



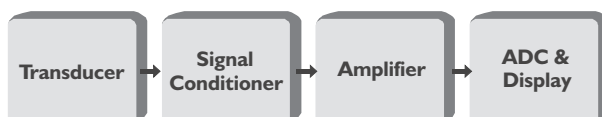
INTRODUCTION

Temperature Indicators in temperature measurement play an important part in any process industry. Quick and accurate measurement of process temperature will improve the final product quality, reliability and reduce rejection. Temperature indication is therefore one of the prime considerations in any process industry. The ESD 90I series Digital temperature indicators are designed for fast and accurate temperature measurement. The instrument is designed using highly reliable electronic components. The process temperature is displayed directly in digits, which gives better resolution compared to analog indicator. The ESD 90I series accepts all types of Thermocouples, Pt - 100, 0 - 20 mA as well as 4 - 20 mA as input. Wide ranges of measurements are available depending on the sensor used. The instrument is immune to mechanical vibrations.



Even the mounting position will not affect the measurement accuracy. The large bright red LED seven segment display allows long distance readability. Use of highly reliable electronic components with low temperature coefficients ensure long and trouble free service. The instrument is tested for its performance under various climatic conditions.

PRINCIPLE OF OPERATION



The ESD 90I series is based on the principle of a high input impedance amplifier feeding an analog to digital convertor. The input signal generated by the transducer is fed to a sensor compensation circuit, where automatic ambient compensation in case of thermocouple & lead resistance compensation in case of Pt-100 is achieved. Duly compensated signal is fed to a signal conditioning amplifier, output of which is given to digital display. The linearisation of the input signal from the transducer is done by hardware in the input circuit. This gives a standardized signal to the analog to digital convertor which drives the seven segment LED display, indicating the temperature directly.

APPLICATION

The ESD 90I series temperature indicator can be used in almost any industry, laboratory etc. where accurate temperature indication is needed to be carried out.

FEATURES

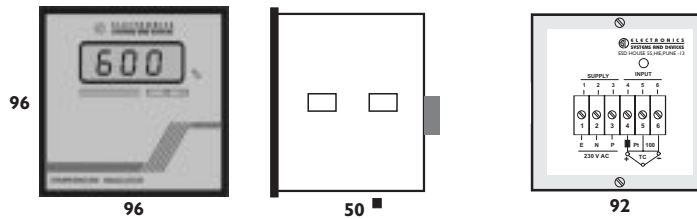
- ✓ Proven troublefree field performance
- ✓ Highly compact
- ✓ Dust and vermin proof enclosure with epoxy powder coating
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Available in different DIN std. cutouts
- ✓ Designed for Pt-100, Thermocouples and 4 - 20 mA input
- ✓ Maximum MTBF and minimum MTTR
- ✓ Wide supply variation and environmental band

SPECIFICATIONS

Model	: ESD 9013 / ESD 9012 / ESD 9010	Accuracy deviation due to	
Ranges	: Std. as per chart below (other on demand)	a) Temperature change	: +/- 0.002 % / °C , ref at 25 °C
Input	: Pt - 100 / Thermocouple / 4 - 20 mA	b) Supply Variation	: +/- 0.005 % / V
Indication	: 199.9 12.5 mm Red LED display	Sensor break indication	: Up scale[_ _ _] (Down on demand)
Indication accuracy	: +/- 0.5 % of fullscale +/- 1 digit	Input impedance	: < 10 Mohms, (only for T/C input)
Least count	: 0.1 °C upto 200 °C, 1°C above 200 °C	Recalibration (if reqd)	: By Zero and Span pots inside
Power supply	: 230 V AC, +/- 10 % , 50 Hz with Earth	Power consumption	: 5 VA
Relative Humidity	: 90 % Non Condensing	Mounting	: Flush mounting
Ambient Temperature	: 0 to 55 °C	Enclosure	: IP 55 mild steel with power coating
Amb. Temp. compensation	: Built in upto 55 °C	Termination	: PUT 2.5 mm ² /PBT
		Weight	: 700 grams

