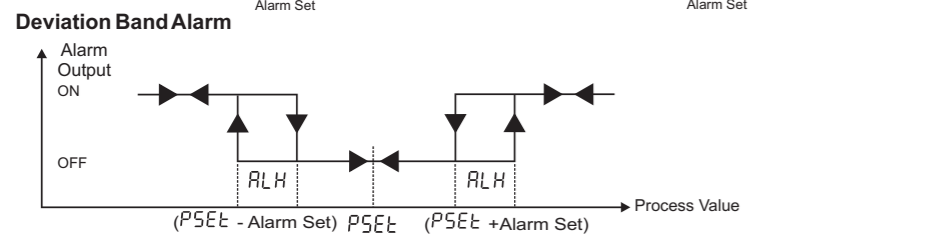
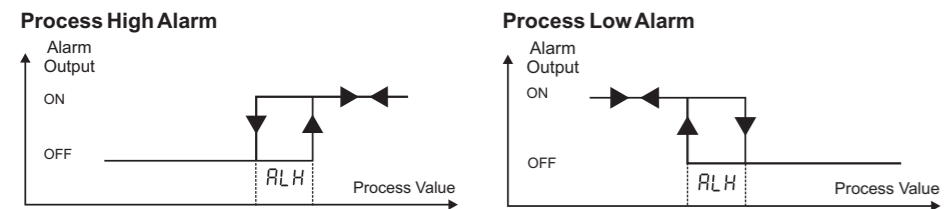
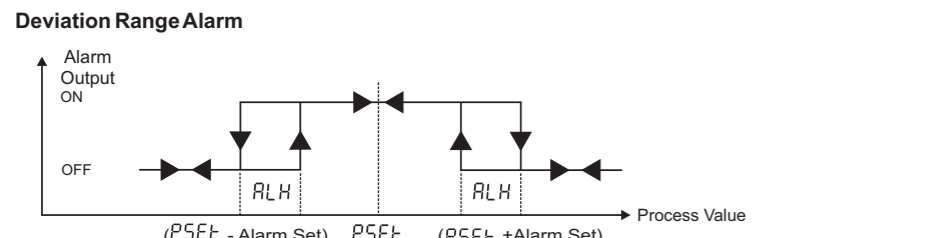


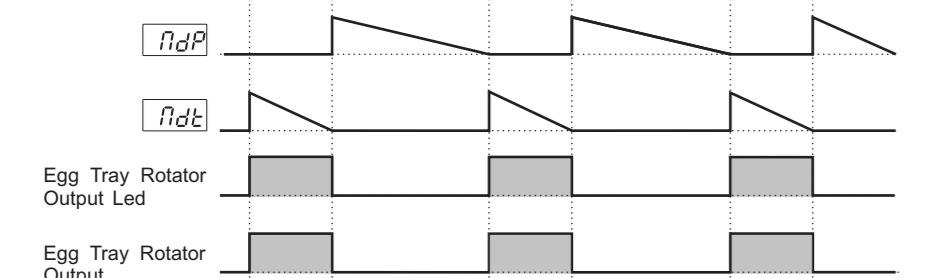
5.2 Alarm Output Graphics of ESM-3722HT



PSEt = Process Set Value (Temperature or Humidity)



5.3 Egg Tray Rotator Operation Graphics of ESM-3722HT

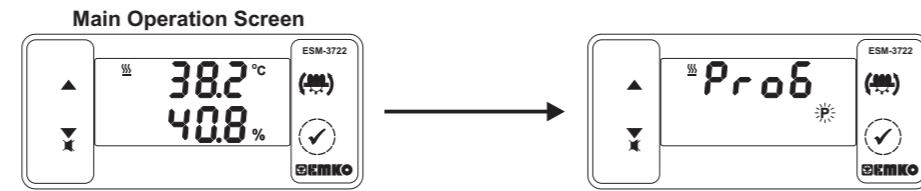


5.4 Failure Messages in ESM 3722 Hatcher Controller

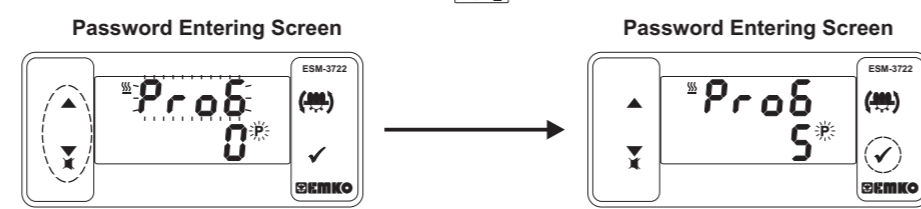
- Screen Blinking Temperature Sensor failure. Sensor connection is wrong or there is no sensor connection. While this message shown on this display, if buzzer function selection **b_u F** is 3, 5, 7 or 8 internal buzzer starts to operate.
- Screen Blinking Humidity Sensor failure. Sensor connection is wrong or there is no sensor connection. While this message shown on this display, if buzzer function selection **b_u F** is 4, 6, 7 or 8 internal buzzer starts to operate.
- In main operating screen if the upper display is blinking, it means that temperature alarm exits and alarm output is active. If buzzer function selection **b_u F** is 1, 5 or 8 internal buzzer starts to operate.
- In main operating screen if the lower display is blinking, it means that humidity alarm exits and alarm output is active. If buzzer function selection **b_u F** is 2, 6 or 8 internal buzzer starts to operate.

