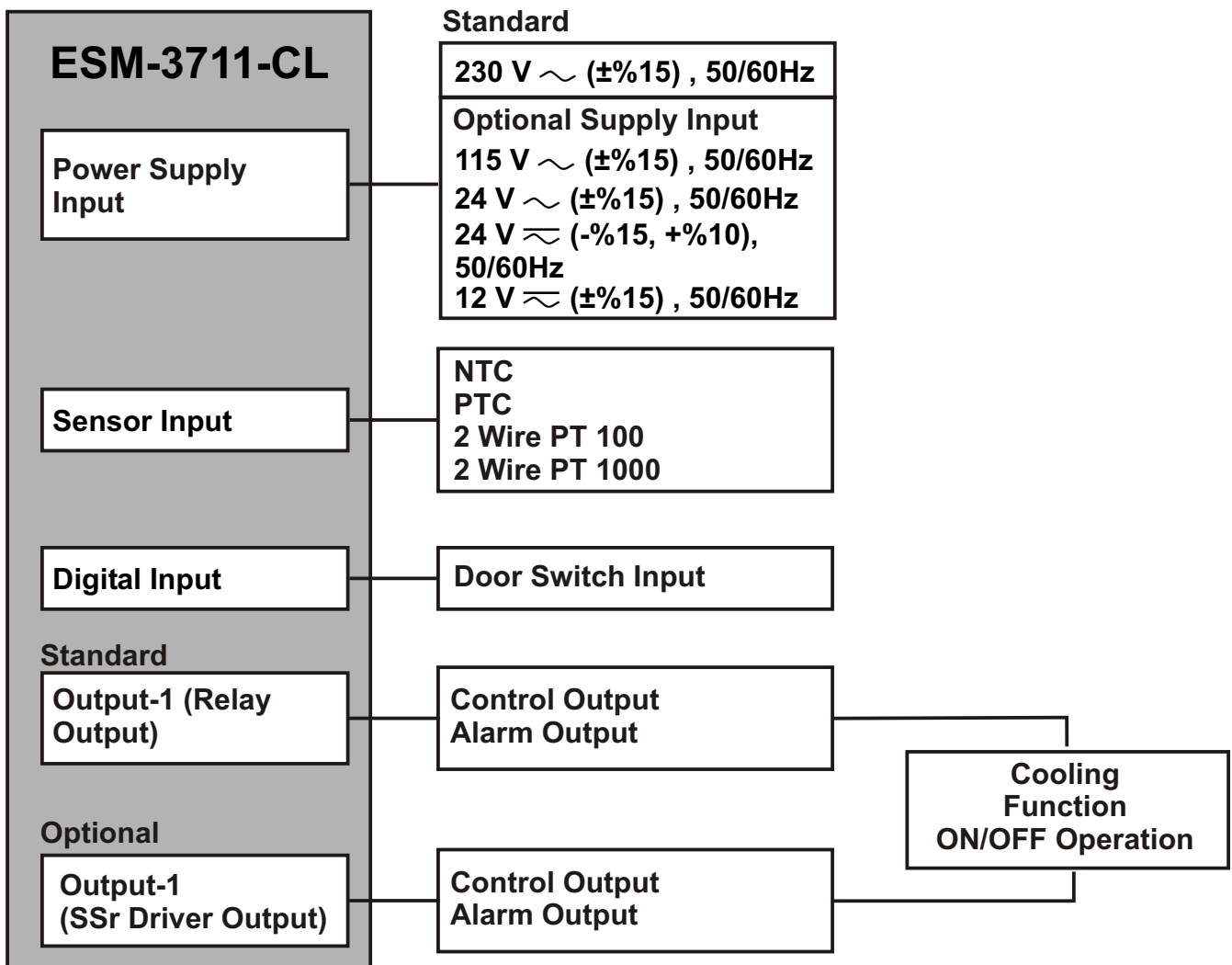
### Application Fields

Food  
Machine production industries  
etc...

### Applications

Commercial Refrigerators  
Cooling Storages  
Open Buffet Refrigerators  
Pharmaceuticals storages  
Blood Bank Refrigerators  
etc...

## 1.1 General Specifications



## 1.2 Ordering Information

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

A	Supply Voltage
2	24 V $\approx$ ( -%15, +%10 ) 50/60 Hz
3	24 V $\sim$ ( $\pm$ %15 ) 50/60 Hz
4	115 V $\sim$ ( $\pm$ %15 ) 50/60 Hz
5	230 V $\sim$ ( $\pm$ %15 ) 50/60 Hz
6	12 V $\approx$ ( $\pm$ %15 ) 50/60 Hz
9	Customer

BC	Input Type	Scale(°C)	
11	PT 100, IEC751(ITS90)	-50°C	400°C
09	PT 100, IEC751(ITS90)	-19.9°C	99.9°C
12	PTC (Not-1)	-50°C	150°C
15	PTC (Not-1)	-19.9°C	99.9°C
14	PT 1000, IEC751(ITS90)	-50°C	400°C
13	PT 1000, IEC751(ITS90)	-19.9°C	99.9°C
18	NTC (Note-1)	-50°C	100°C
19	NTC (Note-1)	-19.9°C	99.9°C

**Note-1** : If input type is selected PTC or NTC (BC = 12, 15, 18, 19), 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.

E	Output-1
1	Relay Output ( resistive load 10 A@250 V $\sim$ , 1 NO + 1NC )
2	SSR Driver Output (Maximum 28 mA, 15 V $\equiv$ )

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

All order information of ESM-3711-CL 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.



$\sim$  Vac,  
 $\equiv$  Vdc  
 $\approx$  Vdc or Vac can be applied

## 1.3 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.

## 1.4 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.

## 2. Installation



Before beginning installation of this product, please read the instruction manual and warnings below carefully.

In package ,

- One piece unit
- Two pieces mounting clamps
- One piece instruction manual

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.

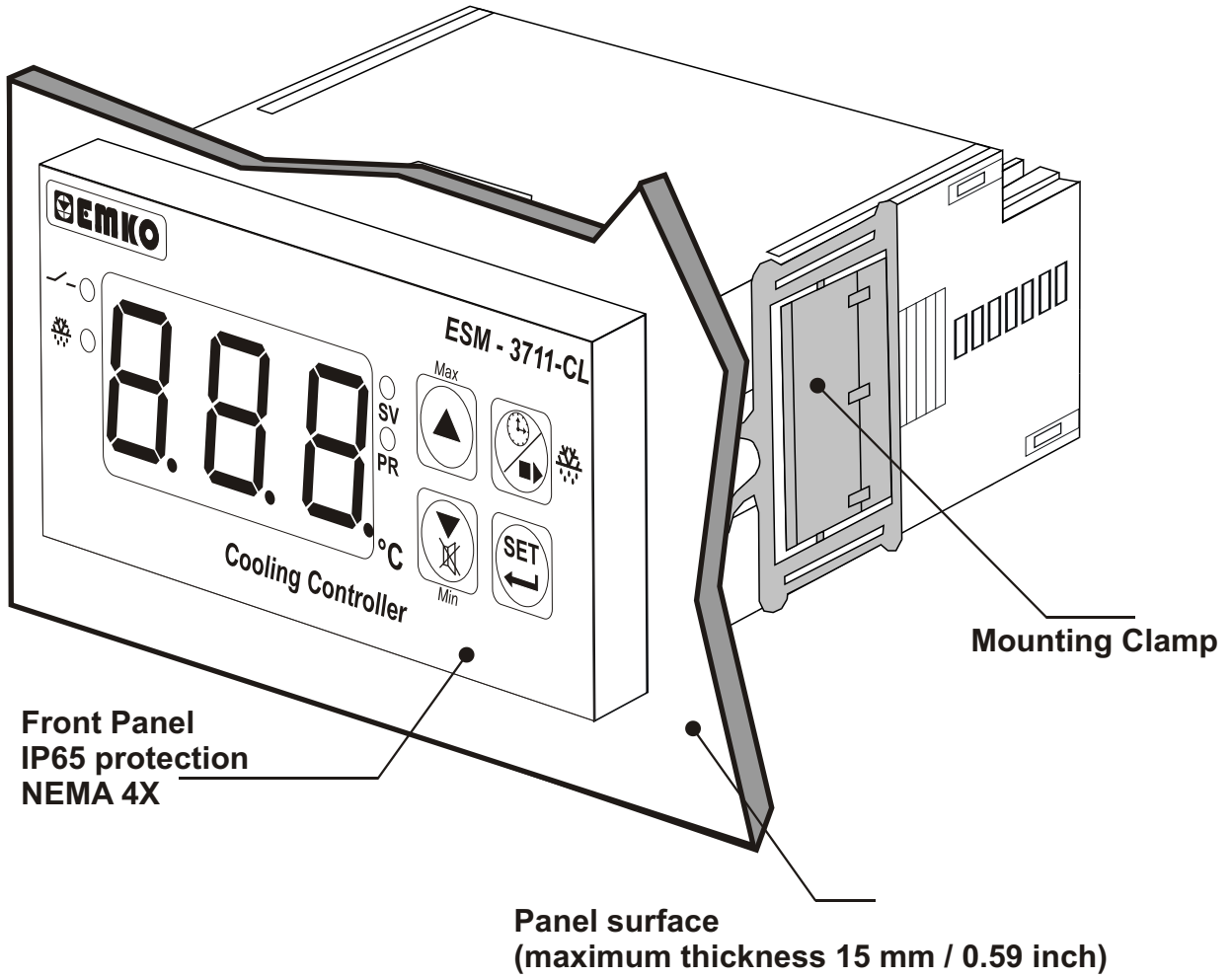
Do not use the unit in combustible or explosive gaseous atmospheres.

During the equipment is putted in hole on the metal panel while mechanical installation some metal burrs can cause injury on hands, you must be careful.

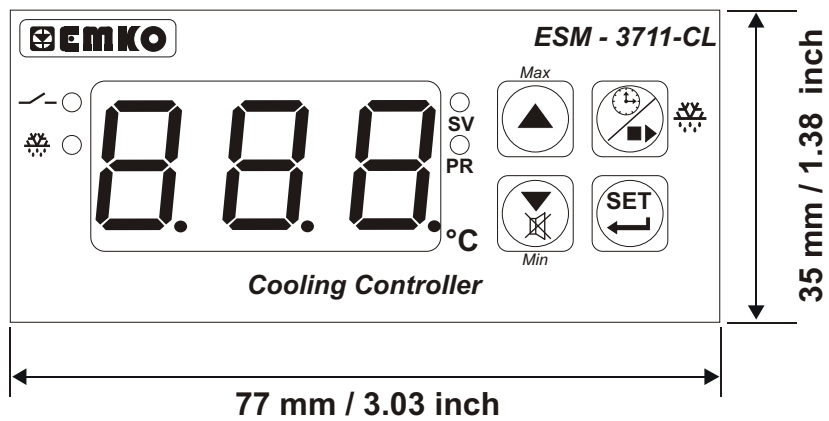
Montage of the product on a system must be done with it's fixing clamps. Do not do the montage of the device with inappropriate fixing clamp. Be sure that device will not fall while doing the montage.

It is your responsibility if this equipment is used in a manner not specified in this instruction manual.

