

Process Menu Parameters

55.2: 2nd Set value. As long as digital input of the device is active, 2nd set value is used as process set value. If digital input is passive, device use previous set value as process set value. (Default: 100) Modbus Address: 40004

P.1: Process input type selection; (Default: 0) Modbus Address: 40004

G: J type (Fe,Cu,Ni) Thermocouple, -199°C, 900°C; -199°F, 999°F
J: J type (Fe,Cu,Ni) Thermocouple, -19.9°C, 99.9°C; -19.9°F, 99.9°F
K: K type (Ni,Cr,Ni) Thermocouple, -199°C, 999°C; -199°F, 999°F
K: K type (Ni,Cr,Ni) Thermocouple, -19.9°C, 99.9°C; -19.9°F, 99.9°F
R: R type (Pt13%RhPt) Thermocouple, 0°C, 999°C; 32°F, 999°F
S: R type (Pt13%RhPt) Thermocouple, 0.0°C, 99.9°C; 32.0°F, 99.9°F
S: S type (Pt10%RhPt) Thermocouple, 0°C, 999°C; 32°F, 999°F
T: S type (Pt10%RhPt) Thermocouple, 0.0°C, 99.9°C; 32.0°F, 99.9°F
T: T type (Cu,Cu,Ni) Thermocouple, -199°C, 400°C; -199°F, 752°F
T: T type (Cu,Cu,Ni) Thermocouple, -19.9°C, 99.9°C; -19.9°F, 99.9°F
L: L type (Ni,Cr,Co / Ni,Fe,Mn,Cu) Thermocouple, -150°C, 800°C; -199°F, 999°F
L: L type (Ni,Cr,Co / Ni,Fe,Mn,Cu) Thermocouple, -19.9°C, 99.9°C; -19.9°F, 99.9°F
Cu-50: -199°C, 200°C; -199°F, 392°F
Cu-50: -19.9°C, 99.9°C; -19.9°F, 99.9°F
Pt-100: -199°C, 650°C; -199°F, 999°F
Pt-100: -19.9°C, 99.9°C; -19.9°F, 99.9°F

Unit Selection, **0** or **0** can be chosen. (Default: **0**) Modbus Address: 40006
Operation Scale minimum (Low Limit) value. It changes according to the process input type and scale. (Default: -199) Modbus Address: 40007

Operation Scale maximum (High Limit) value. It changes according to the process input type and scale. (Default: 900) Modbus Address: 40008
Process Set value Low Limit. Minimum set value is defined with this parameter. It can be adjusted between Operation Scale minimum and maximum (**P.L.0** - **P.U.P**) values. (Default: -199) Modbus Address: 40009

Process Set value High Limit. Maximum set value is defined with this parameter. It can be adjusted between Operation Scale minimum and maximum (**P.L.0** - **P.U.P**) values. (Default: 900) Modbus Address: 40010

Display offset for process value. It can be adjusted from -10% of scale to 10% of scale. It is added to the process display value. (Default: 0) Modbus Address: 40011
Define filter time(sec) for displayed value. (Default: 1.0) Modbus Address: 40012

Control Menu Parameters

55.1: This parameter determines, which output will be Process control output. If **1** is chosen, process output is relay output, if **55.1** is chosen, process output is SSR output. (Default: **55.1**) Modbus Address: 40017

Process Type Selection. It can be **HE** (Heating) or **CO** (Cooling). (Default: **HE**) Modbus Address: 40018

Process Control Type Selection. It can be **0** or **1**. (Default: **0**) Modbus Address: 40019

Hysteresis value. It can be adjusted from %0 to %50 of the Scale (**P.U.P** - **P.L.0**). If **55.1** is chosen, then this parameter can be seen. (Default: 3) Modbus Address: 40020
Sensor Break Output Value. It can be adjusted from %0 to %100. (Default: 0.0) Modbus Address: 40021

55.0: The choice of displayed text on process value display when sensor is broken. It can be **55.0** or **55.0**. (Default: **55.0**) Modbus Address: 40022

Soft Start Set value. Device operates in Soft Start mode, until the temperature reaches Soft Start set value. If **0** is selected, Soft Start mode is disabled. (Default: **0**) Modbus Address: 40023

Soft Start Control Output. This parameter determines soft start mode control output percentage. It can be adjusted from %10 to %90. (Default: 10.0) Modbus Address: 40024

Soft Start Control Time. This parameter determines soft start mode control time. (Default: 1.0) Modbus Address: 40025

PID Menu Parameters

PID menu parameters can be seen only if **55.1** parameter is **1**.
55.1: If time parameter is set to **55.1** or **55.1**, device start to calculate PID parameters automatically. (Default: **0**) Modbus Address: 40029

Proportional band. It can be adjusted from %1.0 to %100.0. (Default: 10.0) Modbus Address: 40030

Integral Time. It can be adjusted from 0 to 3600 second. (Default: 100) Modbus Address: 40031

Derivative Time. It can be adjusted from 0.0 to 999.9 second. (Default: 25.0) Modbus Address: 40032

