

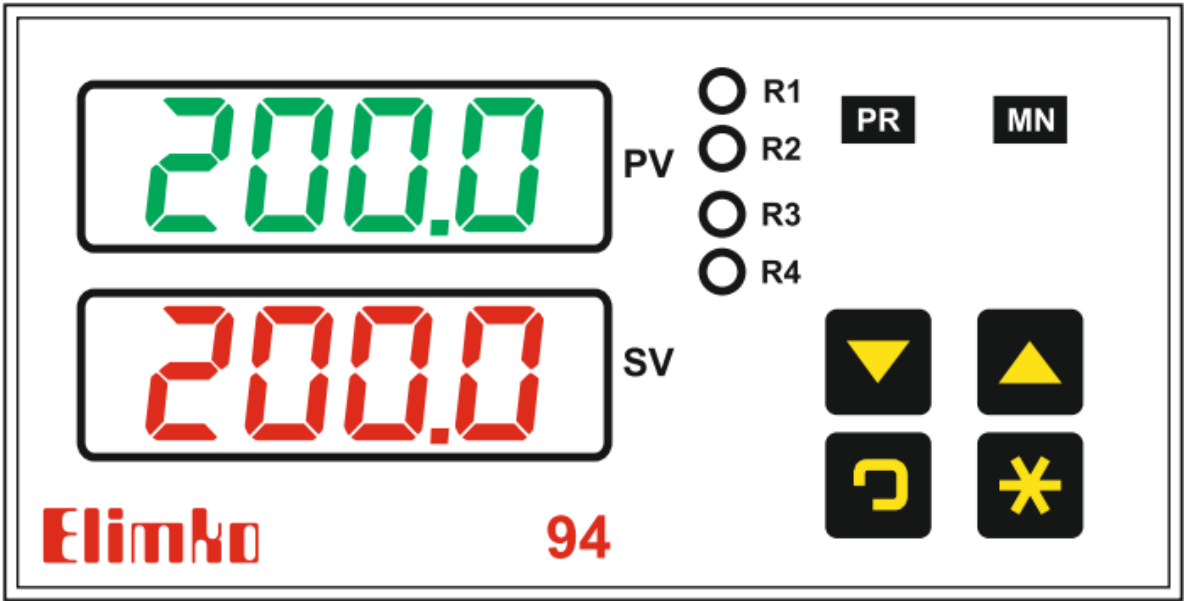


Elimko E-94 Series Universal Advanced Controller User Guide

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E-94 Series
Universal Advanced
Controller
Quick Start Guide



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E-94 Series Universal Advanced Controller

Manufacturer / Technical Support : Elimko Co. Ltd.

