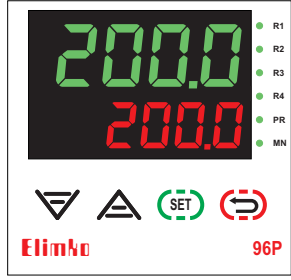




E-96P Series Universal Advanced Digital Controllers Quick Start Guide

Manufacturer / Technical Support

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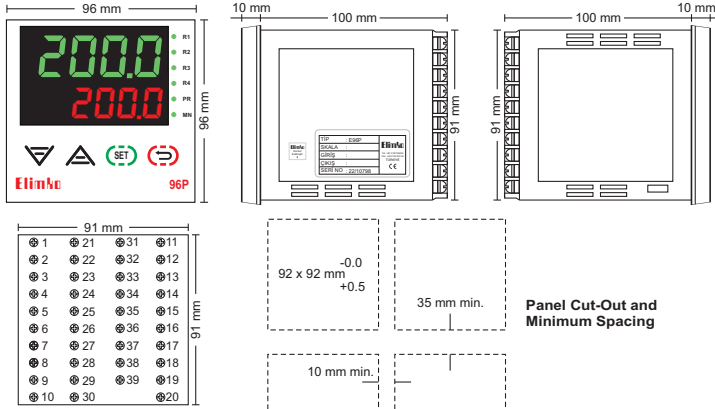


1. DESCRIPTION

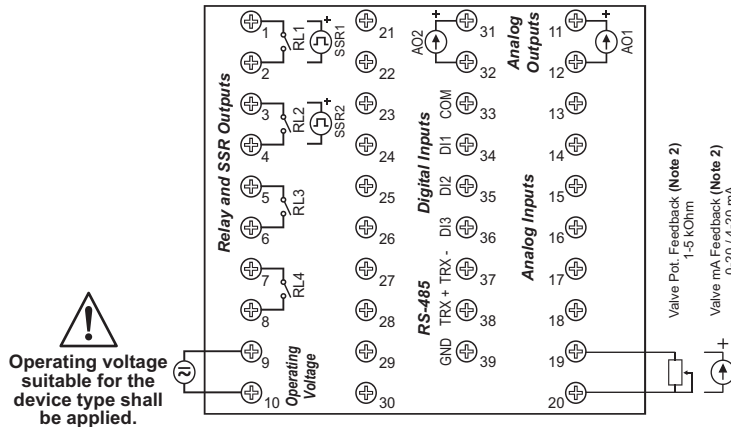
E-96P Series universal process controllers are industrial devices at 96x96 mm IEC/TR 60668 dimensions designed using new generation microcontrollers with on/off, PID and other control forms, where inputs and outputs can be easily programmed by the user.

In E-96P Series controllers, the set value and measured value can be displayed from -1999 to 9999 on two 4-digit displays; general purpose inputs (T/C, R/T, mV, mA) can be programmed.

2. DIMENSIONS and PANEL CUT-OUT



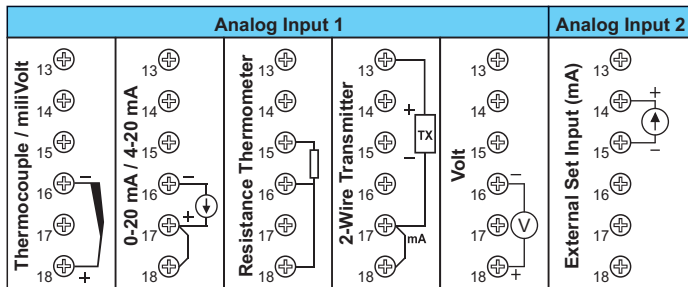
3. CONNECTION DIAGRAM



1st and 2nd control outputs can be selected as either Relay (RL1, RL2) or SSR (SSR1, SSR2).

Analog outputs (AO1, AO2) can be selected as either mA or 0-10 V DC.

Digital inputs are used by connecting a dry contact output between the COM terminal and the desired input (DI1, DI2 or DI3).



4. WARNINGS

E-96P controller is designed for panel mounting and should be used in an industrial environment.

- The package of E-96P controller contains; Controller, 2 pieces of mounting clamps, User manual and Guarantee certificate.
- After opening the package, please check the contents with the above list. If the delivered product is wrong type, any item is missing or there are visible defects, contact the vendor from which you purchased the product.
- Before installing and operating the controller, please read the user manual thoroughly.
- The installation and configuration of the controller must only be performed by a person qualified in instrumentation.
- Keep the unit away from flammable gases, that could cause explosion.
- Do not use alcohol or other solvents to clean the controller. Use a clean cloth soaked in water tightly squeezed to gently wipe the outer surface of the controller.
- It is not used in medical applications.