Output Control Period. It can be adjusted from 0.5 to 150 second. (Default: 1.0) Modbus Address: 40033

Set value offset. (Set +50%) is used as set value in PID calculations. This parameter is used for shifting the proportional band. It can be adjusted from (-P.U.P/2) to (P.U.P/2). (Default: 0) Modbus Address: 40034

Alarm-1 Menu Parameters

55.1: Alarm-1 set value. (Default: 300) Modbus Address: 40038

Alarm-1 hysteresis value. It can be adjusted from %0 to %50 of the scale (**P.U.P** - **P.L.0**). (Default: 0) Modbus Address: 40039

Alarm-1 type selection. (Default: **PH**, **R**) Modbus Address: 40040

Alarm-1 set low limit parameter. It can be adjusted from operation scale minimum to alarm-1 set high limit. (Default: 0) Modbus Address: 40041

Alarm-1 set high limit parameter. It can be adjusted from alarm-1 set low limit to operation scale minimum. (Default: 500) Modbus Address: 40042

Alarm-1 on Delay Time. It can be adjusted from 0 to 9999 seconds. (Default: 0) Modbus Address: 40043

Alarm-1 off Delay Time. It can be adjusted from 0 to 9998 seconds. If it is higher than 9998, **1** is seen on the screen and alarm latching output is selected. In alarm latching output mode in order to make passive alarm outputs, press enter button at main screen. (Default: 0) Modbus Address: 40044

Alarm-2 Menu Parameters (Only for devices with two relays)

Alarm-2 menu parameters can be seen only if **out** parameter is **55.1**.

55.2: Alarm-2 set value. (Default: 400) Modbus Address: 40048

Alarm-2 hysteresis value. It can be adjusted from %0 to %50 of the Scale (**P.U.P** - **P.L.0**). (Default: 0) Modbus Address: 40049

Alarm-2 type selection. (Default: **PH**, **R**) Modbus Address: 40050

Alarm-2 set low limit parameter. It can be adjusted from operation scale minimum to alarm-2 set high limit. (Default: 0) Modbus Address: 40051

Alarm-2 set high limit parameter. It can be adjusted from alarm-2 set low limit to operation scale maximum. (Default: 500) Modbus Address: 40052

Alarm-2 on delay time. It can be adjusted from 0 to 9999 seconds. (Default: 0) Modbus Address: 40053

Alarm-2 off delay time. It can be adjusted from 0 to 9998 seconds. If it is higher than 9998, **1** is seen on the screen and Alarm Latching Output is selected. In alarm latching output mode in order to make passive alarm outputs, press enter button at main screen. (Default: 0) Modbus Address: 40054

Communication Parameters (Only for devices with RS-485 com.)

Address: Communication accessing address of device. (Default: 1) Modbus Address: 40058

Baud Rate. (Default: 3) Modbus Address: 40059

1200 Baud Rate.
2400 Baud Rate.
4800 Baud Rate.
9600 Baud Rate.
19200 Baud Rate.
38400 Baud Rate.

Parity Selection for Communication. (Default: 0) Modbus Address: 40060

No Parity.
Odd Parity.
Even Parity.

Stop Bit Selection for Communication. (Default: 0) Modbus Address: 40061

1 Stop Bit.
2 Stop Bit.

Protection Menu Parameters

55.1: Password for accessing to the programming section. It can be adjusted from 0 to 9999. If **55.1** is 0, password screen is not seen. If **55.1** is different from 0 and user enters to the menu pages without entering the password, all the menus can be observed except protection menu **55.1**. But device does not allow to do any changes in parameters. (Default: 0) Modbus Address: 40065

User default parameters. This parameter is used for saving all parameters to restore later or restore all parameters saved before. If **55.1** is chosen, all parameters saved before are restored. If **55.1** is chosen, all parameters saved to restore later. If **0** is chosen, nothing is changed. (Default: **no**) Modbus Address: 40066

Factory defaults. This parameter is used for restore factory defaults. If **55.1** is chosen, factory defaults parameters restored. If **0** is chosen, nothing is changed. (Default: **no**) Modbus Address: 40067

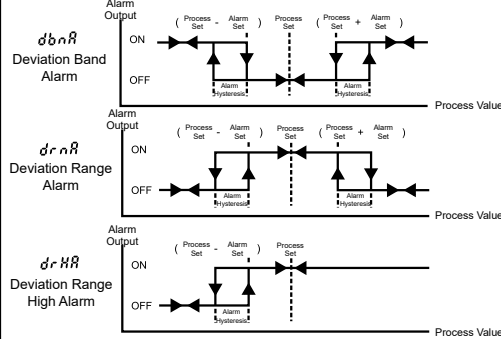
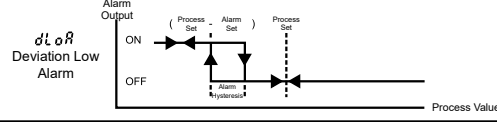
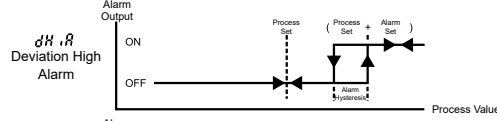
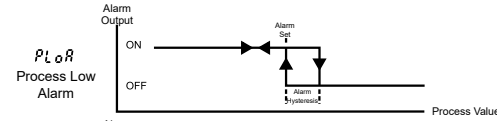
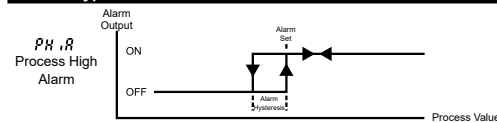
Remove all input/output connections on terminals before restoring parameters to user/factory defaults.