8. Cadde 21. Sokak No:16 06510 Emek / ANKARA – TURKEY

Phone:+ 90 312 212 64 50 Fax:+ 90 312 212 41 43

www.elimko.com.tr e-posta: elimko@elimko.com.tr

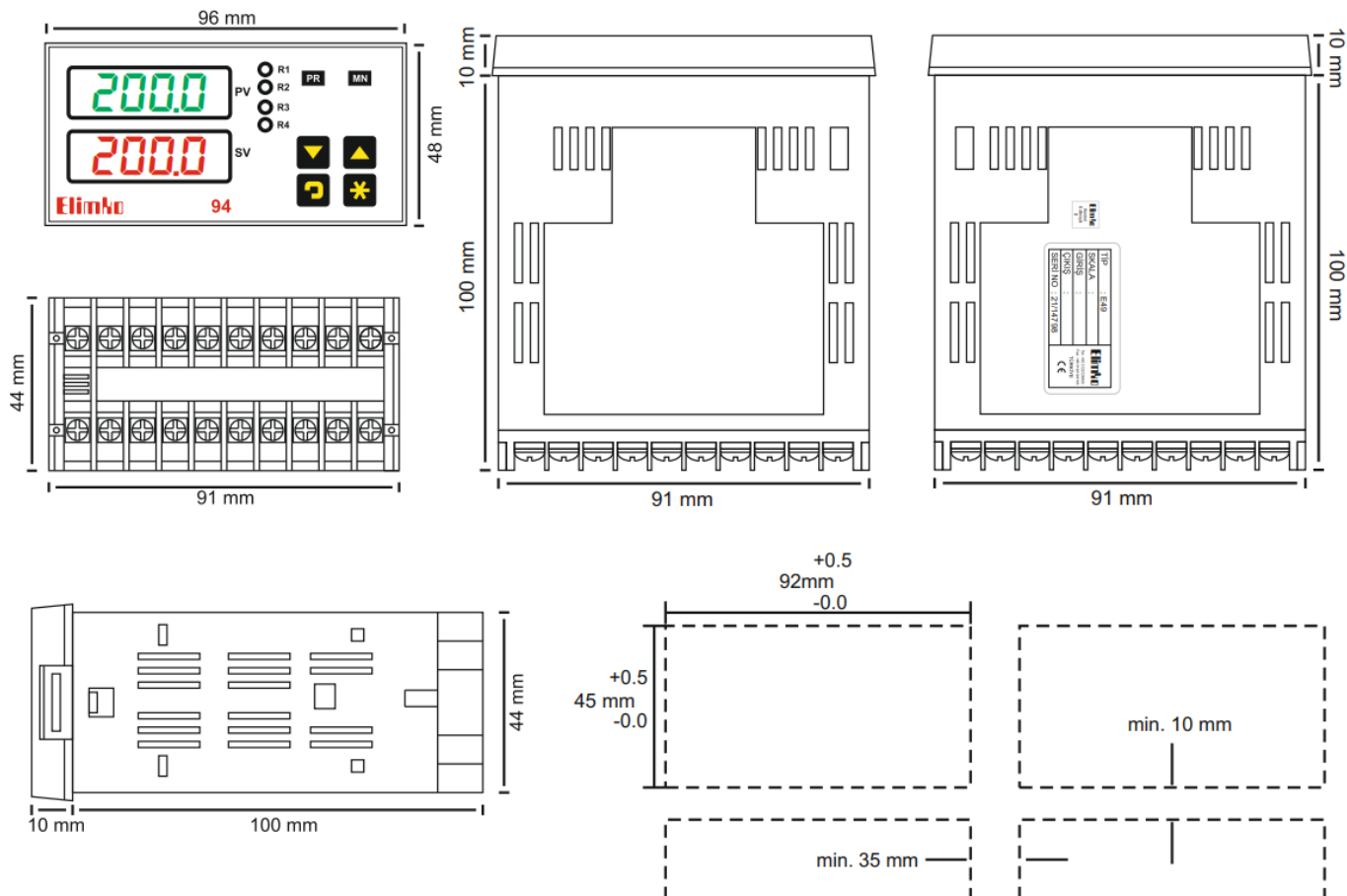


DESCRIPTION

E-94 Series general purpose process controllers are industrial devices in 1/8 DIN (96×48 mm IEC/TR 60668) dimensions designed by using new generation microcontrollers with on/off, PID and other control forms. Inputs and outputs can be easily programmed by the user.

