

## E-94 SERIES DIGITAL INDICATING CONTROLLERS



### DESCRIPTION

E-94 Series controllers are designed using new generation microcontrollers for on/off and PID control. The unit has dimensions of 96x48 mm, conforming IEC/TR 60668.

E-94 Series have a 2x4 digits LED display range between -1999 and +9999, configurable universal inputs (T/C, R/T, mV, mA) with 16 bit resolution, low calibration drifts with environmental conditions.

E-94 Series controllers have easy programming facilities to provide on/off and PID forms and are used in every field of industry for measurement and control of temperature, pressure, level, current, voltage, resistance and other process parameters in industries such as iron & steel, cement, plastic, chemistry, metallurgy, petrochemical plants, refineries, ceramic, glass and others.

### FEATURES

Set Adjustment	Between span limits
Control Form	Low (LO), High (HI) Lob, Hlb, Lod, Hld
Dead Band (Hysteresis)	0-999.9 (EU)*
Resolution	0.1 or 1
Proportional Band (Pb)	0.1-999.9 (EU)*
Integral Time (It)	0-9999 seconds
Derivative Time (Dt)	0-2500 seconds
Bias	%0-100
Control Form	On / Off, PID
Control Outputs	0-20 mA, 4-20 mA, 0-10 V DC NA Contact, SSR

\* (EU) °C for the thermocouples and resistance thermometer inputs, for the linear inputs, same with the units which is controlled. Decimal point can be determined by parameter of dP.

### TECHNICAL SPECIFICATIONS

Accuracy Class	0.5
Display Resolution	1/9999
Display	2x4 Digit LED (10 mm)
A/D Conversion	16 bit
D/A Conversion	12 bit
Reading Speed	2 readings/second
Input Resistance	T/C, mV $\geq 1 \text{ M}\Omega$ mA, $\leq 51 \Omega$
Noise Suppression	120 dB 50 Hz
Operating Temperature	-10 ... 55°C
Temperature Comp.	0 ... 50°C
Power Supply	85-265 V AC / 85-375 V DC 20-60 V AC / 20-85 V DC
Power Consumption	Max. 7 W
Relay Output	NA Contact 250 V AC 5 A
Input Signal	T/C, R/T, mA, mV
Sensors	Thermocouple Resistance thermometer Others= Standard and nonstandard transmitters and converters
Memory	EEPROM max. $10^5$ writing
Protection Class	IP66 front panel (NEMA 4X) IP20 rear panel
Weight	220 gr



- This controller complies with the European Low Voltage Directive 2006/95/EC, by the application of safety standard TS EN 61010-1. (Pollution degree 2)
- This controller complies with the EMC Directive 2004/108/EC by the application of EMC standard TS EN 61326.

## STANDARD WORKING LIMITS

Inputs	Type	Min.	Max.
Cu-Const	Type-U*	-200°C	600°C
Cu-Const	Type-T	-200°C	400°C
Fe-Const	Type-L*	-200°C	900°C
Fe-Const	Type-J	-200°C	1100°C
NiCr-Ni	Type-K	-200°C	1300°C
Cr-Const	Type-E	-200°C	800°C
Nicrosil-Nisil	Type-N	-200°C	1300°C

Inputs	Type	Min.	Max.
Pt%10Rh-Pt	Type-S	0°C	1760°C
Pt%13Rh-Pt	Type-R	0°C	1760°C
Pt%18Rh-Pt	Type-B	60°C	1800°C
Pt-100	$\alpha=0.385$	-200°C	840°C
mV	0-1000 mV	-1999 unit	9999 unit
mA	0-20 / 4-20 mA	-1999 unit	9999 unit

\* DIN 43710 standards, others conform to IEC 60584-1. E-94 Series instruments are general purpose and can be configured according to the application.

## ORDERING GUIDE

E-94 Series Controllers

E-94 -W- X - Y - Z

### Standard Features

- Programlanabilen üniversal girişler
- Programlanabilen üniversal çıkışlar
- Transmitter besleme çıkışı 24 V DC
- Harici Set değeri girişi (external)
- Motorised valve feedback input
- Heat / cool
- Auto-tune
- Configurable by the customer

### Relay Outputs

2 relay (RL1, RL2) .....	2
3 relay (RL1, RL2, RL3) .....	3
4 relay (RL1, RL2, RL3, RL4) .....	4
1 SSR (SSR1) + 1 relay (RL2) .....	5
1 SSR (SSR1) + 2 relay (RL2, RL3) .....	6
1 SSR (SSR1) + 3 relay (RL2, RL3, RL4) .....	7
2 SSR (SSR1, SSR2) + 1 relay (RL3) .....	8
2 SSR (SSR1, SSR2) + 2 relay (RL3, RL4) .....	9

### Analog Outputs

None .....	0
1 x 0-20 mA / 4-20 mA (AO1) .....	1
2 x 0-20 mA / 4-20 mA (AO1, AO2) .....	2
1 x 0-10 V DC (AO1) .....	3
2 x 0-10 V DC (AO1, AO2) .....	4

### Communication

None .....	0
RS485 Modbus ** .....	1

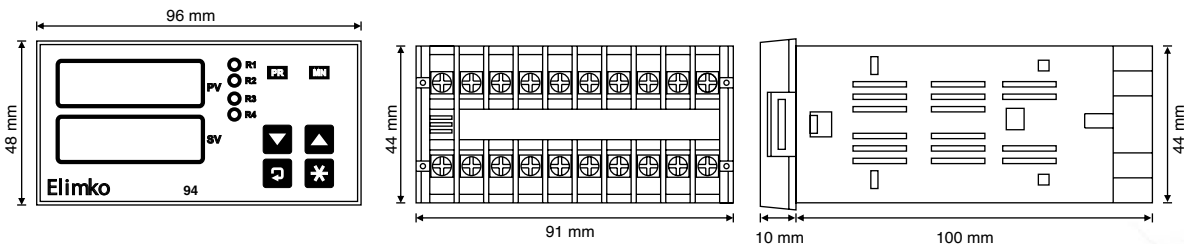
### Power Supply

85-265 V AC / 85-375 V DC .....	0
20-60 V AC / 20-85 V DC .....	1

\* Valve feedback is standard with a potentiometer input. If mA is desired, it should be specified in the order. Valve feedback is not available in communication-enabled devices.

\*\* Additionally, if 2 pieces of 0-20 / 4-20 mA (AO1, AO2) or 2 pieces of 0-10 V DC (AO1, AO2) are selected, RL1 and RL2 can be chosen.

## DIMENSIONS



Panel cut-out = 92 x 45 mm



The company's policy is one of continuous product improvement. We reserve the right to modify the information contained herein without notice.



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