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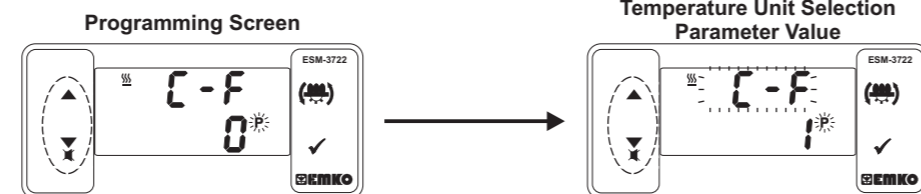
5.5 Entering To The Programming Mode, Changing and Saving Parameter



Note1: If programming mode accessing password is 0, Temperature Unit screen **C-F** is observed instead of programming screen **P_r 0**.



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



Temperature Unit Selection Parameter Value
Press set button for saving the parameter.



Decimal Separator Enabling Selection Screen
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.

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6. Manual Start of Egg Tray Rotator Operation with Engine Button

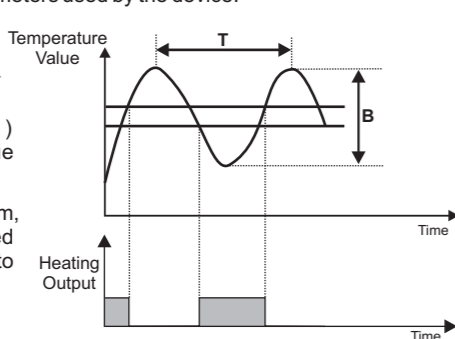
While button protection parameter value is **P_r F** 0, 1, 2 or 4 in main operation screen if engine button is pressed, manual engine start will be active. When the button is released the engine start will be passive and engine stops.



7. Auto Tune Method
Auto Tune method is used for determining PID parameters used by the device.

Starting Auto Tune (Limit Cycle Tuning) Operation by the user:

- Adjust temperature control on/off or PID parameter (**P_r 0** = 1)
- Adjust auto tune selection parameter (**R_L U_n** = **9 C 5**)
- In the main screen "Atun" and Temperature value are should alternately.



If Auto Tune operation is finished without any problem, the device saves the new PID coefficients, calculated using the previously found "T" and "B" values, to memory and continue to run. **R_L U_n** parameter is adjusted **no** automatically.

Cancelling Auto Tune (Limit Cycle Tuning) operation:

- If sensor breaks;
 - If auto tune operation can not be completed in 8 hours;
 - If user adjusts **R_L U_n** parameter **no**;
 - During auto tune operation if the user changes the temperature control from pid to on/off;
 - If process set value is changed while auto tune operation is being performed;
- Auto tune is canceled. "Atun" is not displayed. Then, without doing any changes in PID parameters, device continues to run with previous PID parameters.**

8. Specifications

Device Type	: Hatcher Controller
Housing&Mounting	: 76 mm x 34.5 mm x 71 mm Plastic housing for panel Panel cut out is 71 x 29 mm.
Protection Clas	: Ip65 at front, Ip20 at rear.
Weight	: Approximately 0.2 Kg
Environmental Ratings	: Standart, indoor at an altitude of less than 2000 meters with none condensing humidity. -40 °C to +80 °C / -30 °C to +80 °C : 90 % max. (None condensing) : Fixed installation
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 : 24V~ (±15%) 50/60Hz - 1.5VA : 10 -30V= 1.5W
Temperature Sensor Input	: NTC, PTC, PT-100, 0/2...10V=, 0/4...20mA= or ProNem Mini PMI-P

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8. Specifications

NTC input type	: NTC (10 kΩ @25 °C)
PTC input type	: PTC (1000 Ω @25 °C)
Thermoresistance input type	: PT-100 IEC751 (ITS90)
Humidity input type	: 0/2...10V=, 0/4...20mA= or ProNem Mini PMI-P
Accuracy	: ± 1 % of full scale
Sensor Break Protection	: Upscale
Control Form	: PID or ON / OFF
Relay Outputs	: 5 A@250 V ~ at Resistive Load (Heating Output) : 3 A@250 V ~ at Resistive Load (Humidifying, Alarm and Egg tray rotator Output) : Maximum 30mA, Maximum 15V : 8 mm Red 4 digit LED Display : 8 mm Green 4 digit LED Display : P (Green), % (Green), °C (Red), °F (Red), Alarm (Red), Humidifier Output (Red), Egg tray rotator Output (Red) Heating Output (Red).
Optional SSR Driver Output	: Maximum 30mA, Maximum 15V
Temperature Display	: 8 mm Red 4 digit LED Display
Humidity Display	: P (Green), % (Green), °C (Red), °F (Red), Alarm (Red), Humidifier Output (Red), Egg tray rotator Output (Red) Heating Output (Red).
LED Displays	: P (Green), % (Green), °C (Red), °F (Red), Alarm (Red), Humidifier Output (Red), Egg tray rotator Output (Red) Heating Output (Red).
Internal Buzzer	: ≥83dB
Approvals	: CE EAC