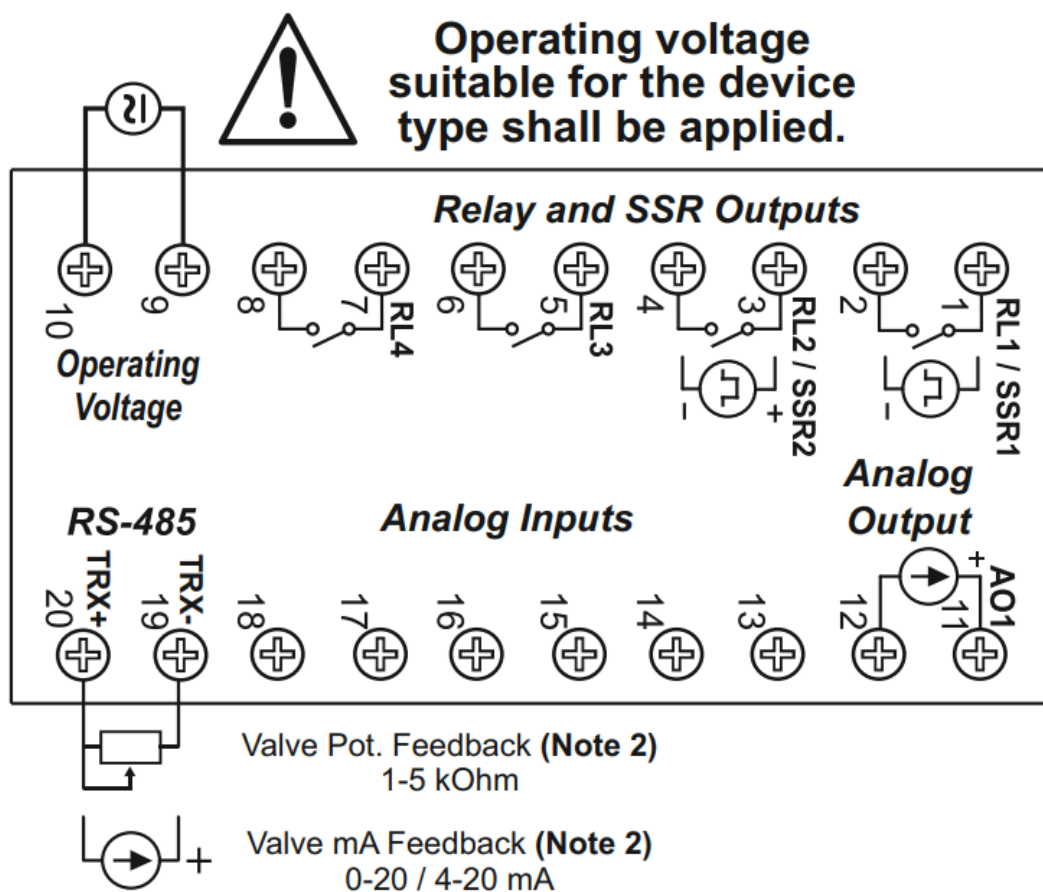
In E-94 Series controllers, set value and measured value can be displayed from -1999 to 9999 on two 4-digit displays and general purpose inputs (T/C, R/T, mV, mA) can be programmed.