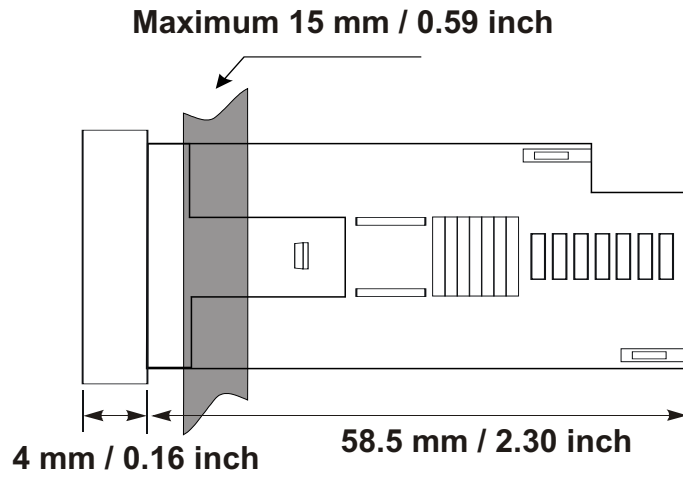
## 2.1 General Description



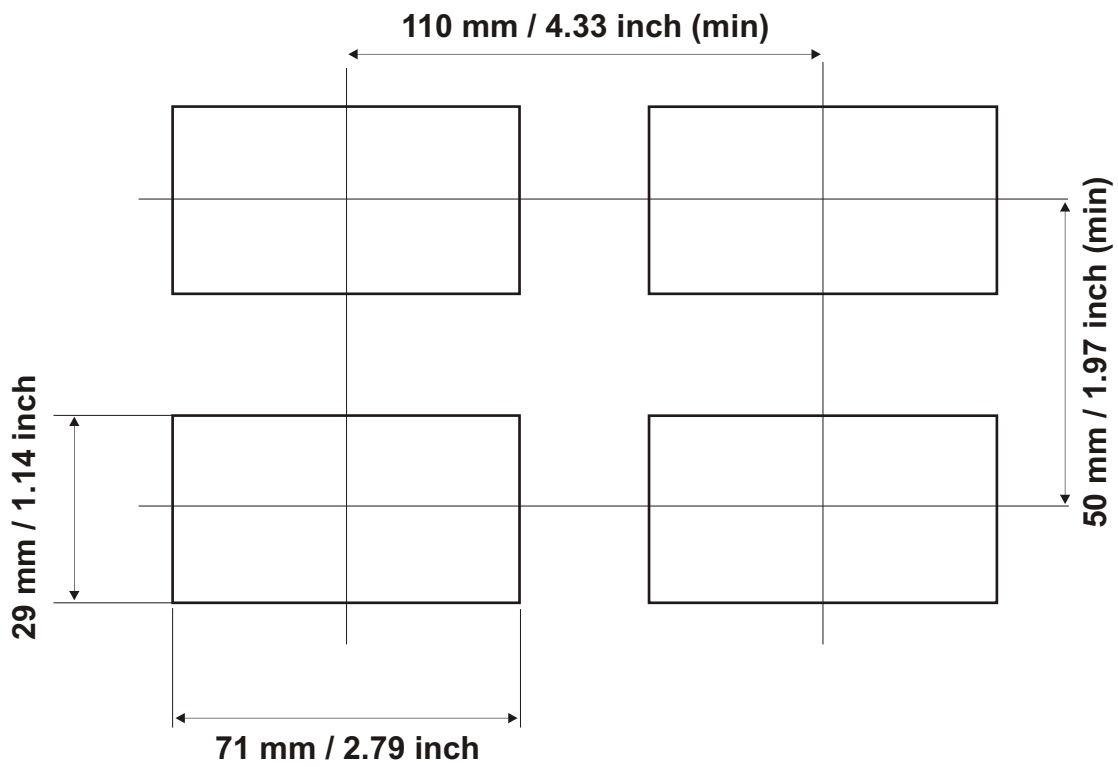
## 2.2 Front View and Dimensions of ESM-3711-CL Cooling Controller







## 2.3 Panel Cut-Out



## 2.4 Environmental Ratings

### Operating Conditions



Operating Temperature : 0 to 50 °C



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



Altitude : Up to 2000 m.



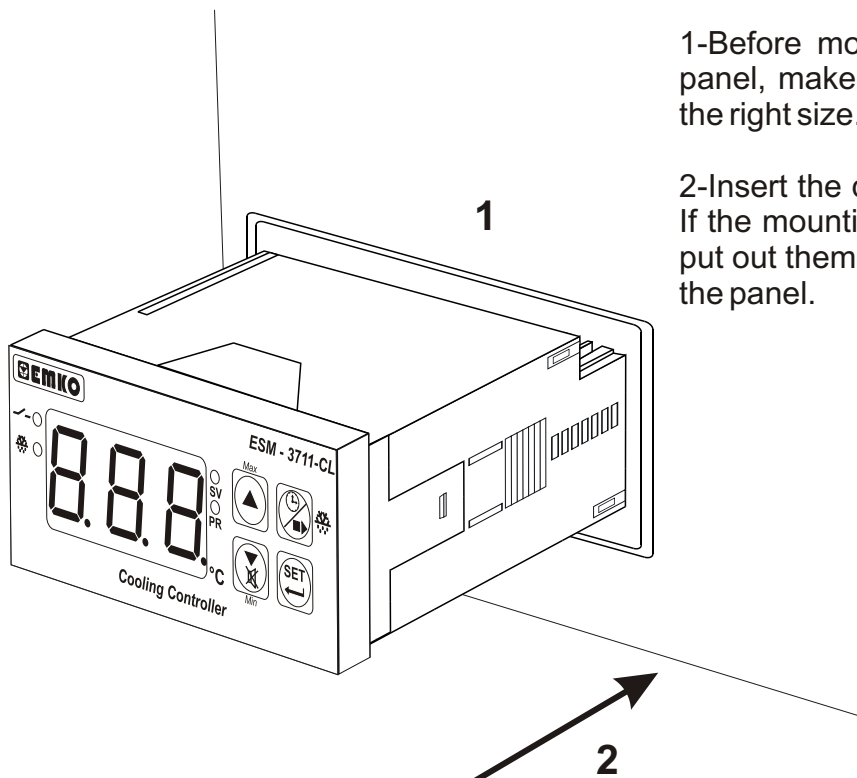
#### Forbidden Conditions:

Corrosive atmosphere

Explosive atmosphere

Home applications (The unit is only for industrial applications)

## 2.5 Panel Mounting



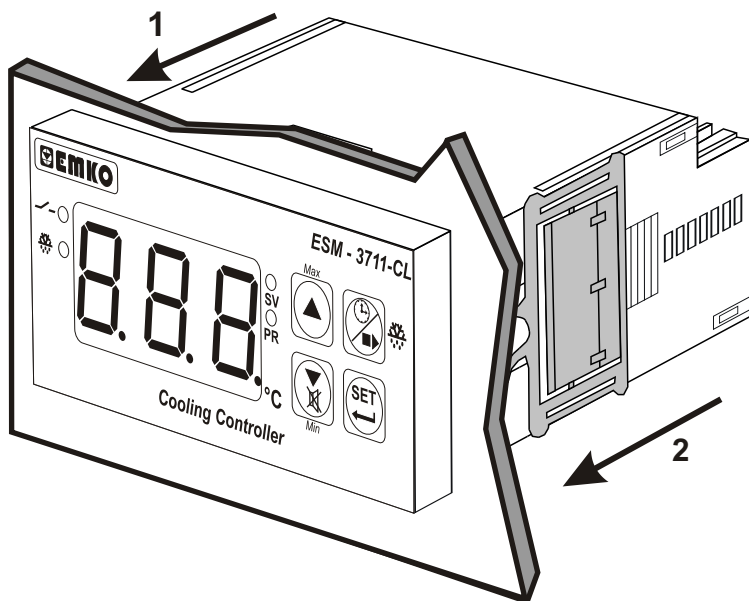
1-Before mounting the device in your panel, make sure that the cut-out is of the right size.

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.



During installation into a metal panel, care should be taken to avoid injury from metal burrs which might be present. The equipment can loosen from vibration and become dislodged if installation parts are not properly tightened. These precautions for the safety of the person who does the panel mounting.

## 2.6 Installation Fixing Clamp



The unit is designed for panel mounting.

1-Insert the unit in the panel cut-out from the front side.

2- 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

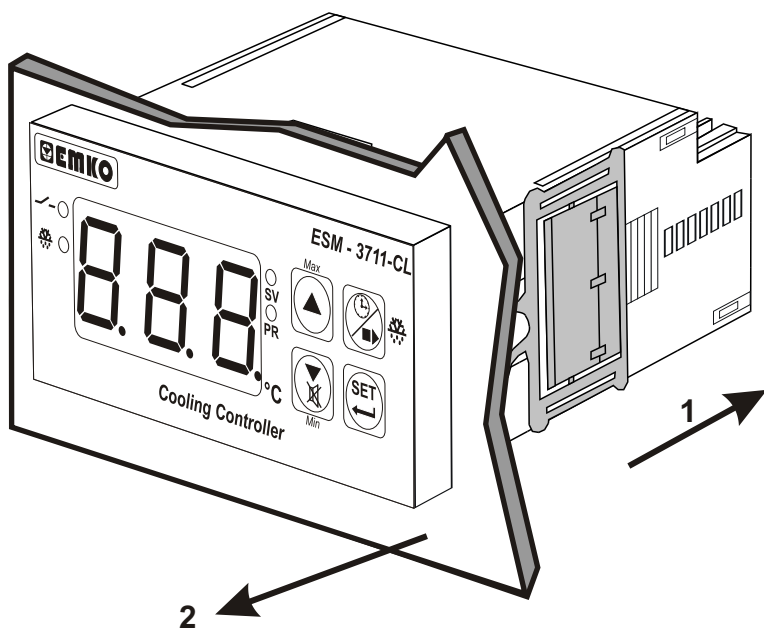


Montage of the unit to a system must be done with it's own fixing clamps. Do not do the montage of the device with inappropriate fixing clamps. Be sure that device will not fall while doing the montage.

## 2.7 Removing from the Panel



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



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

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

### 3. Electrical Wiring



You must ensure that the device is correctly configured for your application. Incorrect configuration could result in damage to the process being controlled, and/or personal injury. It is your responsibility, as the installer, to ensure that the configuration is correct.

Device parameters has factory default values. These parameters must be set according to the system's needs.



Only qualified personnel and technicians should work on this equipment. This equipment contains internal circuits with voltage dangerous to human life. There is severe danger for human life in the case of unauthorized intervention.

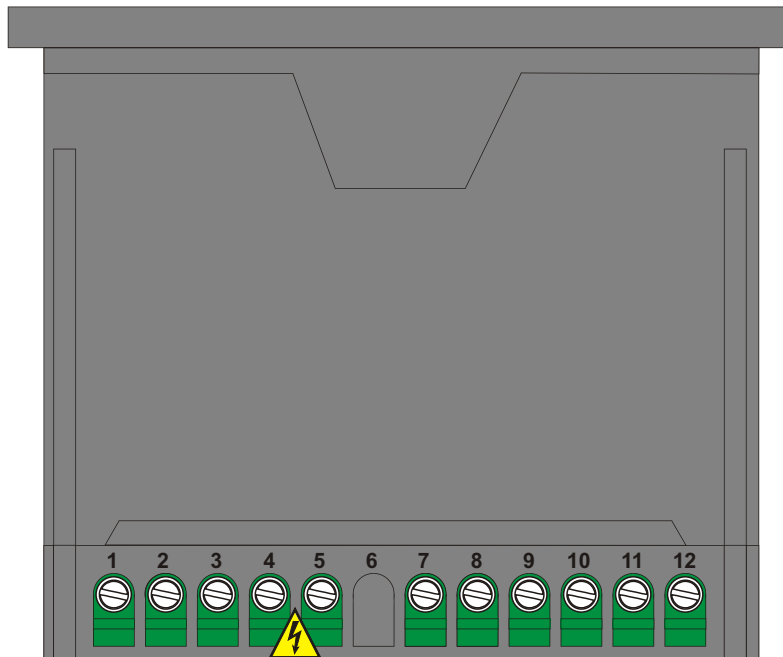


Be sure to use the rated power supply voltage to protect the unit against damage and to prevent failure.



Keep the power off until all of the wiring is completed so that electric shock and trouble with the unit can be prevented.