10. Other Informations

ESM-3722 (77x35 DIN Size)	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	E Heating Output	1 Relay Output (5 A@250 V ~, at Resistive Load 1NC, 1 NO) 2 SSR Drive Output (Maximum 30mA, Maximum 15V)
A Power Supply Voltage	1 24V~ (±15%) 50/60Hz - 1.5VA 2 24V~ (±15%) 50/60Hz - 1.5VA 3 115V~ (±15%) 50/60Hz - 1.5VA 4 230V~ (±15%) 50/60Hz - 1.5VA 5 10 - 30 V = 1.5W	F Humidifier Output	01 Relay Output (3A@250 V ~, at Resistive Load, 1 NO)
B Temperature Sensor Input	1 PT 100, IEC751 (ITS90) 0°C/32°F : 100°C/212°F 2 PTC (Not-1) 0°C/32°F : 100°C/212°F 3 NTC (Not-1) 0°C/32°F : 100°C/212°F 4 0/2...10Vdc Voltage Input User defined 5 0/4...20mA Current Input User defined 6 ProNem Mini PMI-P -20°C/-4°F : 80°C/176°F	H Egg Try Rotator Output	01 Relay Output (3A@250 V ~, at Resistive Load, 1 NO)
C Humidity Sensor Input	4 0/2...10Vdc Voltage Input 0% - 100% 5 0/4...20mA Current Input 0% - 100% 6 ProNem Mini PMI-P 0% - 100%	I Alarm Output	1 Relay Output (3A@250 V ~, at Resistive Load, 1 NO)
D Temp.Sensor which is given with ESM-3722	1 None 2 PTC-MEL40.K1.5 (PTC Air Probe 1.5 m silicon cable) 3 PTC-MSL30.K1.5.18 (PTC Liquid Probe with 1.5 m silicon cable) 4 NTC-MSL20.K1.5 (NTC Probe thermoplastic moulded with 1.5m cable for cooling application) 5 NTC-MEL50.K1.5 (NTC Probe stainless steel housing with 1.5m cable for cooling application) 6 ProNem Mini PMI-P (2.5m cable for Temperature and Humidity application) 9 Customer	J Temp.Sensor which is given with ESM-3722	1 None 2 PTC-MEL40.K1.5 (PTC Air Probe 1.5 m silicon cable) 3 PTC-MSL30.K1.5.18 (PTC Liquid Probe with 1.5 m silicon cable) 4 NTC-MSL20.K1.5 (NTC Probe thermoplastic moulded with 1.5m cable for cooling application) 5 NTC-MEL50.K1.5 (NTC Probe stainless steel housing with 1.5m cable for cooling application) 6 ProNem Mini PMI-P (2.5m cable for Temperature and Humidity application) 9 Customer

All order information of ESM-3722 Hatcher Controller are given on the table at above. 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 (B = 2, 3), 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.

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

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EMKO

ESM-3722 77x35 DIN Size Hatcher Controller



ESM-3722 77 x 35 DIN Size Digital Hatcher Controller

- 4 Digits for Temperature Display
- 4 Digits for Humidity Display
- Temperature Sensor Input NTC, PTC, PT-100, 0/2...10V, 0/4...20mA or ProNem Mini PMI-P (Must be determined in order.)
- Humidity Sensor Input 0/2...10V, 0/4...20mA or ProNem Mini PMI-P (Must be determined in order.)
- 4 Output Heating Control Output Egg tray rotator Output Humidification Control Output Alarm Control Output
- Relay or SSR Outputs (Must be determined in order.)
- Selectable Temperature Control (PID or ON / OFF)
- Auto-Tune PID
- Set value boundaries
- Manual Start of tray rotator from front panel
- Alarm parameteraters
- Adjustable internal buzzer according to the alarm situations
- Password protection for programming mode,

Instruction Manual. ENG ESM-3722 01 V04 02/15

3

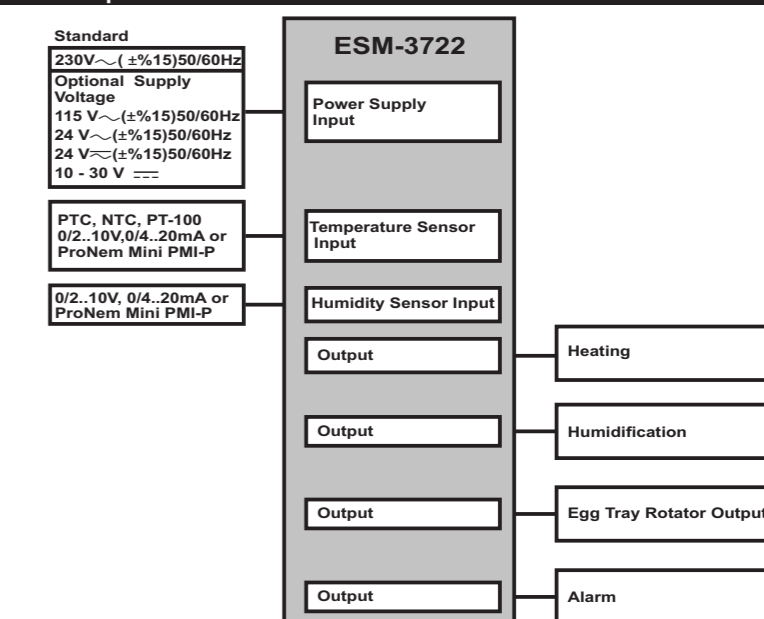
1. Preface

ESM 3722-HT series Hatcher controllers are designed for controlling hatcher process. Device can be used easily with PID or On-Off control form and manual start of egg tray rotator properties.

1.1 Environmental Ratings

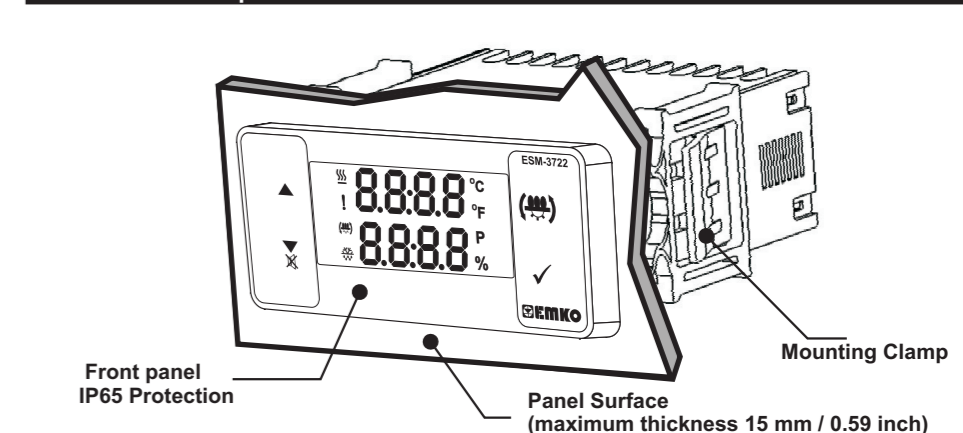
- Operating Temperature** : 0 to 50 °C
- Max. Operating Humidity** : 90% Rh (non-condensing)
- Altitude** : Up to 2000 m.
- Forbidden Conditions:** Corrosive atmosphere Explosive atmosphere Home applications (The unit is only for industrial applications)