DIMENSIONS and PANEL CUT-OUT

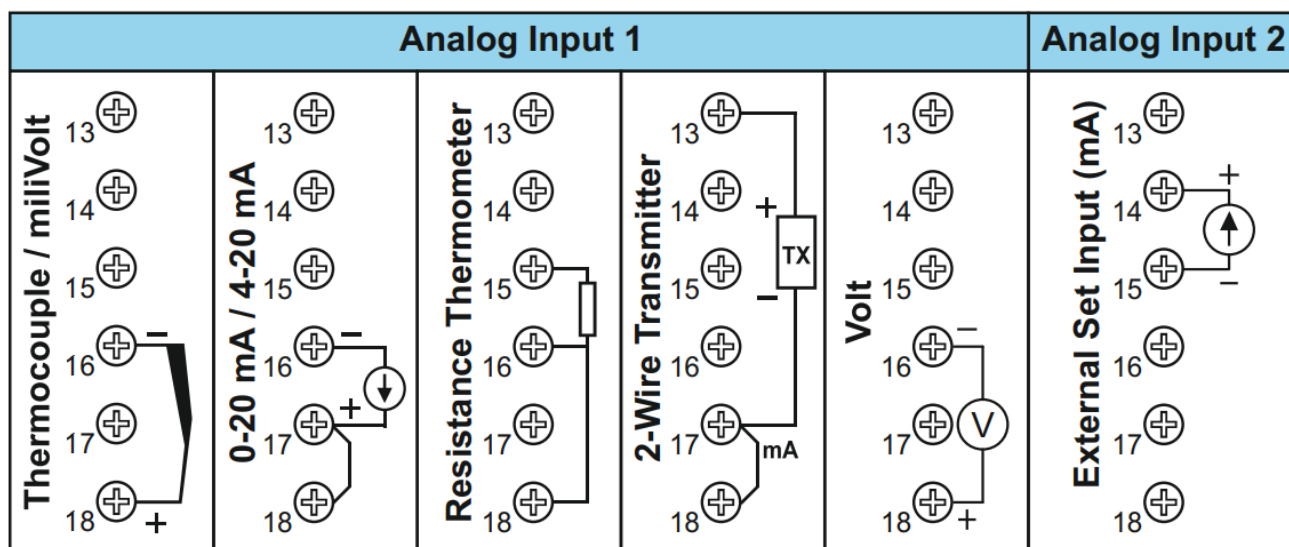


Panel Cut-Out and Minimum Spacing

CONNECTION DIAGRAM



1st and 2nd control outputs can be selected as either Relay (RL1, RL2) or SSR (SSR1, SSR2).
 Controllers with RS-485 do not have a Valve Feedback input. Analog output (A01) can be selected as either mA or 0-10 V DC.

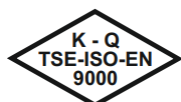


WARNINGS



E-94 controller is designed for panel mounting and should be used in an industrial environment.

- The package of E-94 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

TYPE CODING

E-94 Series Universal Advanced Controller

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 relays (RL3) 2 SSR (SSR1, SSR2) + 2 relays (RL3, RL4)	E-94 - W - X - Y - Z 2 3 4 5 6 7 8 9 0 1 2 0 1 0 1
Analog Outputs	None 0-20 / 4-20 mA (AO1) 0-10 V DC (AO1)	
Communication	None RS-485	
Operating Voltage	85-265 V AC / 85-375 V DC 20-60 V AC / 20-60 V DC	

* When E-94 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.

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 I SSR	4 x SPST – NO 250 V AC 5 A relays or 24 V DC 25 mA (SSR) drives
Dimensions (mm)	96 (Lenght) x 48 (Height) x 100 (Width)
Panel Cut-Out (mm)	92 (Lenght) X 45 (Height)
Analog Output	0..20 / 4-20 mA or 0..10 V DC optional
Analog Input	Universal (Note 1), 1 x External set point (mA)
Communication (RS-485)	Available (Note 2)
Digital Input	None
Valve Feedback	Available (Note 2)
Transmitter Supply	Available
Weight	220 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. Controllers with RS-485 do not have a Valve Feedback input.

PARAMETER TABLE

		Description	Min	Maks	Unit
INPUT SETTI NGS	SEtP	InP1 Analog Input 1 Type	Table 1		
		dP Decimal Point	0	3	
		SCLo Analog Input 1 Linear Scale Lower Value	-199.9	999.9	EU
		SCH1 Analog Input 1 Linear Scale Upper Value	-199.9	999.9	EU
		Un It Temperature Unit	oC	oF	
		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
		S2H1 Analog Input 2 Linear Scale Upper Value	-199.9	999.9	EU
		S2br Analog Input 2 Sensor Broken Behaviour	Lo	Hi	
		Adrs Modbus Adress	1	127	
		bAUd Modbus Baud Rate [4.8, 9.6, 19.2, 38.4]	4.8	38.4	
		Prty Modbus Parity [none, odd, Even]			

CONT ROL S ET SE TTING S	SEtP	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	SPLL	EU
		t-1 1. Step Time	oFF	999.9	min
		S-2 2. Step Set Value	SPHL	SPLL	EU
		t-2 2. Step Time	oFF	999.9	min
		S-3 3. Step Set Value	SPHL	SPLL	EU
		t-3 3. Step Time	oFF	999.9	min