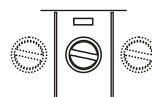
#### 3.1 Terminal Layout and Connection Instructions



Screw driver  
0,8 x 3 mm



Torque  
0,5 Nm

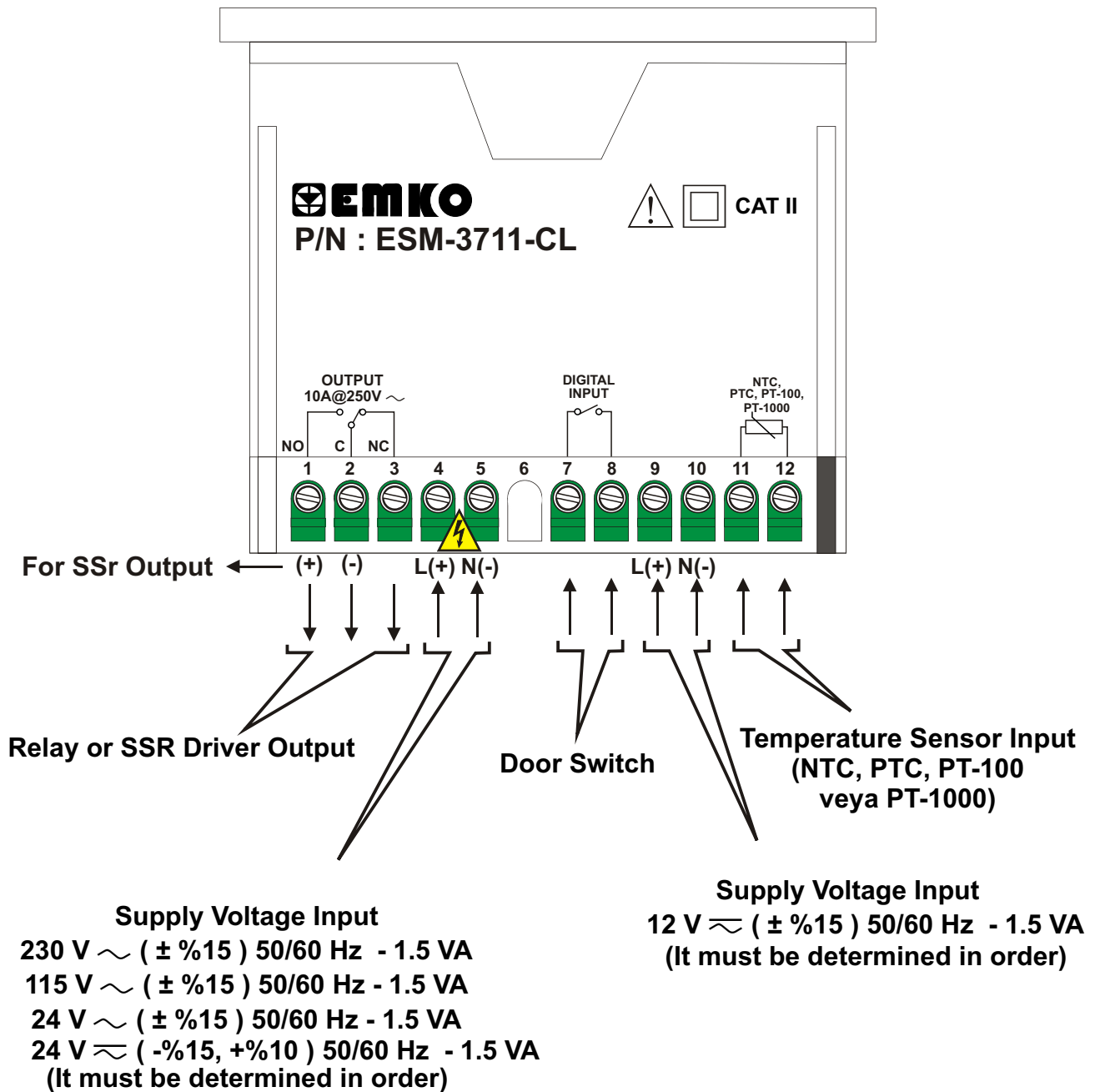


Max. 2.5 mm / 0.098 inch  
Wire Size:  
14 AWG / 1 mm<sup>2</sup>  
Solid / Stranded

### 3.2 Electrical Wiring Diagram



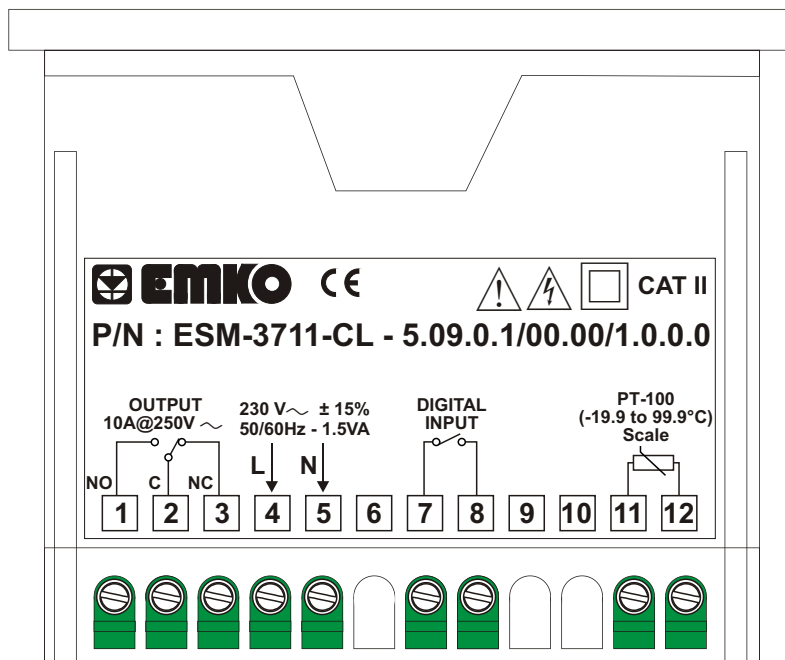
Electrical wiring of the device must be the same as 'Electrical Wiring Diagram' below to prevent damage to the process being controlled and personnel injury.



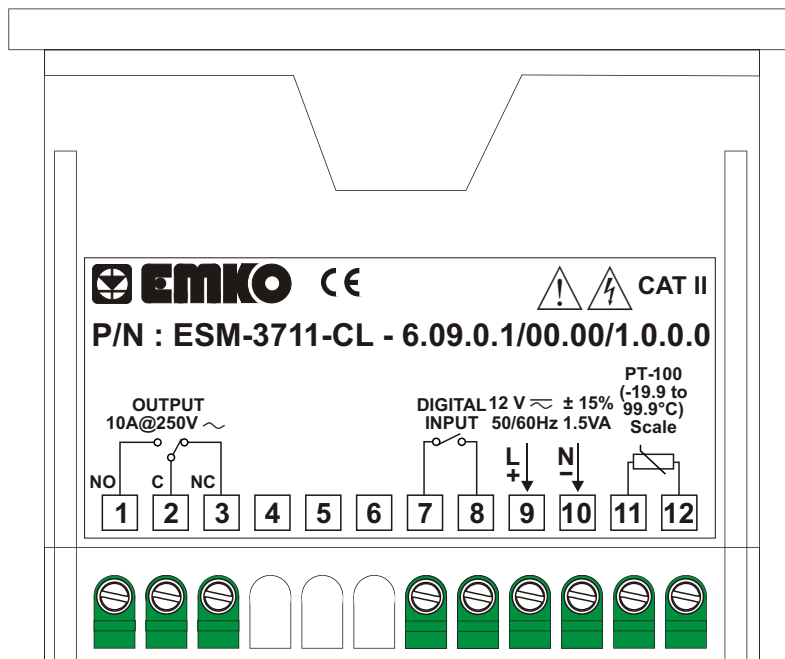
Temperature Sensor Input is in CAT II class.

### 3.3 View of the Device Label

#### Device Label for PT-100 Type ( -19.9 ; 99.9 ) scaled, 230V ~ Supply Voltage Input and Relay Output

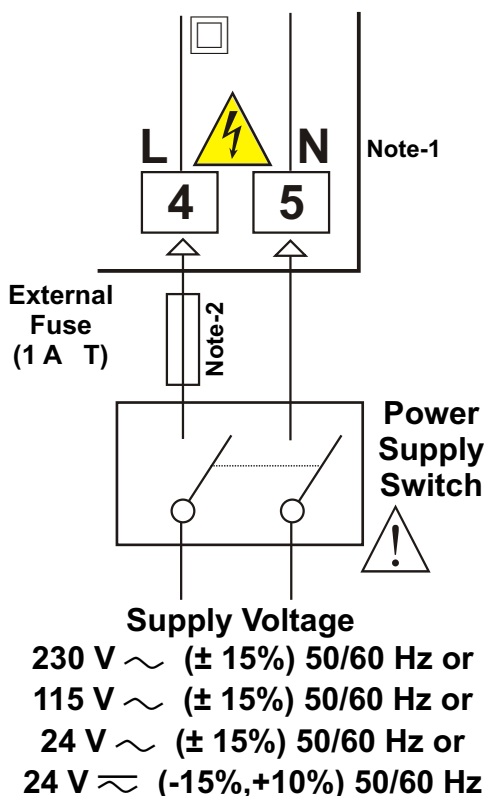


#### Device Label for PT-100 Type ( -19.9 ; 99.9 ) scaled , 12V ~ Supply Voltage Input and Relay Output

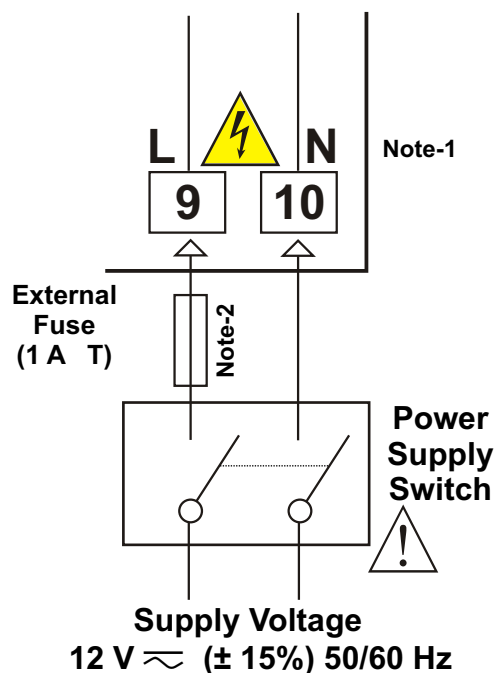


### 3.4 Supply Voltage Input Connection of the Device

Connection of Supply Voltage Input



Connection of Supply Voltage Input



**Note-1:** “L” is (+), “N” is (-) for 12V  $\text{---}$  and 24V  $\text{---}$  Supply Voltage

**Note-2:** External Fuse is recommended



Make sure that the power supply voltage is same indicated on the instrument. Switch on the power supply only after that all the electrical connection 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. Controlling prevents damages in unit and system and possible accidents as a result of incorrect supply voltage.



There is no power supply switch or fuse on the device. So a power supply switch and a fuse must be added to the supply voltage input. Power supply switch and fuse must be put to a place where user can reach easily.

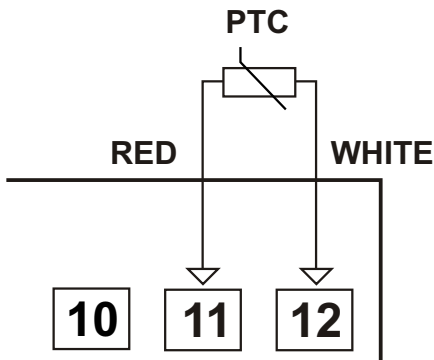
Power supply switch must be two poled for seperating phase and neutral. On/Off condition of power supply switch is very important in electrical connection. On/Off condition of power supply switch must be signed for preventing the wrong connection.

External fuse must be on phase connection in  $\sim$  supply input.

External fuse must be on (+) line connection in  $\text{---}$  supply input.

## 3.5 Temperature Sensor Input Connection

### 3.5.1 PTC Connection

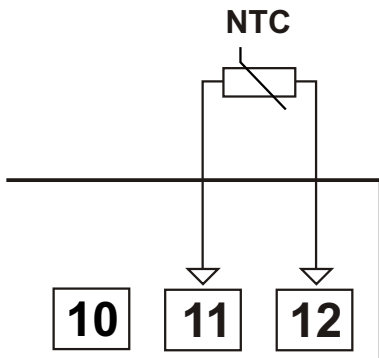


Input resistance is greater than 10 M



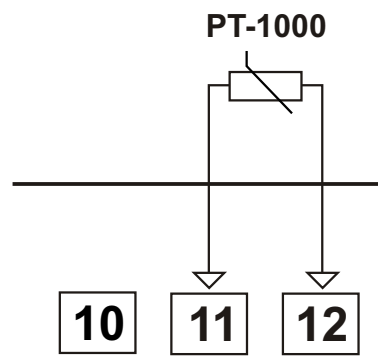
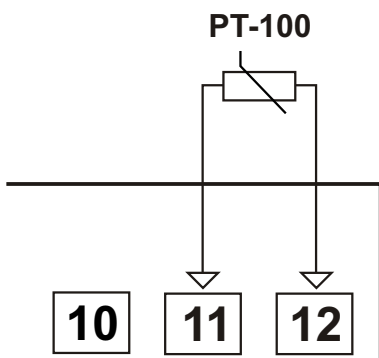
Pay attention the cable colours of PTC probe while doing the PTC probe connection.

