

### PinP Conf: Process Input Type and Relevant Parameters

<b>055L</b>	<b>Process Input Type</b>
0000	TC input type selection
0001	RTD input type selection
0002	===Voltage / Current input type selection.
<b>E.C.S.L</b>	<b>TC Input Selection</b>
This parameter is active if TC input type is selected.	
0000	L (-100°C;850°C) or (-148°F;1562°F)
0001	L (-100.0°C;850.0°C) or (-148.0°F;999.9°F)
0002	J (-200°C;900°C) or (-328°F;1652°F)
0003	J (-199.9°C;900.0°C) or (-199.9°F;999.9°F)
0004	K (-200°C;1300°C) or (-328°F;2372°F)
0005	K (-199.9°C;999.9°C) or (-199.9°F;999.9°F)
0006	R (0°C;1700°C) or (32°F;3092°F)
0007	R (0.0°C;999.9°C) or (32.0°F;999.9°F)
0008	S (0°C;1700°C) or (32°F;3092°F)
0009	S (0.0°C;999.9°C) or (32.0°F;999.9°F)
0010	T (-200°C;400°C) or (-328°F;752°F)
0011	T (-199.9°C;400.0°C) or (-199.9°F;752.0°F)

0012	B (44°C;1800°C) or (111°F;3272°F)
0013	B (44.0°C;999.9°C) or (111.0°F ; 999.9°F)
0014	E (-150°C;700°C) or (-238°F;1292°F)
0015	E (-150.0°C;700.0°C) or (-199.9°F;999.9°F)
0016	N (-200°C;1300°C) or (-328°F;2372°F)
0017	N (-199.9°C;999.9°C) or (-199.9°F;999.9°F)
0018	C (0°C;2300°C) or (32°F;3261°F)
0019	C (0.0°C;999.9°C) or (32.0°F;999.9°F)
<b>r.t.d.S</b>	<b>RTD Input Selection</b>
This parameter is active if RTD input is selected.	
0000	PT-100 (-200°C ; 650°C) or (-328°F ; 1202°F)
0001	PT-100 (-199.9°C ; 650.0°C) or (-199.9°F ; 999.9°F)
<b>u.v.s.L</b>	<b>===voltage / Current Input Selection</b>
This parameter is active if ===Voltage / Current is selected.	
0000	0...50mV === (-1999 ; 9999)
0001	0...5V === (-1999 ; 9999)
0002	0...10V === (-1999 ; 9999)
0003	0...20mA === (-1999 ; 9999)
0004	4...20mA === (-1999 ; 9999)

### Display Point Position

This parameter is active if ===Voltage/Current input is selected.

- 0000 No point
- 0001 Between first and second digits "0.0"
- 0002 Between second and third digits "0.00"
- 0003 Between third and fourth digits "0.000"

### Display Value Adjustment Type

This parameter is active if ===Voltage/Current input is selected.

- 0000 Fixed dual point display adjustment. Display adjustment low point value is fixed to -1999, display adjustment high point value is fixed to 9999.
- 0001 User can do dual point display adjustment with tPoL and tPoH.
- 0002 User can do defined 16 display adjustment points.

### Low Point Display adjustment (-1999, 9999)Unit

This parameter is active if ===Voltage/Current input is selected.

### High Point Display adjustment (-1999, 9999)Unit

This parameter is active if ===Voltage/Current input is selected.

### Display adjustment points (-1999, 9999)Unit

This parameter is active if ===Voltage/Current input is selected. In multi point display adjustment operation, defined scale is divided into 16 adjustment points.

For example: **u.v.s.L** is 0000 (0-50 mV===).

### Coefficient value (1.000, 9.999)

Process value is multiplied with this value. This parameter is active if ===Voltage/Current input is selected.

### Unit selection

- 00 Unit is °C
- 01 Unit is °F
- 02 Unit is Voltage. This selection is active if ===Voltage/Current input is selected
- 0- No unit. This selection is active if ===Voltage / current input is selected

### Operating Scale Minimum Value (Scale Low Point, Scale High Point)Unit

Used for Proportional band calculation and display blink.