Modbus Addresses of Device Operation Info. (Read Input Register)

Modbus Address: 30000 Displayed Temperature Value
 Modbus Address: 30001 Status of LEDs: bit.1 **ALR1**, bit.2 **ALR2**, bit.9 **FC**, bit.10 **FF**, bit.11 **P02**, bit.12 **P01**

Modbus Address: 30002 Status of Device: bit.0 Sensor Break Status

Alarm Types



Error Messages

55.1: 1-Sensor failure in analog inputs. Sensor connection is wrong or there is no sensor connection.

55.2: 2-If programming section entering password is different from "0" and user accesses to the parameter by enter button without entering the password and wants to change a parameter, the warning message is shown on the bottom display as shown on the left. Device does not allow to do any changes without entering the password correctly.

55.3: 3-If value that is read from the analog input is lower than process set low limit parameter value (**P.L.0**), value on the top display starts to blink as shown on the picture.

55.4: 4-If value that is read from the analog input is higher than process set high limit parameter value (**P.U.P**), value on the top display starts to blink as shown on the picture.

55.5: 5-If value that is read from the analog input is lower than sensor scale low limit, value on the top display starts to blink as shown on the picture.

55.6: 6-If value that is read from the analog input is higher than sensor scale high limit, value on the top display starts to blink as shown on the picture.

55.7: 7-If value that is read from the analog input is lower than process set low limit parameter value (**P.L.0**), value on the top display starts to blink as shown on the picture.

55.8: 8-If value that is read from the analog input is higher than process set high limit parameter value (**P.U.P**), value on the top display starts to blink as shown on the picture.

55.9: 9-If value that is read from the analog input is lower than sensor scale low limit, value on the top display starts to blink as shown on the picture.

55.10: 10-If value that is read from the analog input is higher than sensor scale high limit, value on the top display starts to blink as shown on the picture.

Installation

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

In package,
 -One piece unit
 -Two pieces mounting clamp
 -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 the electrical connection of the device from the system.

The unit is normally supplied without a power 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 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 mounting clamp. Do not do the montage of the device with inappropriate mounting 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.

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.

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.

Other Informations

Manufacturer Information:

Emko Elektronik Sanayi ve Ticaret A.Ş.
 Bursa Organize Sanayi Bölgesi, (Fethiye OSB Mah.)
 Ali Osman Sönmez Bulvarı, 2.Sokak, No:3 16215 BURSA/TÜRKİYE
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Repair and Maintenance Service Information:

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 Phone : +90 224 261 1900
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Ordering Information

Eco HR (48x48 DIN 1/16)	A	B	C	D	E
4	.	.	.	S	.

A Dimension
4 48x48 DIN 1/16

B Supply Voltage
1 100-240V~ 50/60Hz - 4VA
2 24V~ (±%15) 50/60Hz - 4VA
3 115V~ (±%15) 50/60Hz - 4VA
5 230V~ (±%15) 50/60Hz - 4VA
6 10...30V~ - 4W
7 24V~ (±%15) 50/60Hz - 4VA
9 Customer Specified

C Outputs-1
0R Not
1R 1 x Relay Output (5A@250V~ at Resistive Load) (NO,C)
2R 2 x Relay Output (5A@250V~ at Resistive Load) (NO,NO,C)

D Outputs-2
S SSR Driver Output (Max. 10mA, Max. 12V~)

E Communication
0 None
485 RS-485 Communication
DI 220V~ Digital Input

E Communication
0 None
485 RS-485 Communication
DI 220V~ Digital Input

E Communication
0 None
485 RS-485 Communication
DI 220V~ Digital Input

Before commissioning the device, parameters must be set in accordance with desired use. Incomplete or incorrect configuration can cause dangerous situations.

Because of limited mechanical life of relay output contact, SSR output is recommended which the device use PID control algorithm. The device with ON/OFF control algorithm, hysteresis parameter must be set a suitable value for your system, to avoid too much relay switching.

~ ~ ~ ~ ~ Vac,
 ~ ~ ~ ~ ~ Vdc,
 ~ ~ ~ ~ ~ Vdc or Vac can be applied

~ ~ ~ ~ ~ Vac,
 ~ ~ ~ ~ ~ Vdc,
 ~ ~ ~ ~ ~ Vdc or Vac can be applied

~ ~ ~ ~ ~ Vac,
 ~ ~ ~ ~ ~ Vdc,
 ~ ~ ~ ~ ~ Vdc or Vac can be applied

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