### 3.5.2 NTC Connection



Input resistance is greater than 10 M

### 3.5.3 PT-100 and PT-1000 Connections



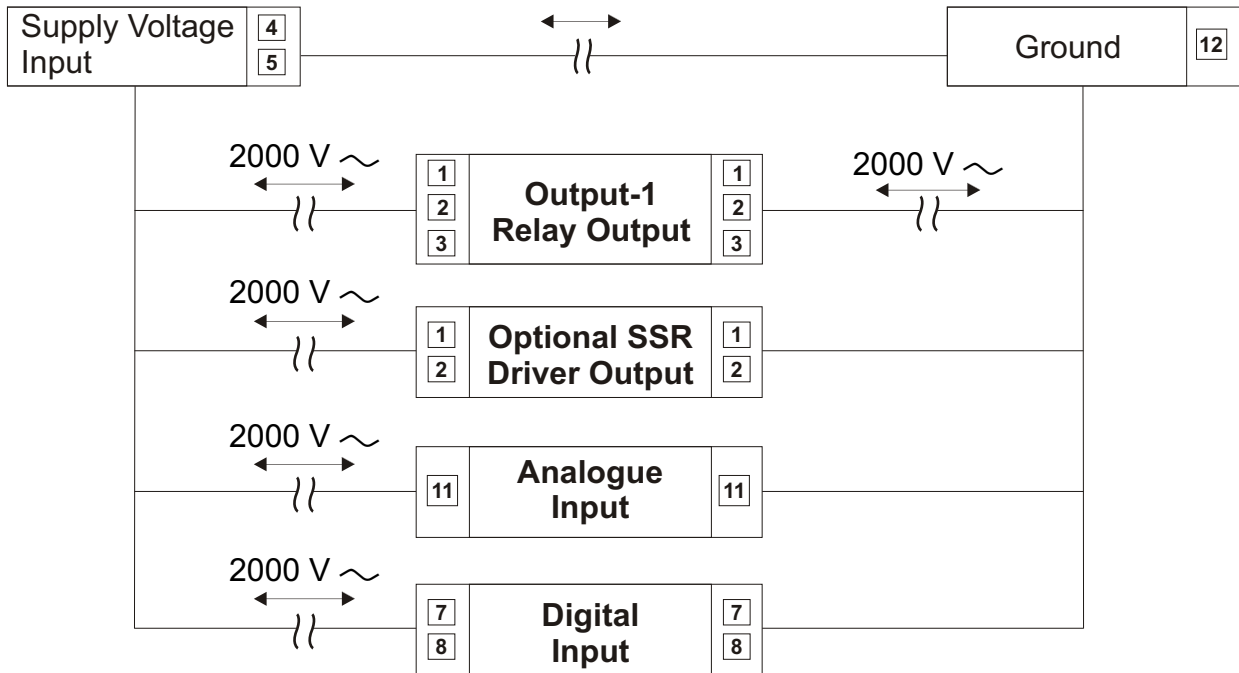
Input resistance is greater than 10 M



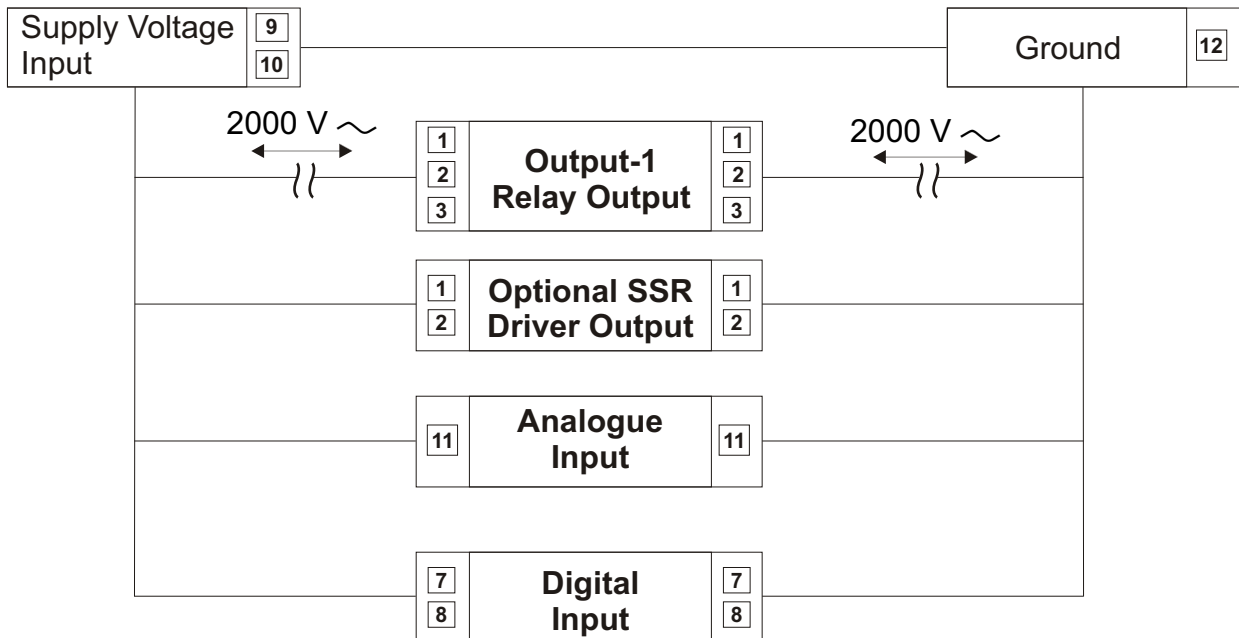
### 3.6 Galvanic Isolation Test Values of ESM-3711-CL Cooling Controller

2000 V  $\sim$  ( ESM-3711-CL.5..... )

500 V  $\sim$  ( ESM-3711-CL.3..... )

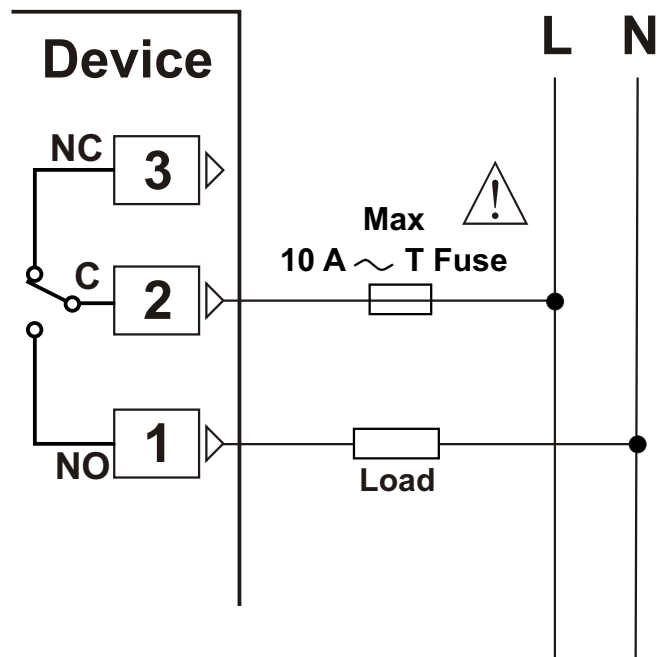


### Galvanic Isolation Test Values For 12V $\sim$ Power Supply



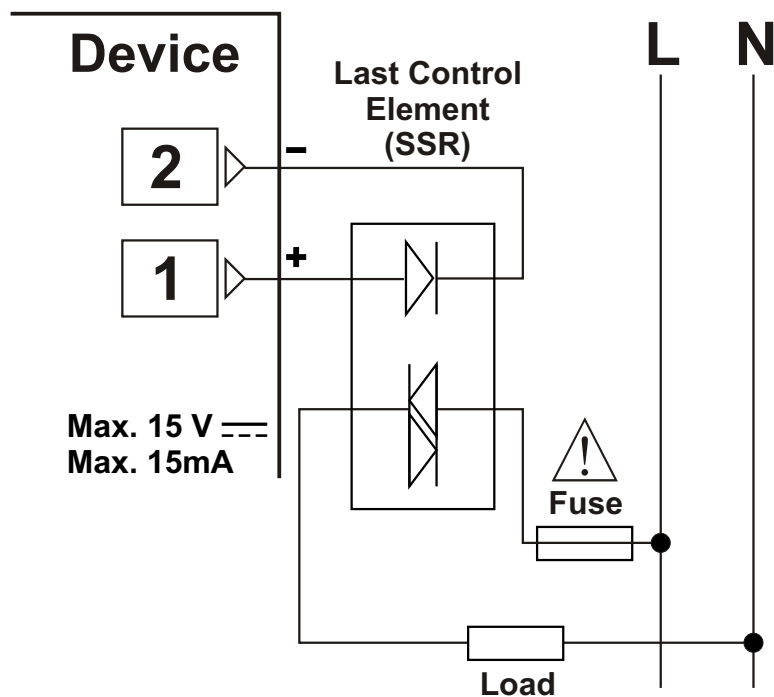
## 3.7 Output Connections

### 3.7.1 Relay Output Connection



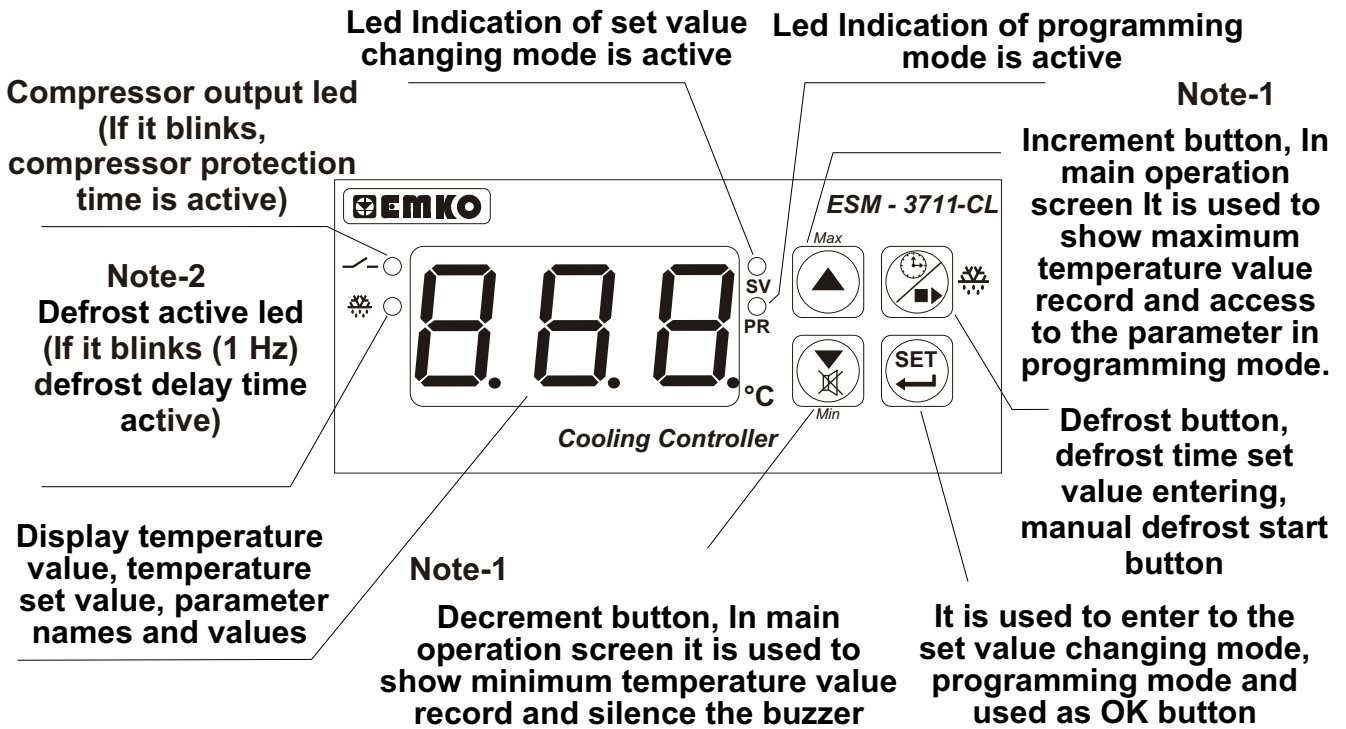
Fuses must be selected according to the application.