1.2. General Specifications

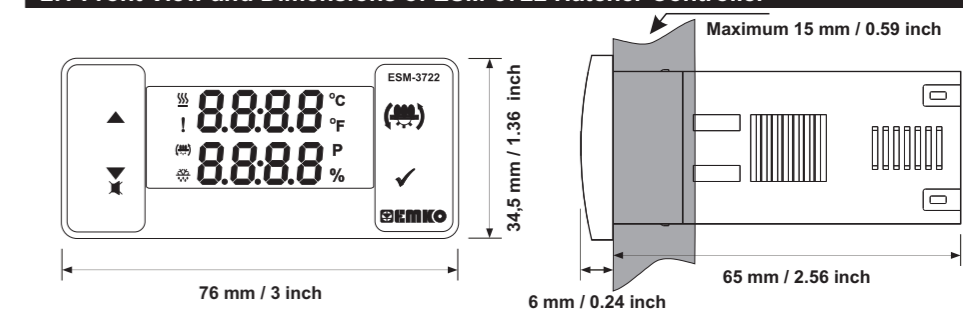


2

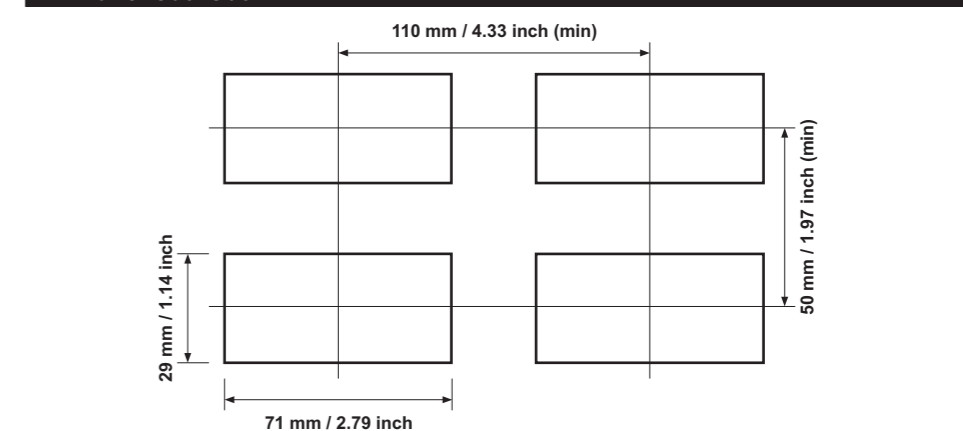
2. General Description



2.1 Front View and Dimensions of ESM-3722 Hatcher Controller

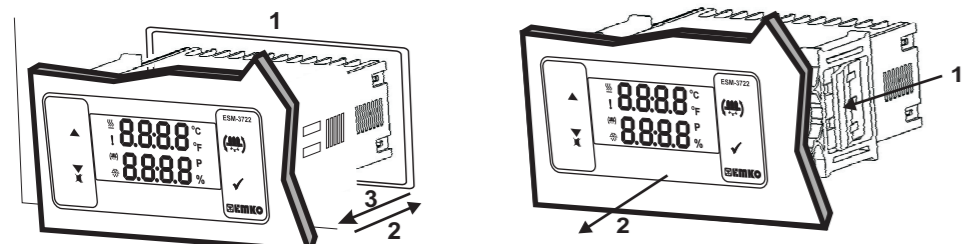


2.2 Panel Cut-Out



4

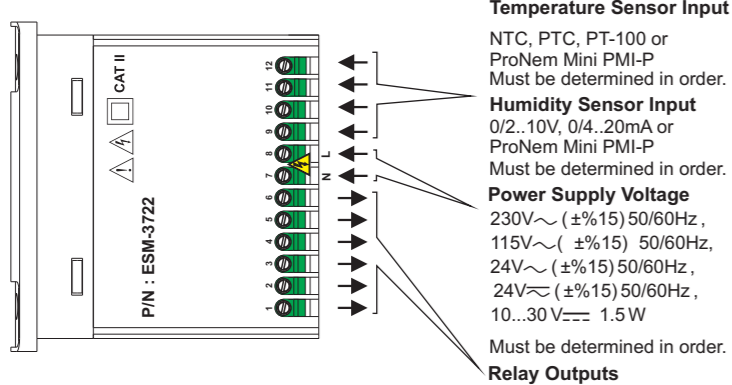
2.3 Panel Mounting and Removing



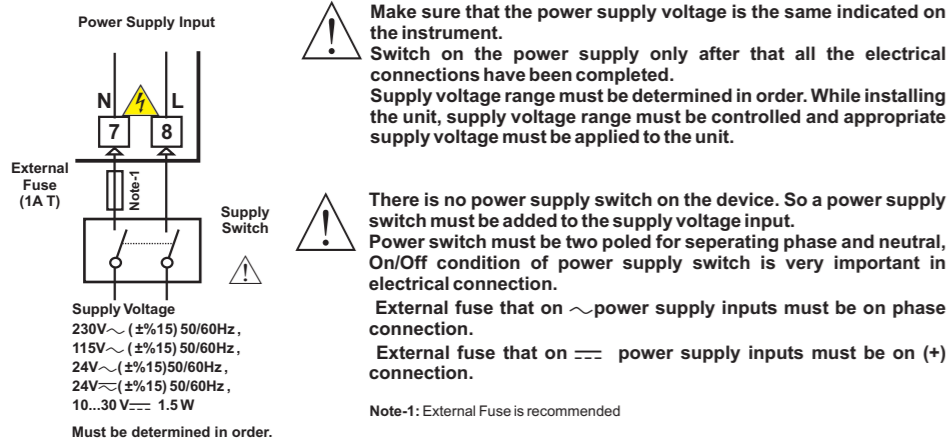
- 1-Before mounting the device in your panel, make sure that the cut-out is of the right size.
- 2-Insert the device through the cut-out, if the mounting clamps are on the unit, put them out them before inserting the unit to the panel.
- 3-Insert the mounting clamps to the fixing sockets that located left and right sides of device and make the unit completely immobile within the panel.