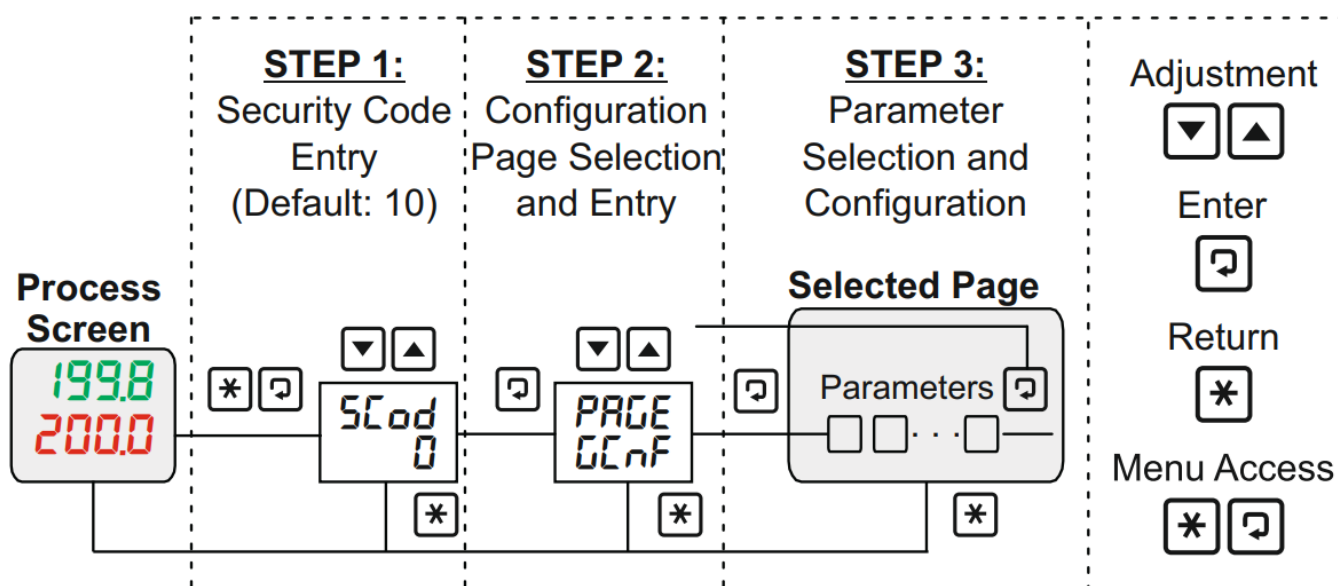
AL AR M SE TT IN G S	ALnF	A1tP	Alarm 1 Type	Table 3		
		A1SP	Alarm 1 Set Point	-200.	1000.	EU
		A1HY	Alarm 1 Hysteresis	0.0	1000.	EU
		A2tP	Alarm 1 Lock	d5b	Enb	
		A2SP	Alarm 2 Type	Table 3		
		A2HY	Alarm 2 Set Point	-200.	1000.	EU
		A2Lt	Alarm 2 Hysteresis	0.0	1000.	EU
		A3tP	Alarm 2 Lock	d5b	Enb	
		A3SP	Alarm 3 Type	Table 3		
		A3HY	Alarm 3 Set Point	-200.	1000.	EU
		A3Lt	Alarm 3 Hysteresis	0.0	1000.	EU
		A4tP	Alarm 3 Lock	d5b	Enb	
		A2Lt	Alarm 4 Type	Table 3		
		A4SP	Alarm 4 Set Point	-200.	1000.	EU
		A4HY	Alarm 4 Hysteresis	0.0	1000.	EU
		A4Lt	Alarm 4 Lock	d5b	Enb	