### 3.7.2 SSR Driver Output Connection



Fuses must be selected according to the application.

## 4. Front Panel Definition and Accessing to the Menu

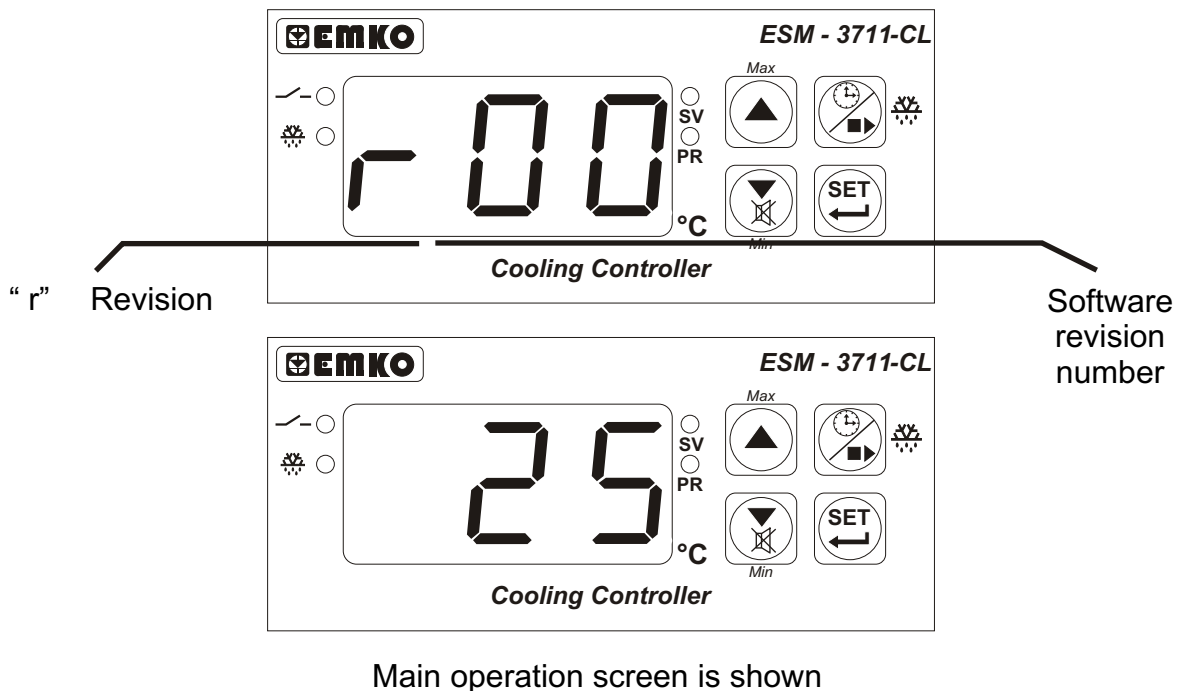


**Note-1:** In set value changing mode, If increment or decrement button is pressed for 5 seconds continuously, increment and decrement number become 10, if increment or decrement button is pressed for 10 seconds continuously, increment and decrement number become 100.

**Note-2:** In defrost time set value changing mode, defrost led is blink fast (5 Hz)

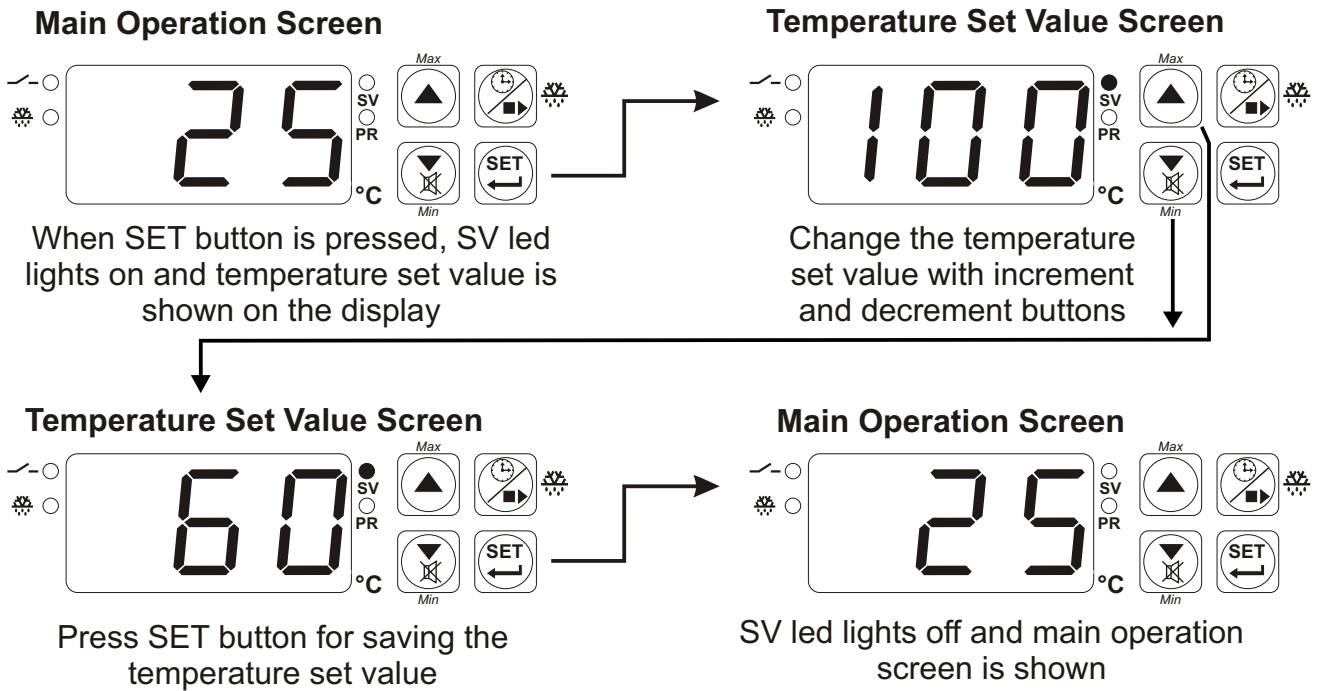
### 4.1 Observation of ESM 3711-CL Cooling Controller Software Revision on the Display

When power is first applied to the cooling controller, software revision number is shown on the display.



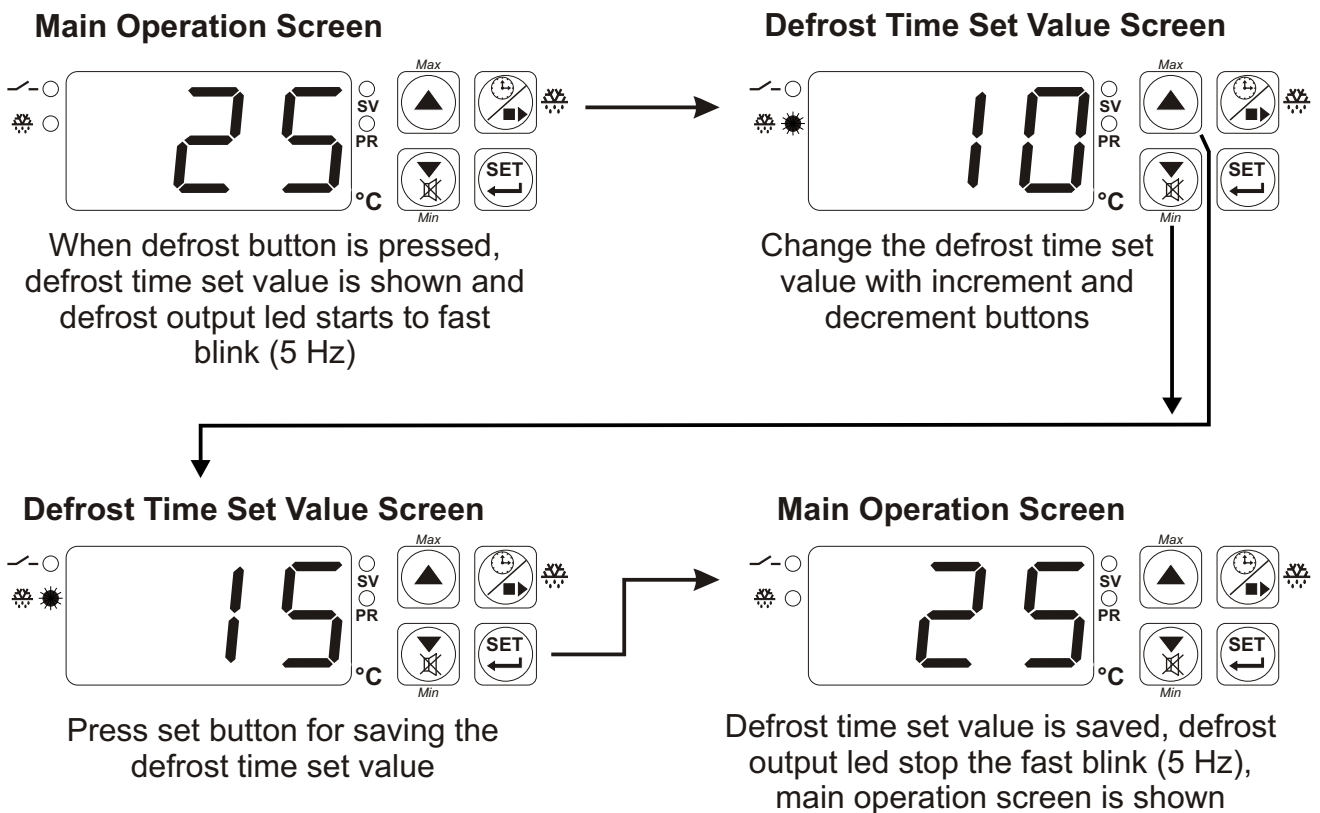
**If there is an unexpected situation while opening the device, power off the device and inform a qualified personnel.**

## 4.2 Changing and Saving Temperature Set Value



Temperature set value can be adjusted from minimum temperature set value parameter  $\boxed{5UL}$  value to maximum temperature set value parameter  $\boxed{5UH}$  value.

## 4.3 Changing and Saving Defrost Time Set Value



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.

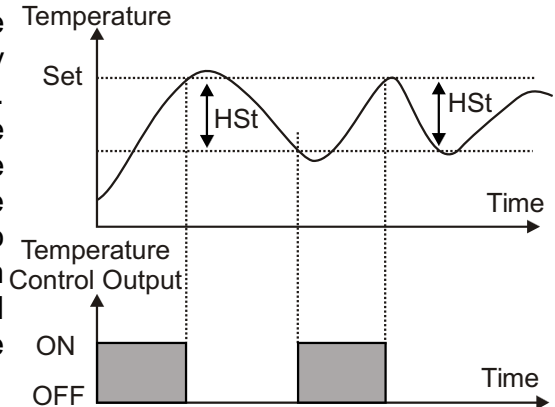
## 4.4 Programming Mode Parameters List

**HSt**

### Hysteresis Parameter for Compressor Output ( Default = 3 )

From 1 to 100°C for PT-100 (-50°C , 400°C) and PT-1000 (-50°C , 400°C),  
 From 0.1 to 10.0°C for PT-100 (-19.9°C, 99.9°C) and PT-1000 (-19.9°C, 99.9°C),  
 From 1 to 20°C for PTC (-50°C, 150°C) and NTC (-50°C, 100°C),  
 From 0.1 to 10.0°C for PTC (-19.9°C, 99.9°C) and NTC (-19.9°C, 99.9°C)

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)

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)

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**

### Process Offset Parameter ( Default = 0 )

From -100 to 100°C for PT-100 (-50°C , 400°C) and PT-1000 (-50°C , 400°C),  
 From -10.0 to 10.0°C for PT-100 (-19.9°C, 99.9°C) and PT-1000 (-19.9°C, 99.9°C),  
 From -20 to 20°C for PTC (-50°C, 150°C) and NTC (-50°C, 100°C),  
 From -10.0 to 10.0°C for PTC (-19.9°C, 99.9°C) and NTC (-19.9°C, 99.9°C)

**dt**

### Defrost Time Parameter ( Default = 10 )

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 )

It can be adjusted from 1 to 99 hours.