- 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.**

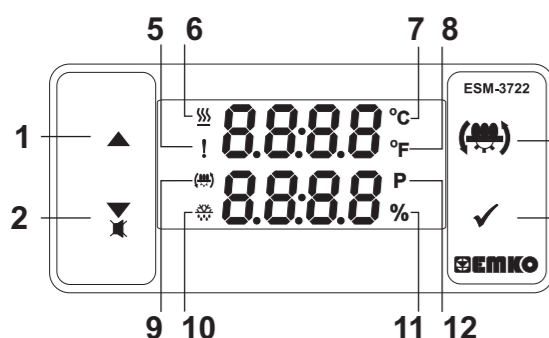
3. Electrical Wiring Diagram



3.1 Supply Voltage Input Connection of the Device



4.Front Panel Definition and Accessing to the Menus



BUTTON DEFINITIONS

- 1. Increment Button:**
** In main operation screen, press this button to change display temperature and humidity sensor value.
** It is used to increase the value in the Temperature and Humidity Set screens and Programming mode.
- 2. Decrement, Silencing Buzzer Button:**
** It is used to decrease the value in the Set screen and Programming mode.
** It is used to silence the buzzer.
- 3. Manual Start of Egg Tray Rotator Operation Button:**
**In the main operation screen, if this button pressed engine starts. When the button is released the engine start will be passive and engine stops.
- 4. Set Button:**
** In the main operation screen; if this button pressed for the first time, Temperature set value will be displayed. Value can be changed using increment and decrement buttons. When Set button is pressed again, value is saved and Humidity set value will be displayed next. Value can be changed using increment and decrement buttons. When Set button pressed again, value is saved and returns back to main operation screen.
** To access the programming screen; in the main operation screen, press and hold this button for 5 seconds.
** It is used to save value in the Set screens (Temperature or Humidity) and programming screen.

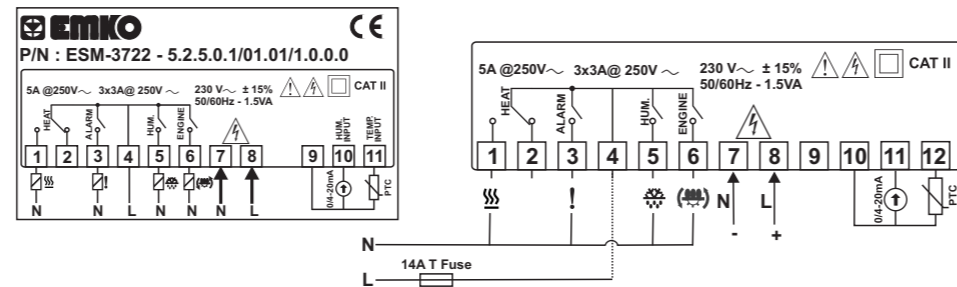
LED DEFINITIONS

- 5. Alarm led:**
** It is active when alarm statuses.
- 6. Heating Output Led:**
** This led indicates that heating output is active.
- 7. Celcius led:**
** Indicates that device is in °C mode.
- 8. Fahrenheit led:**
** Indicates that device is in °F mode.
- 9. Egg Tray Rotator Output Led:**
** This led indicates that Egg Tray Rotator Output is active.
- 10. Humidificating Output Led:**
** This led indicates that Humidity output is active.
- 11. Precent Sign led:**
** Indicates that device is in Humidity Set screen.
- 12. Program led:**
** Indicates that device is in programming mode.