EU DIRECTIVE COMPLIANCE

Low Voltage Directive EN 61010-1
EMC Directive EN 61326-1



TS EN ISO 9001
Quality Management System Certificate

5. TYPE CODING

E-96P Series Universal Advanced Controller

E-96P - W - X - Y - Z

Relay Outputs

- 2 relays (RL1, RL2)
- 3 relays (RL1, RL2, RL3)
- 4 relays (RL1, RL2, RL3, RL4)
- 1 SSR (SSR1) + 1 relay (RL2)
- 1 SSR (SSR1) + 2 relays (RL2, RL3)
- 1 SSR (SSR1) + 3 relays (RL2, RL3, RL4)
- 2 SSR (SSR1, SSR2) + 1 relay (RL3)
- 2 SSR (SSR1, SSR2) + 2 relays (RL3, RL4)

Analog Outputs *

- 1 x 0-20 / 4-20 mA (AO1)
- 2 x 0-20 / 4-20 mA (AO1, AO2)
- 1 x 0-10 V DC (AO1)
- 2 x 0-10 V DC (AO1, AO2)
- 1 x 0-20 / 4-20 mA (AO1) + 1 x 0-10 V DC (AO2)

Communication

- None
- RS-485 **

Operating Voltage

- 85-265 V AC / 85-375 V DC
- 20-60 V AC / 20-60 V DC

* Analog outputs are isolated from each other.

** When E-96P Series devices are ordered with communication, the E-IB-11 USB-RS485 converter can be used for PC connection. There are various control and monitoring software provided by Elimko.

6. TECHNICAL SPECIFICATIONS

Parameter	Description
Control Type	On/Off, PID, Heat/Cool, Floating and Feedback Control of Valves
Operating Voltage	20..60 V AC / 20..60 V DC or 85..265 V AC / 85..375 V DC
Relays / SSR	4 pieces SPST - NO 250 V AC 5A relays or 24 V DC 25 mA (SSR) drives
Dimensions (mm)	96 (Length) x 96 (Height) x 100 (Width)
Panel Cut-Out (mm)	92 (Length) x 92 (Height)
Analog Output	2 x 0..20 / 4..20 mA or 0..10 V DC optional
Analog Input	Universal (Note 1), 1 x External set (mA)
Communication (RS-485)	Available (optional)
Digital Input	3 inputs
Valve Feedback	Available (Note 2)
Transmitter Supply	Available
Weight	430 g
Power Consumption	Max. 7 W (10 VA)
Operating Temperature	- 10 °C ... 55 °C
Storage Temperature	- 25 °C ... 65 °C
Memory	Max. 100.000 write
Protection Class	IP-65 Front Panel, IP-20 Rear Case

Notes:

(1) Universal Input :

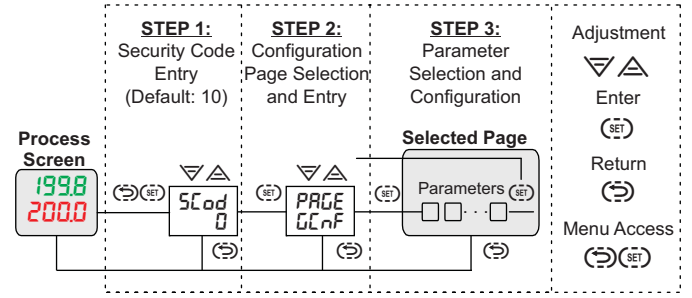
- Thermocouple : B, E, J, K, L, N, R, S, T, U
- Resistance Thermometer : Pt-100
- Current : 0-20 mA, 4-20 mA (Linear)
- Voltage : 0-50 mV, 0-1 V, 0.2- 1 V (Linear), 0-10 V DC, must be specified in the order.
- Resolution : 16 bit
- Accuracy : Thermocouple, Max. ± 1.0 °C (Conversion and CJC error)
Resistance Thermometer, Max. ± 0.5 °C (Conversion and wire resistance compensation)
Linear Input, Max. % 0.1

(2) Valve Feedback are supplied as potentiometer input in standard controllers. If the feedback type is requested as mA, it must be specified in the order.