### Operating Scale Maximum Value (Scale Low Point, Scale High Point)Unit

Used for Proportional band calculation and display blink.

### Display offset for process value (Scale -10%, Scale +10%)Unit

This parameter value is added to the process value.

### Filter Time (0.0, 900.0)Second

Defines filter time for display value.

### Cold Junction Compensation

This parameter is active if process input is selected TC input.

- 00 Cold junction compensation is active.
- 01 Cold junction compensation is not active.

**Scale:** The difference, between high point and low point of the process input type. Example: If tCSL = 2 (low point is -200, high point is 900), then scale is 1100. If input type is Voltage/Current, then the scale is difference between tPoH and tPoL parameters.

### out1 ConF: MODULE-1 parameters

If there is EMO-X00 (Relay Output), EMO-X10 (SSR driver) and EMO-X20 (Digital Output) module in MODULE-1 socket, then the following parameters is active.

### Logic-1 MODULE-1 output module Logic output function

- 0000 Alarm output
- 0001 Sensor break alarm output
- 0002 Output is active when the process value is out of the band which is defined with minimum value of operating scale **LoL** and maximum value of operating scale **uPL**

### Alarm-1 Type

MODULE-1 alarm type. This parameter is active, if the Logic-1 output function is Alarm output.

- 0000 Process high alarm
- 0001 Process low alarm

### Alarm-1 hysteresis value (0% of scale, 50% of scale)Unit

This parameter is active, if the Logic-1 output function is Alarm output.

### Alarm-1 On delay time (0, 9999)Second

This parameter is active, if the Logic-1 output function is Alarm output.

### Alarm-1 Off Delay Time (0, 9998)Second

When the value is greater than 9998, **E.C.H** is seen on the screen. It means alarm latching output is selected. This parameter is active if logic-1 output function of Alarm-1 Output is alarm output.

### out1 ConF: MODULE-1 parameters

If there is EMO-X30 (0/4...20 mA === Current output) module in MODULE-1 socket, then the following parameter is active.

### MODULE-1 analogue output module configuration

- 0000 0...20mA=== output
- 0001 4...20mA=== output

### out2 ConF: MODULE-2 parameters

If there is EMO-X00 (Relay Output), EMO-X10 (SSR driver) and EMO-X20 (Digital Output) module in MODULE-2 socket, then the following parameters is active.

### MODULE-2 output module Logic output function

- 0000 Alarm output
- 0001 Sensor break alarm output
- 0002 Output is active when the process value is out of the band which is defined with minimum value of operating scale **LoL** and maximum value of operating scale **uPL**

### Alarm-2 Type

MODULE-2 alarm type. This parameter is active, if the Logic-2 output function is Alarm output.

- 0000 Process high alarm
- 0001 Process low alarm

### Alarm-2 hysteresis value (0% of scale, 50% of scale)Unit

This parameter is active, if the Logic-2 output function is Alarm output.

### Alarm-2 On delay time (0, 9999)Second

This parameter is active, if the Logic-2 output function is Alarm output.

### Alarm-2 Off Delay Time (0, 9998)Second

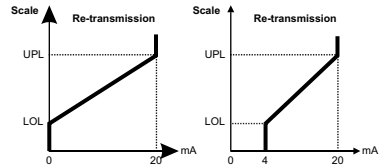
When the value is greater than 9998, **E.C.H** is seen on the screen. It means alarm latching output is selected. This parameter is active if logic-2 output function of Alarm-2 Output is alarm output.

### out2 ConF: MODULE-2 parameters

**EMKO** If there is EMO-X30 (0/4...20 mA --- Current output) module in MODULE-2 socket, then the following parameter is active.