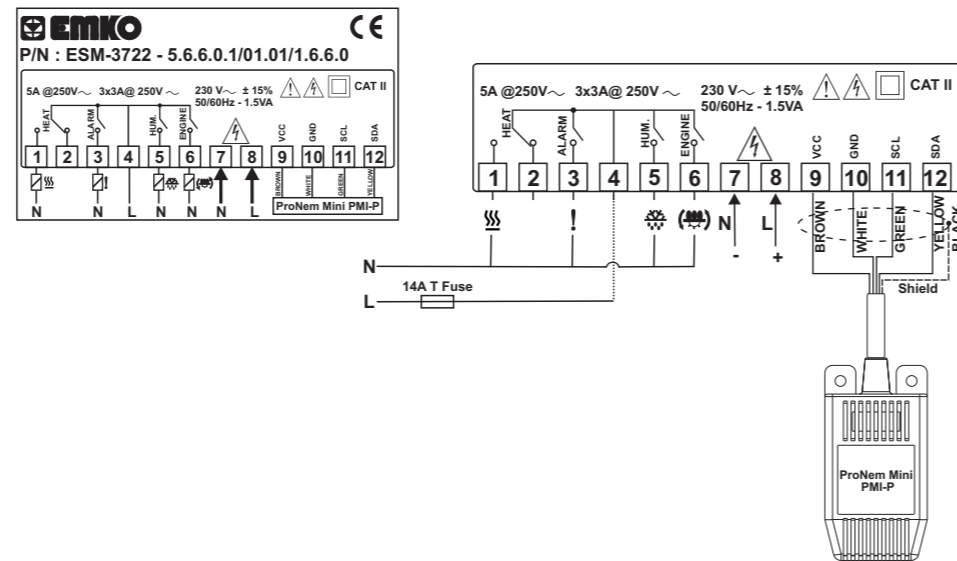
3.2 Device Label and Connection Diagram

230V~ CONNECTION DIAGRAM

PTC Temperature and 0/4..20mA Humidity Sensor Input connection

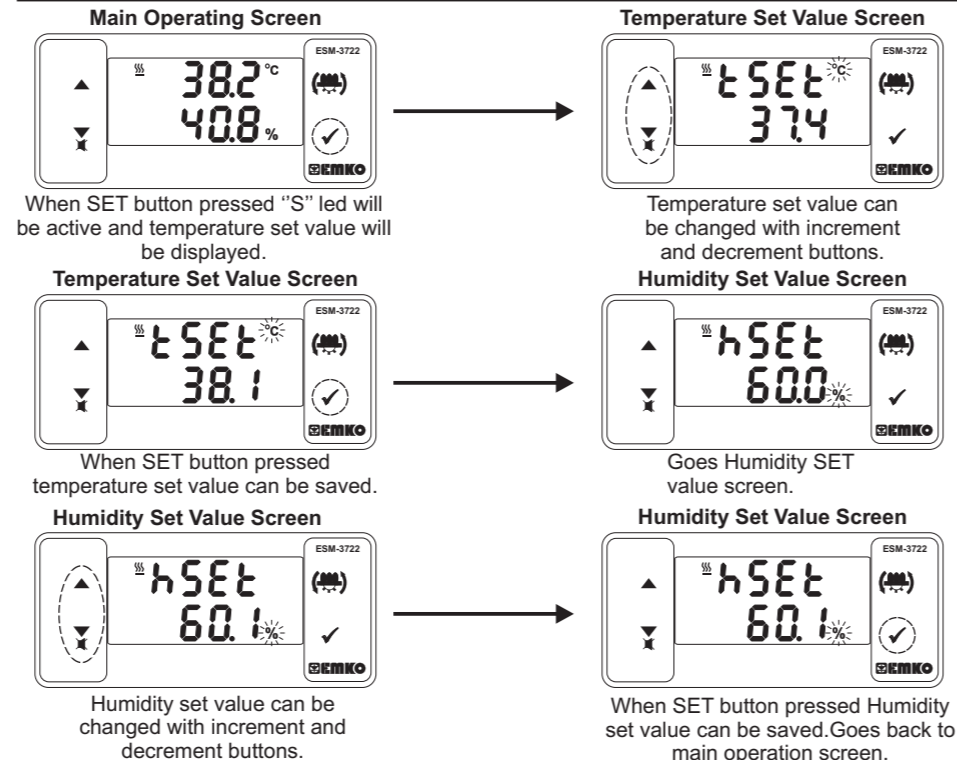


ProNem Mini PMI-P Temperature and Humidity Sensor Input Connection



Note : Shield (Black) pin must be connected to number 10 (GND) of the terminal block.

5. Changing and Saving Temperature and Humidity Set Value



Temperature set value parameter (Default = 37.4 °C)
Temperature set value, can be programmed between minimum temperature set value k_{SUL} and maximum temperature set value k_{SUH} .

Humidity set value parameter (Default = 60%)
Humidity set value, can be programmed between minimum Humidity set value k_{HSL} and maximum temperature set value k_{HSU} .

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

5.1 Programming Mode Parameter List

Temperature Unit Selection Parameter (Default = 0)

- 0 °C selected.
- 1 °F selected.

Decimal Separator Enabling Parameter (Default = 0)

- 0 None.
- 1 Only Temperature parameters with decimal separator.
- 2 Only Humidity parameters with decimal separator.
- 3 Only Temperature and Humidity parameters with decimal separator.

Note : When value of k_{C-F} or k_{Pnt} parameters are changed, the values of k_{SEt} , k_{hSt} , k_{SUL} , k_{SUH} , k_{oFt} , k_{aSt} , k_{aLh} , k_{aRH} , k_{aUL} , k_{aUH} , k_{hSt} , k_{hLh} , k_{hRH} , k_{hUL} , k_{hUH} , k_{oPt} , k_{aPt} , k_{aPh} , k_{aPL} , k_{aPH} , k_{aUL} , k_{aUH} , k_{aUL} , k_{aUH} parameters should be changed accordingly.

5.1 Programming Mode Parameter List

Note : k_{SUL} , k_{oPL} and k_{LoL} parameters are shown, if the Temperature sensor analogue input type (0/2..10V or 0/4..20mA) is selected.

Temperature Sensor Scale Selection Parameter (Default = 0)

Analogue (Temperature) input range is determined with this parameter.

- 0 0..10V $\frac{(1)}{}$ veya 0..20mA $\frac{(2)}{}$
- 1 2..10V $\frac{(1)}{}$ veya 4..20mA $\frac{(2)}{}$

Temperature Sensor Scale Low Limit Parameter (Default = 0)

It can be adjusted from -1999 to (k_{oPL} -1). At this value analogue input becomes;

- If k_{SUL} = 0, according to the device type 0V $\frac{(1)}{}$ or 0mA $\frac{(2)}{}$
- If k_{SUL} = 1, according to the device type 2V $\frac{(1)}{}$ or 4mA $\frac{(2)}{}$

Temperature Sensor Scale High Limit Parameter (Default = 100)

It can be adjusted from (k_{LoL} +1) to 9999. At this value analogue input becomes;

- According to the device type 10V $\frac{(1)}{}$ or 20mA $\frac{(2)}{}$

Note : k_{LoL} , k_{oPL} parameters are shown, if the Temperature sensor analogue input type is selected.