**Pod**

### Defrost at Power On ( Default = 0 )

System does not go through a defrost cycle at start up

System goes through a defrost cycle at start up

**Pdd**

### Defrost Delay at Power On ( Default = 0 )

It can be adjusted from 0 to 99 minutes.

This parameter can be observed if defrost at power on parameter **Pod** is 1.

**ddR**

### Display Status During Defrost Parameter ( Default = 0 )

The temperature is displayed during defrost.

Temperature value at the start of a defrost is displayed during defrost.

Set value is displayed during defrost.

**dEF** Is displayed to indicate a defrost is in progress.

PoS

**Compressor Start Delay at Power On Parameter ( Default = 0 )**

When power is first applied to the device, This time delay must be expired for activation of compressor. It can be adjusted from 0 to 20 minutes.

SPd

**Compressor Stop-Start Delay Parameter ( Default = 0 )**

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 )**

This time delay must be expired between two activation of the compressor. It can be adjusted from 0 to 20 minutes.

P.dF

**Probe Defect Parameter ( Default = 0 )**

0 Compressor is OFF in case of probe defect.

1 Compressor is ON in case of probe defect

2 Compressor operates periodically according to  P.on and  P.oF time periods in case of probe defect.

P.on

**Compressor is active during this time period in case of probe defect. ( Default = 0 )**

If probe defect parameter  P.dF 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 )**

If probe defect parameter  P.dF is 2, then this parameter is observed. It can be adjusted from 0 to 99 minutes.

ALS

**Cooling Alarm Function Selection Parameter ( Default = 0 )**

0 Cooling alarm function is inactive

1 Absolute alarm is selected. If temperature lower than  R.uL and higher than  R.uH, then alarm is on.

2 Relative alarm is selected. Alarm operates according to the set value. If temperature is below ( Set -  R.uL ) or above ( Set +  R.uH ), alarm is on.

R.uL

**Minimum Alarm Parameter ( Default = Input type Minimum Scale )**

this parameter value is can be adjust from minimum value of device scale to temperature alarm maximum parameter  R.uH value.

R.uH

**Maximum Alarm Parameter ( Default = Input type Maximum Scale )**

this parameter value is can be adjust from temperature alarm minimum parameter  R.uL value to maximum value of device scale.

AdL

**Alarm Delay Parameter( Default = 0 )**

If an alarm occurs, delay can be defined with this parameter. It can be adjusted from 0 to 99 minutes.

APd

**Alarm Delay After Power On Parameter( Default = 0 )**

When power is first applied to the device, this time delay must be expired for activation of cooling alarm. It can be adjusted from 0 to 99 minutes.

buf

### Buzzer Function Selection Parameter( Default = 1 )

- 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 Activity Time ( Default = --- )

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 = 0 )

- 0 There is no protection
- 1 Defrost time can not be changed and defrost ON/OFF operation is not performed.
- 2 SET value can not be changed.
- 3 Defrost time and SET value can not be changed. Defrost ON/OFF operation is not performed.

Ldo

### Logging Option Parameter ( Default = 0 )

- 0 Minimum&Maximum temperature recording is not active during the door switch is opened.
- 1 Minimum&maximum temperature recording is continue even door switch is opened.

rAC

### Logging Starting Time After Door Switch is closed ( Default = 0 )

If logging option parameter  Ldo is 0, then this parameter is observed. After the door switch is closed, this time delay must be expired for activation of the minimum & maximum temperature recording. It can be adjusted from 0 to 99 minutes.

dAt

### Door Open Alarm Time ( Default = 0 )

If door switch is remaining open for a long time than this time parameter, device give the door open alarm; display begins to blink and buzzer will be active. If this parameter is 0, then door open alarm is not active. It can be adjusted from 0 to 99 minutes.

tCn

### Minimum&Maximum Temperature logging start option After Power On Parameter ( Default = 1 )

When power is first applied to the device, the device is start to recording minimum&maximum temperature after this parameter defined number of temperature value is being equal or lower than temperature set value. It can be adjusted from 1 to 99.

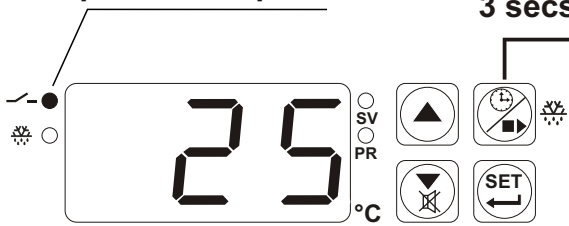
pas

### Programming Mode Accessing Password ( Default = 0 )

It is used for accessing to programming mode. It can be adjusted from 0 to 999. If it is 0, password is not entered for accessing to the parameters.

## 4.5 Defrost ON/OFF Operation

Compressor output led



Main Operation Screen

3 secs When defrost time parameter value  $[d t]$  = 1, button protection parameter value  $[P r t]$  = 0 or 2 and cooling operation is performed (compressor output led is on), if defrost button is pressed for 3 seconds in main operation screen, defrost operation starts and defrost active becomes active. If defrost button is pressed for 3 seconds while defrost continues, defrost is finished and defrost active led becomes inactive.

## 4.6 Observation Of Minimum&Maximum Recording Temperature Value On The Display

When power is first applied to the device, the device is start to recording minimum&maximum temperature value after the number of thermostat, is defined  $[t n]$  parameter value is executed. Observation of this recording temperature values is explained below.

Main Operation Screen



Main Operation Screen



In main operation screen, If increment button is pressed then the maximum recording temperature value is shown on the display.

Main Operation Screen



Main Operation Screen

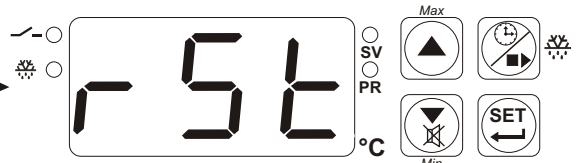


In main operation screen, If decrement button is pressed then the minimum recording temperature value is shown on the display.

Main Operation Screen



Main Operation Screen

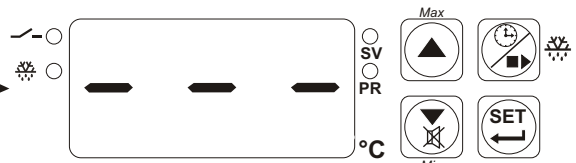


In main operation screen, If decrement and SET buttons are pressed together the message  $[r 5 t]$  is shown on the display, after 5 seconds pressing these buttons display starts to blink and the maximum and minimum recording temperature values are reset to the measurement temperature value at that time.

Main Operation Screen



Main Operation Screen

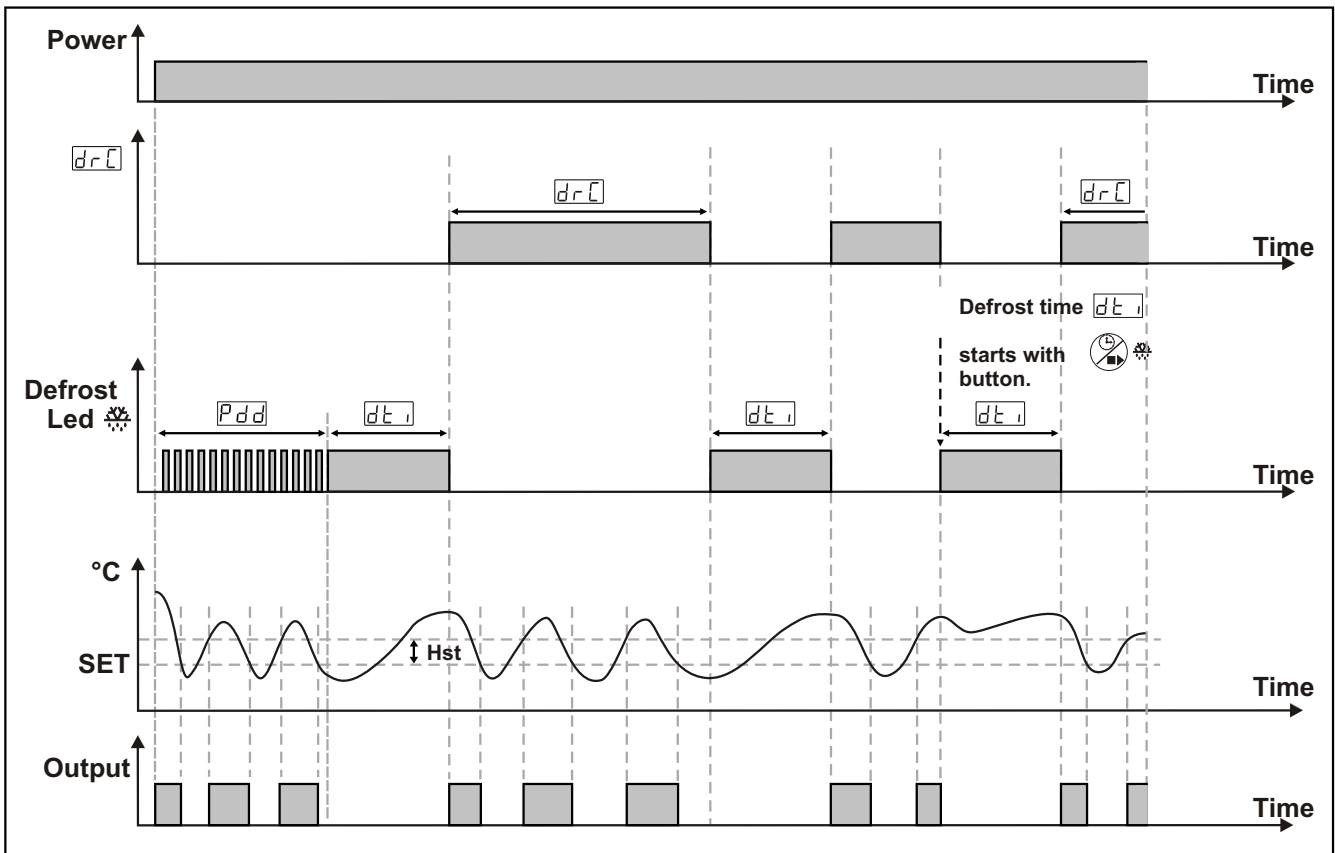


In main operation screen, If pressed the increment or decrement buttons before the device is start to recording minimum&maximum temperature value, the message  $[---]$  is shown on the display.