### EMKO MODULE-2 analogue output module configuration

0000 0...20mA--- output      0001 4...20mA--- output



### out3 ConF: MODULE-3 parameters

#### LOU3 Output-3 Logic output function

0000 Alarm output  
0001 Sensor break alarm output  
0002 Output is active when the process value is out of the band which is defined with minimum value of operating scale [LOL] and maximum value of operating scale [UPL]

#### ALH3 Alarm-3 Type

0000 Process high alarm  
0001 Process low alarm

#### ALH3 Alarm-3 hysteresis value (0% of scale, 50% of scale)Unit

This parameter is active, if the Logic-3 output function is Alarm output.

#### ROn3 Alarm-3 On delay time (0, 9999)Second

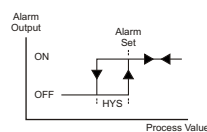
This parameter is active, if the Logic-3 output function is Alarm output.

#### ROF3 Alarm-3 Off Delay Time (0, 9998)Second

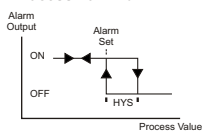
When the value is greater than 9998, [LECH] is seen on the screen. It means alarm latching output is selected. This parameter is active if logic-3 output function of Alarm-3 Output is alarm output.

### Alarm Types

#### Process High Alarm



#### Process Low Alarm



### Gen ConF: General Parameters

SU-L Alarm Set value Low limit ([LOL], [SU-L])Unit

SU-H Alarm Set value High limit ([SU-H], [UPL])Unit

### Com ConF: Serial Communication Configuration Parameters

SRd Communication Accessing Address (1,247)

Communication accessing address of device. Communication accessing address can be adjusted from 1 to 247.

#### BRd Communication Baud Rate

0000 1200 Baud Rate.  
0001 2400 Baud Rate.  
0002 4800 Baud Rate  
0003 9600 Baud Rate  
0004 19200 Baud Rate

#### PrL Parity Selection for Communication

0000 No parity.  
0001 Odd parity.  
0002 Even parity.

### SLPb Stop Bit Selection for Communication

0000 1 stop bit  
0001 2 stop bit

### PASS ConF: Password Parameter

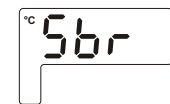
LEPS Technician Passwords(0, 9999)

It is used for accessing to the technician parameters. If it is 0000 no password protection while entering to the technician Parameters.

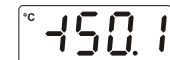
**If it is different from "0" and user wants to access to the technician parameters;**

1- If user does not enter [LEPS] password correctly :It turns to operation screen without accessing to parameters.: When [LEPS] in top display 0000 and in bottom display are seen, if user presses SET button without entering [LEPS] Password (For observing the parameters); Operator can see operator menus and parameters but operator can not change the parameters

### ESM-XX00 Process Control Unit Error Messages



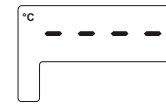
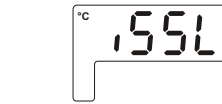
1 - Sensor failure in analogue inputs. Sensor connection is wrong or there is no sensor connection.



2- If top display blinks : If analogue input value is less than minimum value of operating scale [LOL] top display starts to blink.



3- If top display blinks : If analogue input value is greater than maximum value of operating scale [UPL] top display starts to blink.



4- If technician password is different from "0" and user accesses to the parameter by Set button without entering the technician password and wants to change a parameter, the warning message is shown on the display as shown on the right. Device does not allow to do any changes without entering the password correctly.

### 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 separate 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:

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### Ordering Information

ESM-4400 (48x48 DIN 1/16)	A	B	C	D	E	/	F	G	H	I	/	U	V	W	Z
ESM-4900 (96x48 DIN 1/8)															
ESM-7700 (72x72 DIN Size)															
ESM-9900 (96x96 DIN 1/4)															

A	Supply Voltage
1	100-240V ~ (-%15;+%10) 50/60Hz
2	24V ~ (-%15;+%10) 50/60Hz    24V --- (-%15;+%10)
9	Customer (Maximum 240V ~ (-%15;+%10)50/60Hz