7. PARAMETER TABLE

Description		Min	Maks	Unit
INPUT SETTINGS	INP 1 Analog Input 1 Type	Table 1		
	dP Decimal Point	0	3	
	SCLo Analog Input 1 Linear Scale Lower Value	-199.9	999.9	EU
	SCHi Analog Input 1 Linear Scale Upper Value	-199.9	999.9	EU
	UnIt Temperature Unit	°C	°F	
	oFSt Analog Input 1 Offset Value	-100.0	100.0	EU
	FLtr Analog Input 1 Filter	1	15	s
	Snbr Analog Input 1 Sensor Broken Behaviour	Lo	Hi	
	inP2 Analog Input 2 Type	0-20	4-20	
	S2Lo Analog Input 2 Linear Scale Lower Value	-199.9	999.9	EU
	S2Hi Analog Input 2 Linear Scale Upper Value	-199.9	999.9	EU
	S2br Analog Input 2 Sensor Broken Behaviour	Lo	Hi	
	RdR5 Modbus Address	1	127	
	bRId Modbus Baud Rate [48, 96, 192, 384 kbaud]	48	384	
	PrEtY Modbus Parity [nonE, odd, EuEn]			
CONTROL SET SETTINGS	SPSr Control Set Point Source	Table 2		
	SPLL Control Set Point Lower Limit	-199.9	SPHL	EU
	SPHL Control Set Point Upper Limit	SPLL	999.9	EU
	SPrr Control Set Point Ramping Rate	oFF	60.0	EU/min
	S-1 1. Step Set Value	SPLL	SPHL	EU
	t-1 1. Step Time	oFF	999.9	min
	S-2 2. Step Set Value	SPLL	SPHL	EU
	t-2 2. Step Time	oFF	999.9	min
	S-3 3. Step Set Value	SPLL	SPHL	EU
	t-3 3. Step Time	oFF	999.9	min
	SEt1 Digital Input Selectable Set 1	SPLL	SPHL	EU
	SEt2 Digital Input Selectable Set 2	SPLL	SPHL	EU
	SEt3 Digital Input Selectable Set 3	SPLL	SPHL	EU
	SEt4 Digital Input Selectable Set 4	SPLL	SPHL	EU
ALARM SETTINGS	R1tP Alarm 1 Type	Table 3		
	R1SP Alarm 1 Set Point	-199.9	999.9	EU
	R1HY Alarm 1 Hysteresis	0.0	999.9	EU
	R1Lt Alarm 1 Lock	d5b	Enb	
	R2tP Alarm 2 Type	Table 3		
	R2SP Alarm 2 Set Point	-199.9	999.9	EU
	R2HY Alarm 2 Hysteresis	0.0	999.9	EU
	R2Lt Alarm 2 Lock	d5b	Enb	
	R3tP Alarm 3 Type	Table 3		
	R3SP Alarm 3 Set Point	-199.9	999.9	EU
	R3HY Alarm 3 Hysteresis	0.0	999.9	EU
	R3Lt Alarm 3 Lock	d5b	Enb	
	R4tP Alarm 4 Type	Table 3		
	R4SP Alarm 4 Set Point	-199.9	999.9	EU
	R4HY Alarm 4 Hysteresis	0.0	999.9	EU
	R4Lt Alarm 4 Lock	d5b	Enb	
OUTPUTS	CTYP Control Type	Table 4		
	CFrñ Control Form [dIr, rEu]	dIr	rEu	
	CPrd Control Period	1	250	s
	ñnPr Manual Mode Selection	d5b	Enb	
	trtñ Floating Control Valve Travel Time	10	2500	s
	dbnd Dead Band	0.1	25.0	%
	oLL Control Output Lower Limit	0.0	oHL	%
	oHL Control Output Upper Limit	oLL	100.0	%
	oñr Control Output Manual Reset	oLL	oHL	%
	PonC PID Power On Behaviour	0	4	
	trLL Retransmission Scale Lower Value	-199.9	trHL	EU
	trHL Retransmission Scale Upper Value	trLL	999.9	EU
	rLId Relay 1 Function	Table 5		
	rL2d Relay 2 Function	Table 5		
	rL3d Relay 3 Function	Table 5		
	rL4d Relay 4 Function	Table 5		
	RoId Analog Output 1 Function	Table 6		
	RoIr Analog Output 1 Type	Table 7.1 ve Table 7.2		
	Ro2d Analog Output 2 Function	Table 6		
	Ro2r Analog Output 2 Type	Table 7.1 ve Table 7.2		
	SruL Feedback Valve Fully-Closed Position			
	SruH Feedback Valve Fully-Open Position			
PID SETTINGS	Rt PID Auto Tune	oFF	on	
	PId PID Parameter Type	Sd	Rdu	
	Pb-1 Proportional Band +	0.1	999.9	EU
	Pb-2 Proportional Band -	0.1	999.9	EU
	ItH Integral Time +	oFF	9999	s
	ItC Integral Time -	oFF	9999	s
	dItH Derivative Time +	oFF	2500	s
	dItC Derivative Time -	oFF	2500	s
	HYS Hysteresis	0.0	999.9	EU
	SCod Security Code	0	9999	
SECURITY	dPrL Parameter Access Level	0	9	
	APrL Parameter Setting Level	0	9	
	FCSt Factory Settings [oFF, LoAd, SruE, dFLt]			