OUTPUT T SETTI NGS		CtYP	Control Type	Table 4		
		CFrñ	Control Form VI 1/-, rEu]	d lr	rEu	
		CPrd	Control Period	1	250	s
		ñnPr	Manual Mode Selection	dSb	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	01-11	oHL
	oEnF	PonC	PID Power On Behaviour	0	4	
		trLL	Retransmission Scale Lower Value	-999..9	trHL	EU
		trHL	Retransmission Scale Upper Value	trLL	999..9	EU
		rL1d	Relay 1 Function	Table 5		
		rL2d	Relay 2 Function	Table 5		
		rL3d	Relay 3 Function	Table 5		
		rL4d	Relay 4 Function	Table 5		
		Ro1d	Analog Output 1 Function	Table 6		
		Ro1r	Analog Output 1 Type	Table 7.1 ve Table 7.2		
		SrvL	Feedback Valve Fully-Closed Position			
		SrvH	Feedback Valve Fully-Open Position			

PID SET TINGS	EUnE	At	PID Auto Tune	off	on	
		PId	PID Parameter Type	Std	Adv	
		Pb-1	Proportional Band +	0.1	999.9	EU
		Pb-2	Proportional Band	0.1	999.9	EU
		ItH	Integral Time +	of	9999	S
		ItC	Integral Time	of	9999	S
		dtH	Derivative Time +	of	2500	S
		dtC	Derivative Time	of	2500	S
		HYS	Hysteresis		999.9	EU

SEC URI TY	PrEt	SCod	Security Code	0	9999	
		dPrL	Parameter Access Level	0	9	
		APrL	Parameter Setting Level	0	9	
		FCSt	Factory Settings [oFF, LoRd, SRuE, dFLt]			

ACCESSING PARAMETERS



APPLICATION EXAMPLES

1. Input: Pt-100 Relay / Alarm1: 50 °C Low, Relay2 / Alarm2: 55 °C High A01: 4-20 mA PID Control Output

InP1	A1tP	A1SP	A2tP	A2SP	CtYP	rL1d	rL2d	Ro1d	Ro1r
Pt	Lo	50.0	Hi	55.0	SCo	AL-1	AL-2	Co-1	4-20

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

InP1	A2tP	A2SP	CtYP	rL1d	rL2d
J	Hi	350.0	SCo	do-1	AL-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, A01: Retransmission Output (4-20 mA, 0-1200 °C)

InP1	SP5r	S-1	t-1	S-2	t-2	CtYP	trLL	trHL	rL1d	rL2d	Ro1d	Ro1r
K	PrFL	400	10.0	400	60.0	SCo	0	1200	Co-1	AL-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	SCH1	InP2	S2Lo	S2H1	CtYP	trtñ	rL1d	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	0-1V
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
Ext	External adjustment with AIN2 external input

Table 3. Alarm Options

Lo	Off
HI	Low Alarm
Lod	Low Deviation
HI d	High nigh Deviation
Lob	Band Alarm (In)
HI b	Band Alarm (Out)

Table 4. Control Type Options

oF	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)
AL-1	Alarm 1
AL-2	Alarm 2
AL-3	Alarm 3
AL-4	Alarm 4

Table 6. Analog Output Options	
Co-1	PID + (Heating)
Co-2	PID – (Cooling)
Pvtr	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.

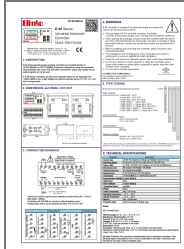
You can also use the QR Code on the front for this.



<https://elimko.com.tr/en/technical-support/user-manuels>

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Documents / Resources



[Elimko E-94 Series Universal Advanced Controller](#) [pdf] User Guide
E-94 Series Universal Advanced Controller, E-94 Series, Universal Advanced Controller, Advanced Controller, Controller

References

- [Elimko - Otomatik Kontrol'da Güvenilir İsim](#)