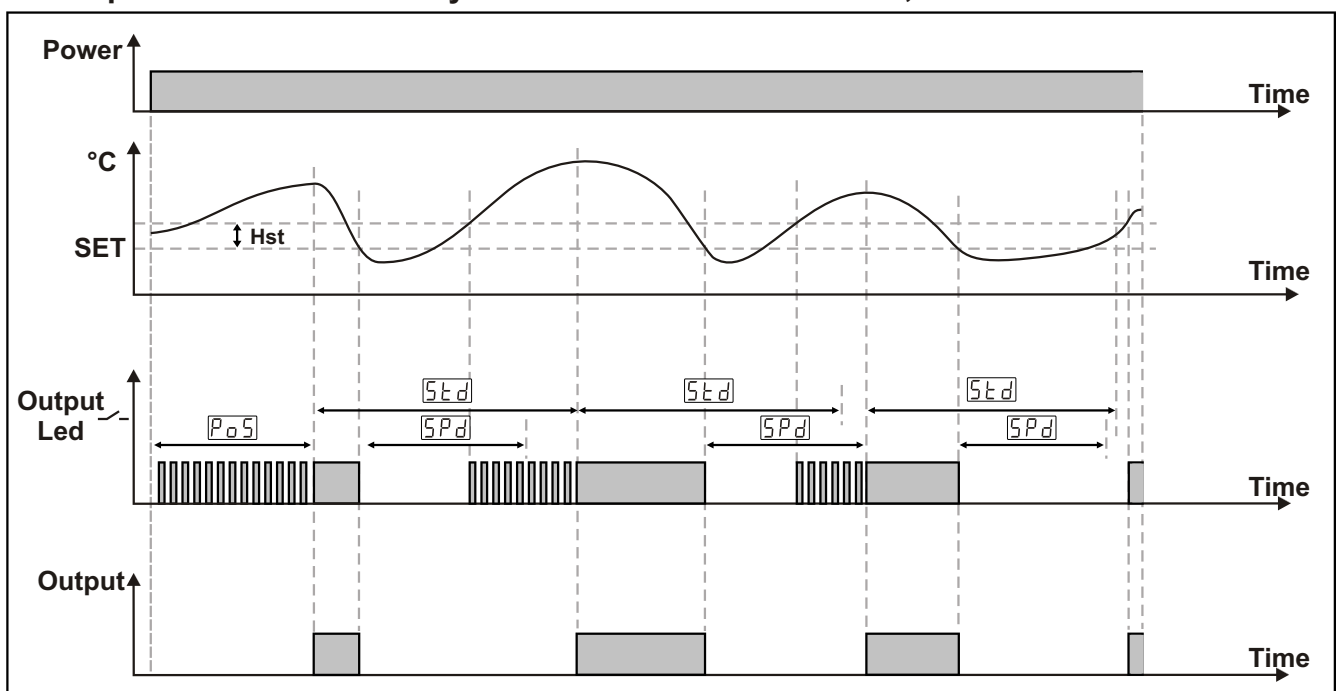


## 4.7 Operation Graphics of ESM-3711-CL Cooling Controller

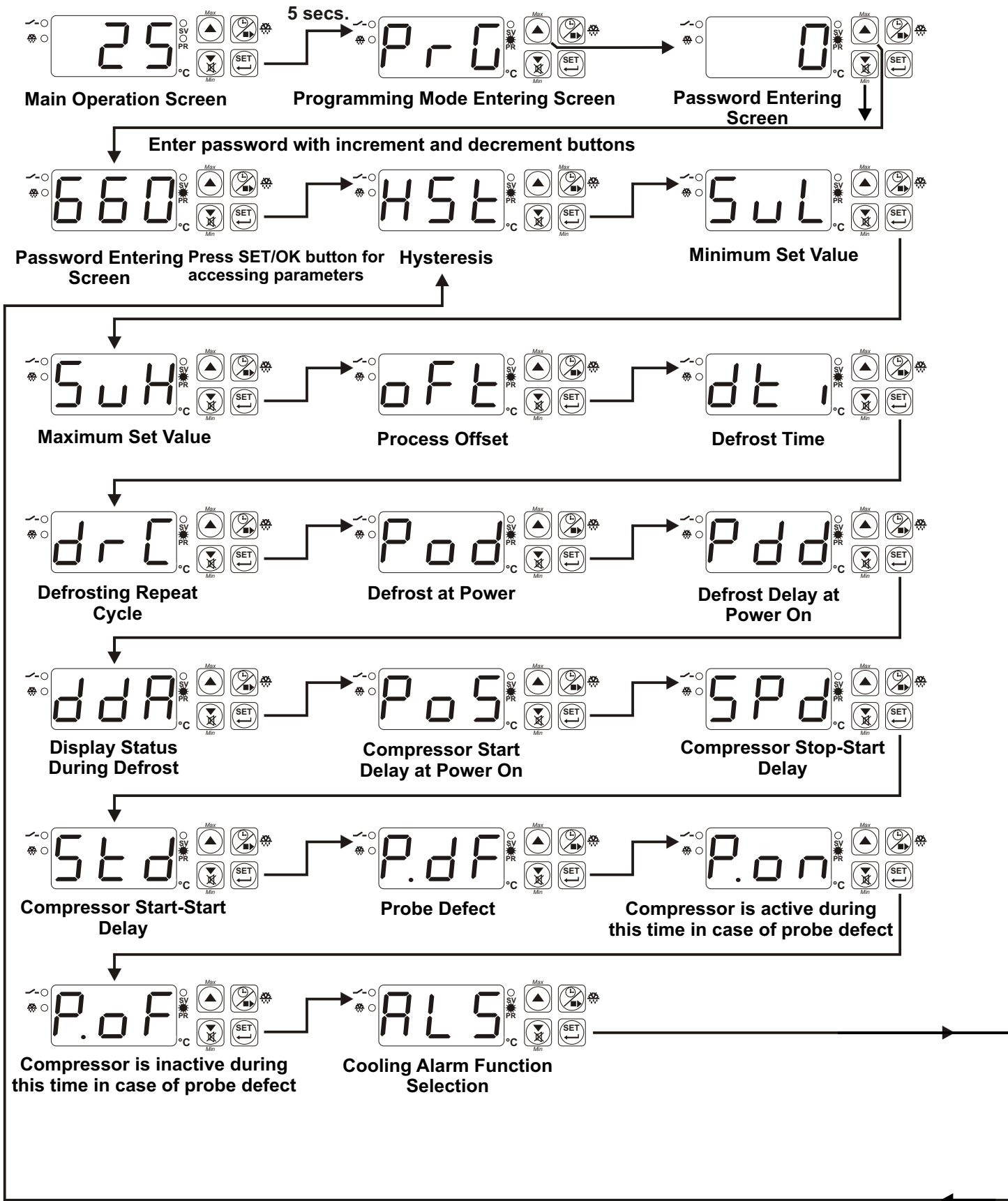
- 1- If Defrost Time Parameter  $dt_1$  = 1,  
 Defrosting Repeat Cycle  $drC$  = 1,  
 Defrost at Power On Parameter  $P_{od}$  = 1 and  
 Defrost Delay at Power On Parameter  $P_{dd}$  = 1;



- 2- If Compressor Start Delay at Power On Parameter  $P_{oS}$  is 1,  
 Compressor Stop-Start Delay Parameter  $SP_d$  is 1 and  
 Compressor Start-Start Delay Parameter  $St_d$  is 1 then ;

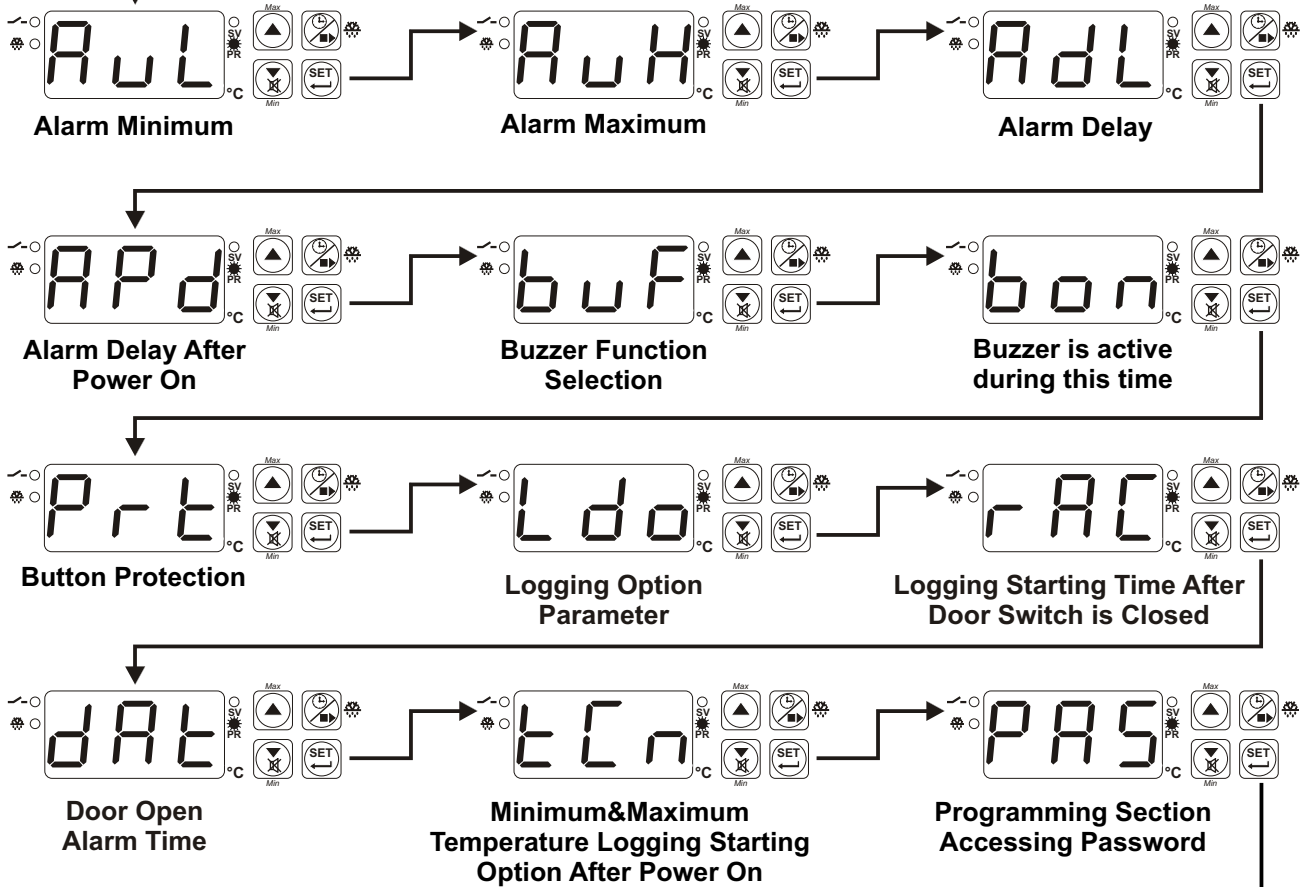


## 4.8 Easy Access Diagram of Programming Mode Parameters



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

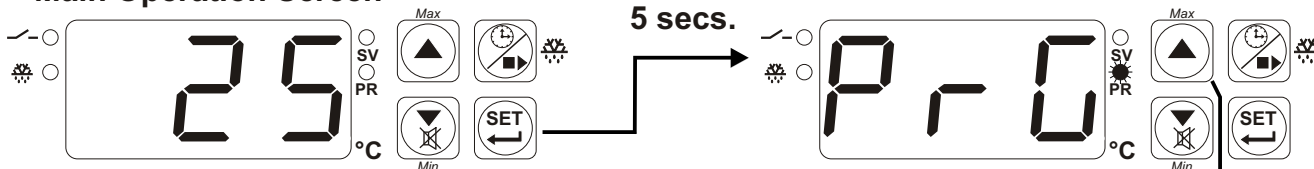
## 4.8 Easy Access Diagram of Programming Mode Parameters



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

## 4.9 Entering to the Programming Mode, Changing and Saving Parameters

### Main Operation Screen

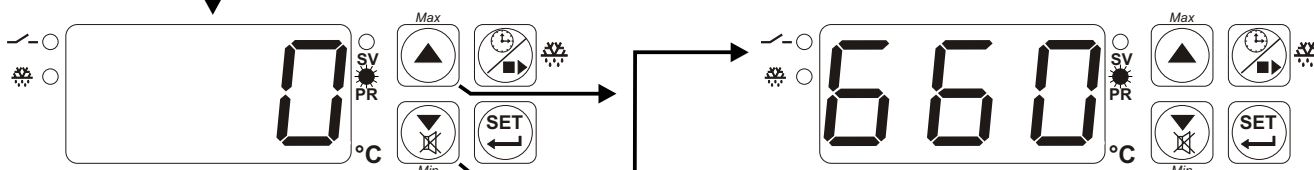


When SET button is pressed for 5 seconds, "PR" led starts to blink. If programming mode entering password is different from 0, programming mode entering screen [P r 0] will be observed.

**Note-1:** If programming mode accessing password is 0, hysteresis screen [H 5 L] is observed instead of programming screen accessing password [P r 0]

### Programming Mode Entering Screen

Press increment button for accessing to the password entering screen.