8. ACCESSING PARAMETERS



9. APPLICATION EXAMPLES

- 1) Input: Pt-100 **Relay / Alarm1**: 50 °C Low, **Relay2 / Alarm2**: 55 °C High
AO1: 4-20 mA PID Control Output

inP1	R1tP	R1SP	R2tP	R2SP	CTYP	rLId	rL2d	RoId	RoIr
Pt	Lo	50.0	Hi	55.0	SCo	RL-1	RL-2	Co-1	4-20

- 2) Input: TC Type J, **Relay1**: On-Off Control Output, **Relay2 / Alarm2**: 350 °C High

inP1	R2tP	R2SP	CTYP	rLId	rL2d
J	Hi	350.0	SCo	do-1	RL-2

- 3) Input: TC Type K, Profile Control (Ramp up to 400°C in 10 minutes and wait for 60 minutes),
Relay1: PID Control Output, **AO1**: Retransmission Output (4-20 mA, 0-1200 °C)

inP1	SPSr	S-1	t-1	S-2	t-2	CTYP	trLL	trHL	rLId	rL2d	RoId	RoIr
K	PrFL	400	10.0	400	60.0	SCo	0	1200	Co-1	RL-2	PuTr	4-20

- 4) Input: 4-20 mA, **Scale**: 0-600, **External Set Point**: 4-20 mA, **Scale**: 0-600,
Floating Valve Control (Travel Time 30 s), **Relay1**: Valve Open, **Relay2**: Valve Close

inP1	SCLo	SCHi	inP2	S2Lo	S2Hi	CTYP	trtñ	rLId	rL2d
4-20	0.0	600.0	4-20	0.0	600.0	bnd	30	Co-1	Co-2

Table 1. Input Type Options

b	Type B Thermocouple
E	Type E Thermocouple
J	Type J Thermocouple
K	Type K Thermocouple
L	Type L Thermocouple
N	Type N Thermocouple
R	Type R Thermocouple
S	Type S Thermocouple
T	Type T Thermocouple
U	Type U Thermocouple
Pt	Pt-100
0-20	0-20 mA
4-20	4-20 mA
0-50	0-50 mV
0.0-1	0-1 V
0.2-1	0.2-1 V
0-10	0-10 V (*)
2-10	2-10 V (*)

(*) Custom specified volt input

Table 2. Control Set Options

Int	Internal adjustment with keys
PrFL	With Profile Control
ErT	External adjustment with AIN2 external input
dInP	With Digital Input

Table 3. Alarm Options

oFF	Off
Lo	Low Alarm
Hi	High Alarm
LoD	Low Deviation
HiD	High Deviation
LoB	Band Alarm (In)
HiB	Band Alarm (Out)

Table 4. Control Type Options

oFF	No Control
SCo	Single (Heat)
dCo	Double (Heat/Cool)
bnd	Floating Control of Valve
PfB	Feedback Control of Valve

Table 5. Relay Output Options

Co-1	PID + (Heating)
Co-2	PID - (Cooling)
do-1	On-Off + (Heating)
do-2	On-Off - (Cooling)
RL-1	Alarm 1
RL-2	Alarm 2
RL-3	Alarm 3
RL-4	Alarm 4

Table 6. Analog Output Options

Co-1	PID + (Heating)
Co-2	PID - (Cooling)
PuTr	Process Value
SPTr	Control Set Value

Table 7.1. Analog Output Range

0-20	0-20 mA
20-0	20-0 mA
4-20	4-20 mA
20-4	20-4 mA

Table 7.2. Analog Output Range

0-10	0-10 V
10-0	10-0 V
2-10	2-10 V
10-2	10-2 V

For detailed information, you can access the comprehensive user manual of the device under the heading "User Manuals" at www.elimko.com.tr. You can also use the QR Code on the front for this.

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