Temperature Control Selection Parameter On/Off or PID (Default = 0)

- 0 On - Off selected.
- 1 PID selected.

Note: If this parameter is select 0, PID parameters (k_{UL} , k_{I} , k_{D} , k_{T}) will be not observed. If this parameter select 1, k_{hSt} parameter will be not observed.

Auto Tune (Limit Cycle Tuning) Selection Parameter (Default = 0)

Device does not do (Limit cycle Tuning) operation.

- 0 Device does operation.

PID - Proportional Control Parameter (Default = 50)

This parameter value can be adjusted form 0 to 100.

PID - Integral Parameter (Default = 1000)

This parameter value can be adjusted form 0 to 3600.

PID - Derivative Parameter (Default = 250)

This parameter value can be adjusted form 0 to 3600.

PID - Period Time Parameter (Default = 1)

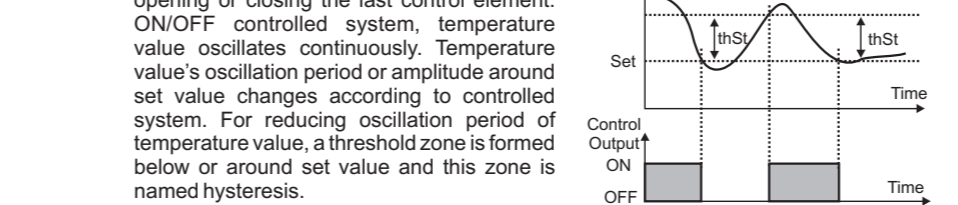
This parameter value can be adjusted form 1 to 50 second.

Hysteresis Parameter for Temperature (Default = 0.1 °C)

From 1 to 10°C for NTC, PTC, PT-100 (0°C, 100°C), From 1 to 18°F for NTC, PTC, PT-100 (0.0°C, 100.0°C), From 0.1 to 18.0°F for NTC, PTC, PT-100 (32.0°F, 212.0°F), From 0.1 to 18.0°F for ProNem Mini PMI-P (-20°C, 80°C), From 1 to 18°F for ProNem Mini PMI-P (-4°F, 176°F), From 0.1 to 10.0°C for ProNem Mini PMI-P (-20.0°C, 80.0°C), From 0.1 to 18.0°F for ProNem Mini PMI-P (-4.0°F, 176.0°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.



Alarm

Alarm Output Function Selection Parameter (Default = 0)

- 0 Alarm is inactive.
- 1 Alarm-Temperature sensor failures.
- 2 Alarm-Humidity sensor failures.
- 3 Alarm-Temperature or Temperature sensor failures.
- 4 Alarm-Humidity or Humidity sensor failures.
- 5 Alarm-Temperature sensor failures or Humidity sensor failures.
- 6 Alarm-Temperature or Humidity / Temperature sensor failures or Humidity sensor failures.

Note : if k_{oU} parameter value is 3 or 6 k_{aSt} , k_{aSL} , k_{aLh} , k_{aUL} , k_{aUH} , k_{aUL} or k_{aPd} parameters are observed.

Note : if k_{oU} parameter value is 4 or 6 k_{aSt} , k_{aSL} , k_{aLh} , k_{aUL} , k_{aUH} , k_{aUL} or k_{aPd} parameters are observed.

Temperature Alarm Function Selection Parameter (Default = 0)

- 0 Process High alarm selected.
- 1 Process Low alarm selected.
- 2 Deviation Band alarm selected.
- 3 Deviation Range alarm selected.

Temperature Alarm Set Parameter (Default = 50.0 °C)

This parameter value can be programmed between temperature minimum alarm set k_{aUL} parameter and temperature alarm set maximum k_{aUH} parameter.

Temperature Alarm Hysteresis Parameter (Default = 0)

This parameter value can be adjusted form 0 to %50 of the device scale.

Alarm Set Minimum Parameter (Default = Minimum Value of Device Scale)

If temperature alarm is active, this parameter value can be adjusted from minimum value of device scale to temperature alarm set maximum parameter value. k_{aUL}

Alarm Set Maximum Parameter (Default = Maximum Value of Device Scale)

If temperature alarm is active, this parameter value can be adjusted from temperature alarm set value parameter k_{aUH} to maximum value of the device scale.

Temperature Alarm On Delay Time Parameter (Default = 0)

Temperature Alarm On Delay Time can be defined with this parameter. It can be adjusted from 0 to 99 minutes.

Temperature 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 temperature alarm. It can be adjusted from 0 to 99 minutes.

Humidity Alarm Function Selection Parameter (Default = 0)

- 0 Process High alarm selected.
- 1 Process Low alarm selected.
- 2 Deviation Band alarm selected.
- 3 Deviation Range alarm selected.

Humidity Alarm Set Parameter (Default = 50)

This parameter value can be programmed between humidity minimum alarm set k_{aUL} parameter and humidity alarm set maximum k_{aUH} parameter.

k_{SUL} Minimum Temperature Set Value Parameter (Default = 10.0°C)

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 k_{SUH}

k_{SUH} Maximum Temperature Set Value Parameter (Default = 40.0 °C)

Temperature set value can not be greater than this value. This parameter value can be adjusted from minimum temperature set value parameter k_{SUL} to maximum value of the device scale.

k_{oFt} Temperature Sensor Offset Parameter (Default = 0)

From -10 to 10°C, NTC, PTC, PT-100 (0°C, 100°C)
From -18 to 18°F, NTC, PTC, PT-100 (32°F, 212°F)
From -10.0 to 10.0°C, NTC, PTC, PT-100 (0.0°C, 100.0°C)
From -18.0 to 18.0°F, NTC, PTC, PT-100 (32.0°F, 212.0°F)
From -10 to 10°C, ProNem Mini PMI-P (-20°C, 80°C)
From -18 to 18°F, ProNem Mini PMI-P (-4°F, 176°F)
From -10.0 to 10.0°C, ProNem Mini PMI-P (-20.0°C, 80.0°C)
From -18.0 to 18.0°F, ProNem Mini PMI-P (-4.0°F, 176.0°F)

k_{SSL} Humidity Sensor Scale Selection Parameter (Default = 0)

Analogue input range is determined with this parameter.