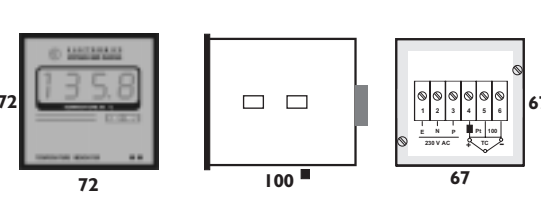
INSTALLATION

Model ESD 9013



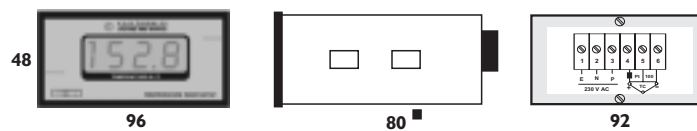
96
50 ■
92

Model ESD 9012



72
100 ■
67

Model ESD 9010



48
96
80 ■
92

Model	Facia	Cutout	Depth ■
ESD 9013	96 x 96	92 x 92	50
ESD 9012	72 x 72	67 x 67	100
ESD 9010	96 x 48	92 x 45	80

■ Add 25 for terminals

ORDERING INFORMATION

ESD 90	X1	X2	X3	X4	X5																													
	Input 1 - One	Panel Cutout 0 - 92 x 45 1 - 45 x 92 2 - 67 x 67 3 - 92 x 92 4 - 138 x 67 5 - 67 x 138 6 - 186 x 92	Input 1 - Pt - 100 2 - J type T/C 3 - K type T/C 4 - R type T/C 5 - S type T/C 6 - 0 to 20 mA 7 - 4 to 20 mA 8 - 0 to 2V DC 9 - Other	Range 0 - -50 to 50 °C 1 - 0 to 100 °C 2 - 0 to 200 °C 3 - 0 to 100 % 4 - 0 to 400 °C 5 - 0 to 600 °C 6 - 0 to 800 °C 7 - 0 to 1000 °C 8 - 0 to 1200 °C 9 - Other	Power Supply 1 - 230 V AC 2 - 110 V AC 3 - 48 V AC 4 - 24 V AC 5 - 24 V DC 6 - Other	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Input</th> <th colspan="3">Standard Ranges in °C</th> </tr> </thead> <tbody> <tr> <td>Pt-100</td> <td>-50 - 50</td> <td>0 - 100</td> <td>0 - 200</td> </tr> <tr> <td>J</td> <td>0 - 200</td> <td>0 - 400</td> <td>0 - 600</td> </tr> <tr> <td>K</td> <td>0 - 200</td> <td>0 - 400</td> <td>0 - 600</td> </tr> <tr> <td></td> <td>0 - 800</td> <td>0 - 1000</td> <td>0 - 1200</td> </tr> <tr> <td>R, S</td> <td colspan="3">800 - 1600</td> </tr> <tr> <td>mA/ mV</td> <td colspan="3">0 to 100 % or process value</td> </tr> </tbody> </table>	Input	Standard Ranges in °C			Pt-100	-50 - 50	0 - 100	0 - 200	J	0 - 200	0 - 400	0 - 600	K	0 - 200	0 - 400	0 - 600		0 - 800	0 - 1000	0 - 1200	R, S	800 - 1600			mA/ mV	0 to 100 % or process value		
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						Ordering eg. ESD 9013 - 101 Digital Temp. Indicator ESD 90 No of inputs - One (1) Panel cutout - 92 x 92 mm (3) Input - Pt - 100 (1) Range - -50 °C to 50 °C (0) Power Supply - 230 V AC (1)																												

ADDITIONAL CHOICE

- | | | |
|--------------------------------|-----------------------------|---------------------------------|
| ✓ Multi Input Indicators | ✓ Multi Channel Indicators | ✓ Microprocessor based Scanners |
| ✓ Portable Indicators | ✓ Field mounting Indicators | ✓ Peak hold Indicators |
| ✓ Supersize display Indicators | ✓ Flameproof Indicators | |



**ELECTRONICS
SYSTEMS AND DEVICES**
Process Control Instrumentation

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