### Password Entering Screen

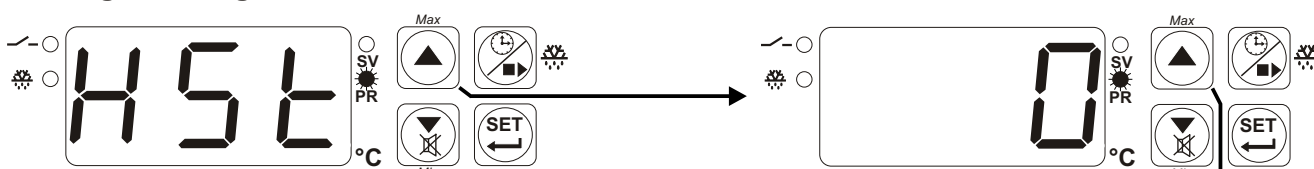
Enter programming mode accessing password with increment and decrement buttons.

### Password Entering Screen

Press SET/OK button for accessing to the parameters.

**Note-2:** Parameters can be observed by pressing SET/OK button in password entering screen without entering the programming mode entering password. But parameters can not be changed.

### Programming Screen

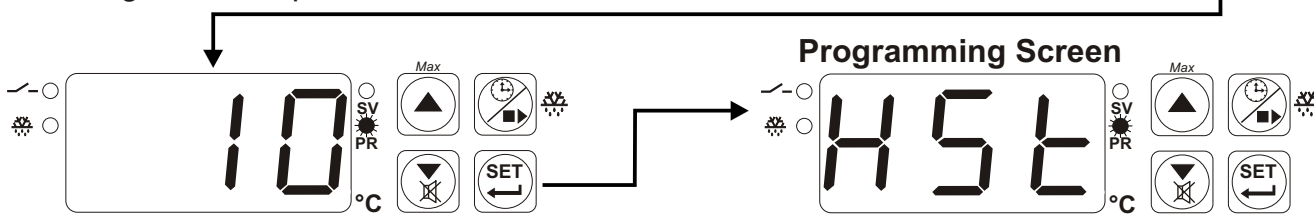


### Hysteresis Parameter

Press increment button for accessing to the parameter value. Press set button for accessing to the next parameter.

### Hysteresis Value

Change the value with increment and decrement buttons.



### Hysteresis Value

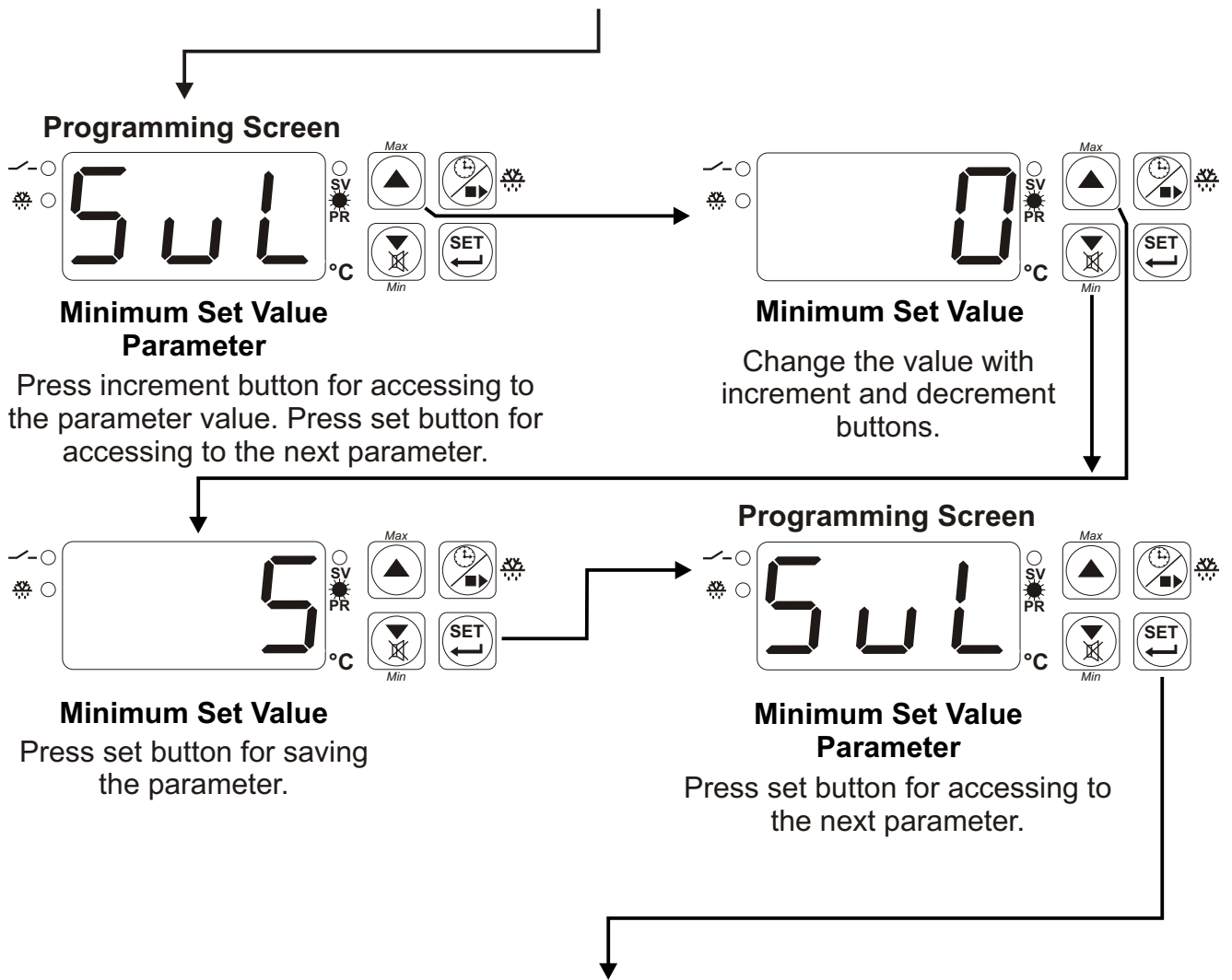
Press set button for saving the parameter.

### Hysteresis Parameter

Press set button for accessing to the next parameter.



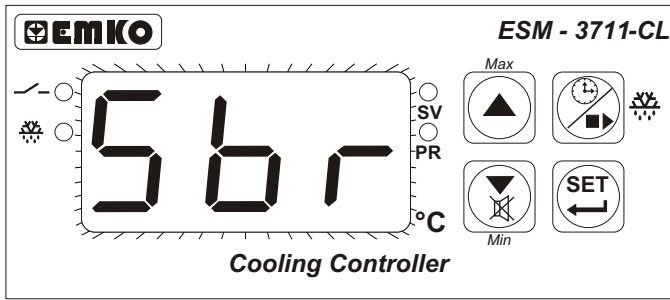
If no operation is performed for 20 seconds in programming mode, device turns to main operation screen automatically.



**i** Other Programming mode parameters can be accessed with the same method explained above, observed and changed.

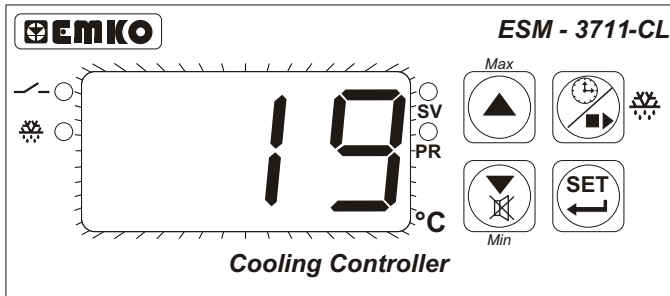
**i** If no operation is performed for 20 seconds in programming mode, device turns to main operation screen automatically.

## 5. Failure Messages in ESM-3711-CL Cooling Controller



### 1- Probe failure in analog inputs

Sensor connection is wrong or there is no sensor connection. When this message is on the screen, if buzzer function selection parameter `b u F` is 3 or 4, internal buzzer starts to operate.



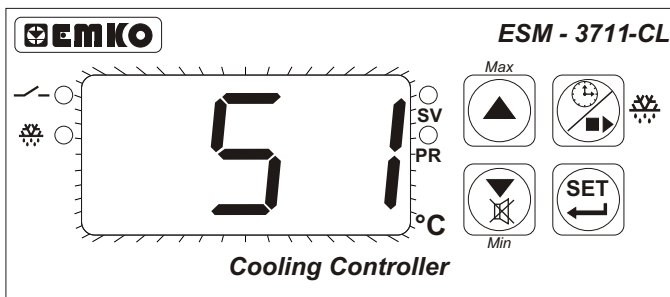
### 2- Blinking the Screen Value

If temperature higher than the alarm parameters limit, value on the screen starts to blink.

#### Example-1 :

If alarm function selection parameter `A L S` in programming section is 1 (Absolute alarm) and minimum alarm parameter `A u L` is 20 ;

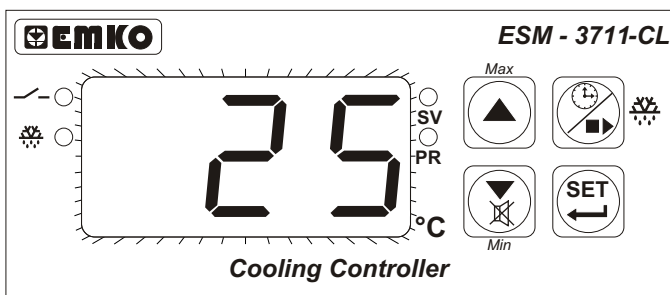
When temperature is less than 20°C, value on the screen starts to blink. Also if buzzer function selection parameter `b u F` is 2 or 4, then internal buzzer is on.



#### Example-2 :

If alarm function selection parameter `A L S` in programming section is 1 (Absolute Alarm) and maximum alarm parameter `A u H` is 50

When temperature is above 50 °C, value on the screen starts to blink. Also buzzer function selection parameter `b u F` is 2 or 4, then internal buzzer is on.



### 3- Blinking the Screen Value and Buzzer is active

If door switch is remaining open for a long time than door open alarm time parameter `d o o R` value, device give the door open alarm display begins to blink and buzzer will be active.

## 6. Specifications

<b>Device Type</b>	: Cooling Controller
<b>Housing&amp;Mounting</b>	: 77mm x 35mm x 62.5mm plastic housing for panel Mounting. Panel cut-out is 71x29mm.
<b>Protection Class</b>	: NEMA 4X (IP65 at front, IP20 at rear).
<b>Weight</b>	: Approximately 0.20 Kg.
<b>Environmental Ratings</b>	: Standard, indoor at an altitude of less than 2000 meters with none condensing humidity.
<b>Storage / Operating Temperature:</b>	-40 °C to +85 °C / 0 °C to +50 °C
<b>Storage / Operating Humidity</b>	: 90 % max. (None condensing)
<b>Installation</b>	: Fixed installation
<b>Overvoltage Category</b>	: II.
<b>Pollution Degree</b>	: II, office or workplace, none conductive pollution
<b>Operating Conditions</b>	: Continuous
<b>Supply Voltage and Power</b>	: 230 V ~ (± %15) 50/60 Hz 1.5 VA 115 V ~ (± %15) 50/60 Hz 1.5 VA 24 V ~ (± %15) 50/60 Hz 1.5 VA 24 V ≍ (-%15, +%10) 50/60 Hz. 1.5 VA 12 V ≍ (± %15) 50/60 Hz 1.5 VA
<b>Temperature Sensor Inputs</b>	: NTC, PTC, RTD
<b>NTC Input Type</b>	: NTC (10 k @.25 °C )
<b>PTC Input Type</b>	: PTC (1000 @.25 °C )
<b>Thermoresistance Input Type</b>	: PT-100, PT-1000 (IEC751)(ITS90)
<b>Accuracy</b>	: ±1 % of full scale for thermoresistance
<b>Sensor Break Protection</b>	: Upscale
<b>Sampling Cycle</b>	: 3 samples per second
<b>Control Form</b>	: ON / OFF
<b>Relay Outputs</b>	: 10 A@250 V ~ at resistive load (Electrical Life : 100.000 Operation (Full Load))
<b>Optional SSR Output</b>	: Maximum 28 mA ,Maximum 15 V ===
<b>Display</b>	: 14 mm Red 3 digits LED Display
<b>LED</b>	: SV (Green), PR(Red), Defrost Active (Red) Compressor Output (Red) 3 mm Led
<b>Internal Buzzer</b>	: 83dB
<b>Approvals</b>	: GOST-R, CE

## 7. Other Informations

### **Manufacturer 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

### **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



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