BC	Input type	Scale
20	Configurable(Table-1)	Table-1
D	Serial Communication	Product Code
0	None	
1	RS-232	EMC-400,EMC-700,EMC-900
2	RS-485	EMC-410,EMC-710,EMC-910

E	Output-3
1	Relay Output(5A@250V~ on resistive Load)

FG	Module-1	Module Codes
00	None	
01	Relay Output Module	EMO-400,EMO-700,EMO-900
02	SSR driver Output Module (Maximum 26mA, 22V ---)	EMO-410,EMO-710,EMO-910
03	Digital (Transistor) Output Module (Maximum 40mA@18V ---)	EMO-420,EMO-720,EMO-920
04	Current Output Module (0/4...20 mA --- veya 0...10V ---)	EMO-430,EMO-730,EMO-930

HI	Module-2	Module Codes
00	None	
01	Relay Output Module	EMO-400,EMO-700,EMO-900
02	SSR driver Output Module (Maximum 26mA, 22V ---)	EMO-410,EMO-710,EMO-910
03	Digital (Transistor) Output Module (Maximum 40mA@18V ---)	EMO-420,EMO-720,EMO-920
04	Current Output Module (0/4...20 mA --- veya 0...10V ---)	EMO-430,EMO-730,EMO-930

### Table-1

BC	Input Type(TC)	Scale(°C)	Scale(°F)
21	L ,Fe Const DIN43710	-100°C,850°C	-148°F,1562°F
22	L ,Fe Const DIN43710	-100.0°C,850.0°C	-148.0°F,999.9°F
23	J ,Fe CuNi IEC584.1(ITS90)	-200°C,900°C	-328°F,1652°F
24	J ,Fe CuNi IEC584.1(ITS90)	-199.9°C,900.0°C	-199.9°F,999.9°F
25	K ,NiCr Ni IEC584.1(ITS90)	-200°C,1300°C	-328°F,2372°F
26	K ,NiCr Ni IEC584.1(ITS90)	-199.9°C,999.9°C	-199.9°F,999.9°F
27	R ,Pt13%Rh Pt IEC584.1(ITS90)	0°C,1700°C	32°F,3092°F
28	S ,Pt10%Rh Pt IEC584.1(ITS90)	0°C,1700°C	32°F,3092°F
29	T ,Cu CuNi IEC584.1(ITS90)	-200°C,400°C	-328°F,752°F
30	T ,Cu CuNi IEC584.1(ITS90)	-199.9°C,400.0°C	-199.9°F,752.0°F
31	B ,Pt30%Rh Pt6%Rh IEC584.1(ITS90)	44°C,1800°C	111°F,3272°F
32	B ,Pt30%Rh Pt6%Rh IEC584.1(ITS90)	44.0°C,999.9°C	111.0°F,999.9°F
33	E ,NiCr CuNi IEC584.1(ITS90)	-150°C,700°C	-238°F,1292°F
34	E ,NiCr CuNi IEC584.1(ITS90)	-150.0°C,700.0°C	-199.9°F,999.9°F
35	N ,Nirosil Nisil IEC584.1(ITS90)	-200°C,1300°C	-328°F,2372°F
36	N ,Nirosil Nisil IEC584.1(ITS90)	-199.9°C,999.9°C	-199.9°F,999.9°F
37	C , (ITS90)	0°C,2300°C	32°F,3261°F
38	C , (ITS90)	0.0°C,999.9°C	32.0°F,999.9°F
BC	Input Type(RTD)	Scale(°C)	Scale(°F)
39	PT 100 , IEC751(ITS90)	-200°C,650°C	-328°F,1202°F
40	PT 100 , IEC751(ITS90)	-199.9°C,650.0°C	-199.9°F,999.9°F

BC	Input Type( --- Voltage and Current)	Scale
41	0...50 mV ---	-1999,9999
42	0...5 V ---	-1999,9999
43	0...10 V ---	-1999,9999
44	0...20 mA ---	-1999,9999
45	4...20 mA ---	-1999,9999

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