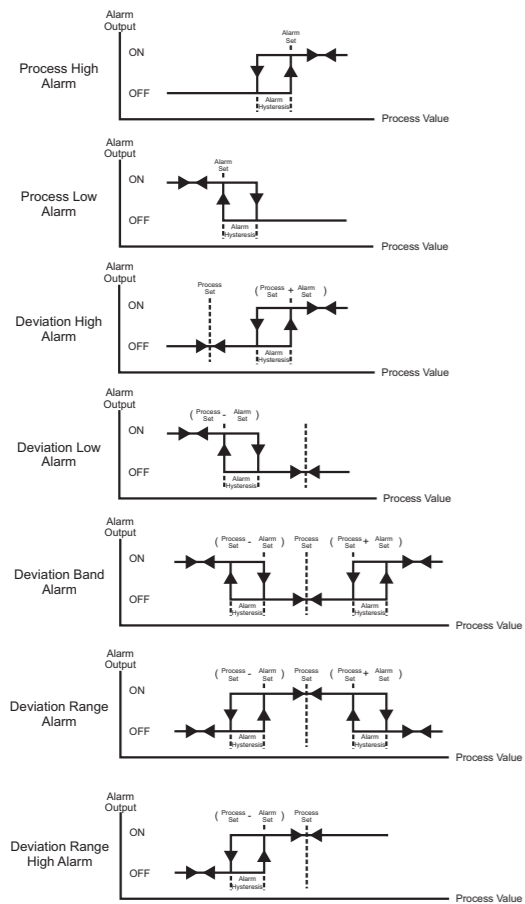


**6.5 Alarm Types**



**7. Specifications**

**Device Type** : Temperature 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** : -30 °C to +80 °C / -20 °C to +70 °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, TC, RTD  
**NTC input type** : NTC (10 kΩ @25 °C)  
**PTC input type** : PTC (1000 Ω @25 °C)  
**Thermocouple input type** : J, K (IEC584.1) (ITS 90)  
**Thermoresistance input type** : PT-100, PT-1000 (IEC751) (ITS 90)  
**Accuracy** : ± 1 % of full scale for thermoresistance  
**Cold Junction Compensation** : Automatically ± 0.1°C / ± 1°C  
**Sensor Break Protection** : Upscale  
**Sampling Cycle** : 3 samples per second  
**Control Form** : PID or ON / OFF  
**Relay Output** : 16(8) A@250 V~ for Resistive load (Compressor Output) (Electrical life : 100.000 switching at full load)  
 : 5 A@250 V~ for Resistive load (Alarm Output)  
**Optional SSR Drive Output** : Maximum 20mA, Maximum 15V---  
**Display** : 14 mm Red 4 digits LED Display  
**LED** : S (Green), P (Green), °C (Yellow), °F (Yellow), Compressor Output (Red), Heating Output (Red)  
**Internal Buzzer** : >83dB  
**Approvals** : EAC, CE

**8. Ordering Information**

ESM-3720 (77x35 DIN Sizes)	A	B	C	D	E	/	F	G	H	I	/	U	V	W	Z
		0	/	01	00	/	1	0	0						
<b>A Supply Voltage</b>															
2	24V~ (±%15) 50/60Hz - 1.5VA														
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 ---														
<b>BC Input Type</b>	<b>Scale(°C)</b>														
05	J ,Fe CuNi IEC584.1(ITS90) 0°C/32°F ; 800°C/1472°F														
10	K ,NiCr Ni IEC584.1(ITS90) 0°C/32°F ; 999°C/1830°F														
11	PT 100, IEC751(ITS90) -50°C/-58°F ; 400°C/752°F														
09	PT 100, IEC751(ITS90) -19.9°C/-4°F ; 99.9°C/212°F														
14	PT 1000, IEC751(ITS90) -50°C/-58°F ; 400°C/752°F														
13	PT 1000, IEC751(ITS90) -19.9°C/-4°F ; 99.9°C/212°F														
12	PTC (Not-1) -50°C/-58°F ; 150°C/302°F														
18	NTC (Not-1) -50°C/-58°F ; 100°C/212°F														
<b>E Control Output</b>															
1	Relay Output (16(8) A@250 V~ at resistive Load, 1 NO )														
2	SSR Driver Output (Maximum 20m, Maximum 17V--- )														
<b>FG Alarm Output</b>															
01	Relay Output (5 A@250 V~ at resistive Load, 1 NO )														
<b>V Temp. Sensor which is given with ESM-3720</b>															
0	None														
1	PTC-M6L40.K1.5 (PTC Air Probe 1.5 mt Silicon Cable)														
2	PTCS-M6L30.K1.5.1/8" (PTC Liquid Probe 1.5 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-3720 Temperature 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 (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.**