- 0 0..10V $\frac{(1)}{}$ or 0..20mA $\frac{(2)}{}$
- 1 2..10V $\frac{(1)}{}$ or 4..20mA $\frac{(2)}{}$

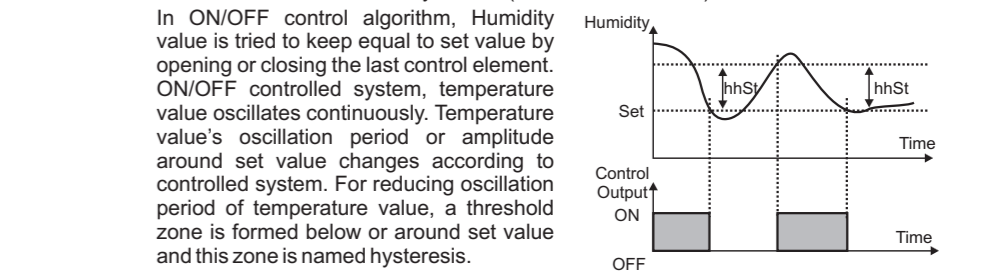
Note : k_{SSL} parameter ProNem Mini PMI-P type device are not observed.

(1) It is valid, if the device type 0/2..10V== Humidity Sensor Input.

(2) It is valid, if the device type 0/4..20mA== Humidity Sensor Input.

k_{hSt} Hysteresis Parameter for Humidity (Default = 1)

From 1 to 10 for Humidity Sensor (0%RH, 100%RH)
From 0.1 to 10.0 for Humidity Sensor (0.0%RH, 100.0%RH)



k_{SUL} Minimum Humidity Set Value Parameter (Default = Minimum Value of Device Scale)

Humidity set value can not be lower than this value. This parameter value can be adjusted from minimum value of device scale to maximum Humidity set value parameter k_{SUH}

k_{SUH} Maximum Humidity Set Value Parameter (Default = Maximum Value of Device Scale)

Humidity set value can not be greater than this value. This parameter value can be adjusted from minimum humidity set value parameter k_{SUL} to maximum value of the device scale.

k_{oFt} Humidity Sensor Offset Parameter (Default = 0.0)

From -10 to 10 for Humidity Sensor (0%RH, 100%RH)
From -10.0 to 10.0 for Humidity Sensor (0.0%RH, 100.0%RH)

k_{aSt} Time of Automatic Egg Tray Rotator (Default = 00:00)

This parameter value can be adjusted form 00:00 to 99:00 minute/second.

k_{aPd} Repeat cycle of Automatic Egg Tray Rotator (Default = 00:00)

This parameter value can be adjusted form 00:00 to 24:00 hour/minute.

k_{aLh} Humidity Alarm Hysteresis Parameter (Default = 0)

This parameter value can be adjusted form 0 to %50 of the device scale.

k_{aUL} Humidity Alarm Set Minimum Parameter (Default = Minimum Value of Device Scale)

If humidity alarm is active, this parameter value can be adjusted from minimum value of device scale to humidity alarm set maximum parameter value. k_{aUH}

k_{aUH} Humidity Alarm Set Maximum Parameter (Default = Maximum Value of Device Scale)

If humidity alarm is active, this parameter value can be adjusted from minimum parameter k_{aUL} to maximum value of the device scale.

k_{aDl} Humidity Alarm On Delay Time Parameter (Default = 0)

Humidity Alarm On Delay Time can be defined with this parameter. It can be adjusted from 0 to 99 minutes.

k_{aPd} Humidity 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 Humidity alarm. It can be adjusted from 0 to 99 minutes.

k_{bUF} Buzzer Function Selection Parameter (Default = 0)

- 0 Buzzer is inactive.
- 1 Buzzer is active during temperature alarm
- 2 Buzzer is active during humidity alarm
- 3 Buzzer is active during Temperature sensor failures.
- 4 Buzzer is active during Humidity sensor failures.
- 5 Buzzer is active during Temperature sensor failures or temperature alarm.
- 6 Buzzer is active during Humidity sensor failures or Humidity alarm.
- 7 Buzzer is active during Temperature sensor failures or Humidity sensor failures
- 8 Buzzer is active during Temperature sensor failures or Humidity sensor failures or temperature alarm or humidity alarm.

k_{bon} Buzzer Active Time (Default = ---)

If buzzer function selection parameter value k_{bUF} = 0, this parameter is not observed. Buzzer active time can be define with this parameter. 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.

k_{Prt} Button Protection Parameter (Default = 0)

- 0 There is no protection.
- 1 Temperature set value can not be changed.
- 2 Humidity set value can not be changed.
- 3 Manual engine start is not available.
- 4 Humidity set value and Temperature set value can not be changed
- 5 Humidity set value can not be change and Manual engine start is not available.
- 6 Temperature set value can not be change and Manual engine start is not available.
- 7 Temperature set value and Humidity set value can not be changed. Also Manual engine start is not available.

k_{PAS} Programming Mode Accessing Password (Default = 0)

It is used for accessing to programming mode. It can be adjusted from 0 to 9999. If it is 0, password is not entered for accessing to the parameters. When the password screen is not set as "12", If the user enters "12" in password screen k_{hSt} and k_{hSL} parameters are accessed and they can be changed.