**9. 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

**EMKO** Temperature Controller

**ESM-3720 77 x 35 DIN Size Digital Temperature Controller**

- 4 Digits Display
- NTC Input or PTC Input or J Type thermocouple Input or, K Type thermocouple Input or, 2-Wire PT-100 Input or, 2-Wire PT-1000 Input (Must be determined in order.)
- Adjustable temperature offset
- PID or ON/OFF temperature control
- Selectable heating or cooling function
- Selection of operation with hysteresis
- Adjustable temperature offset
- Set value low limit and set value high limit boundaries
- Operation selection of compressor operates continuously, stops or operates periodically in case of sensor defect
- Compressor protection delays
- Alarm parameters
- Adjustable internal buzzer according to sensor defect status.
- 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-3720 01 V03 11/17

**1. Preface**

ESM-3720 series temperature controllers are designed for measuring and controlling temperature. They can be used in many applications with their On / Off control form, heating and cooling control form and easy-use properties. Some application fields which they are used are below:

Application Fields	Applications
Glass	Heating
Food	Baking Ovens
Plastic	Incubators
Petro-Chemistry	Storages
Textile,	Automotive Air Conditioning
Machine Production Industries Etc...	Etc...

**1.1 Environmental Ratings**

- Operating Temperature : -20 to 70 °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**

**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 result 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.

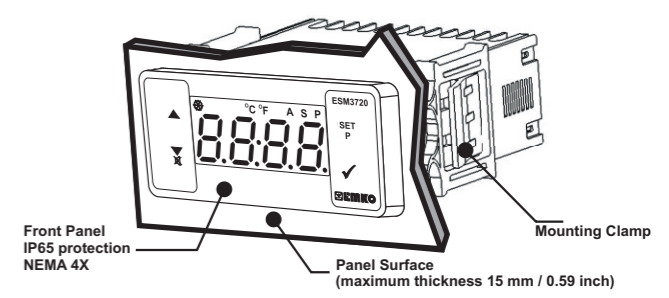
**1.5 Maintenance**

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.

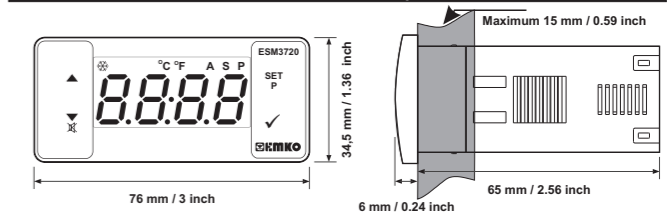
**1.6 Manufacturer Company**

**Manufacturer 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

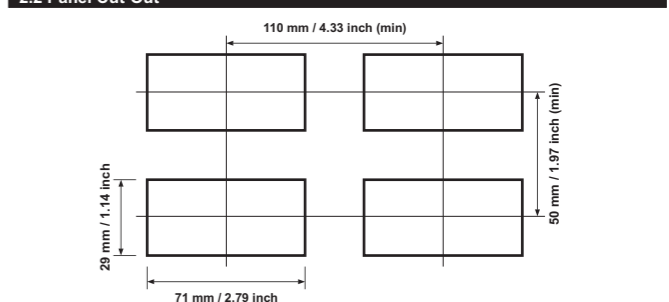
**2. General Description**



**2.1 Front View and Dimensions of ESM-3720 Temperature Controller**



**2.2 Panel Cut-Out**



**EMKO** 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](http://www.emkoelektronik.com.tr)

