



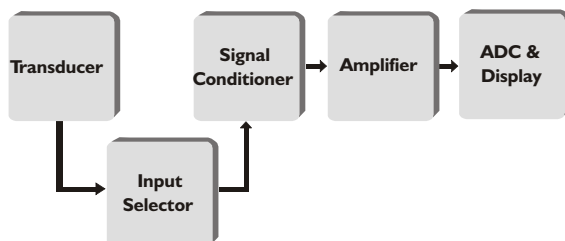
## INTRODUCTION

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

## FEATURES

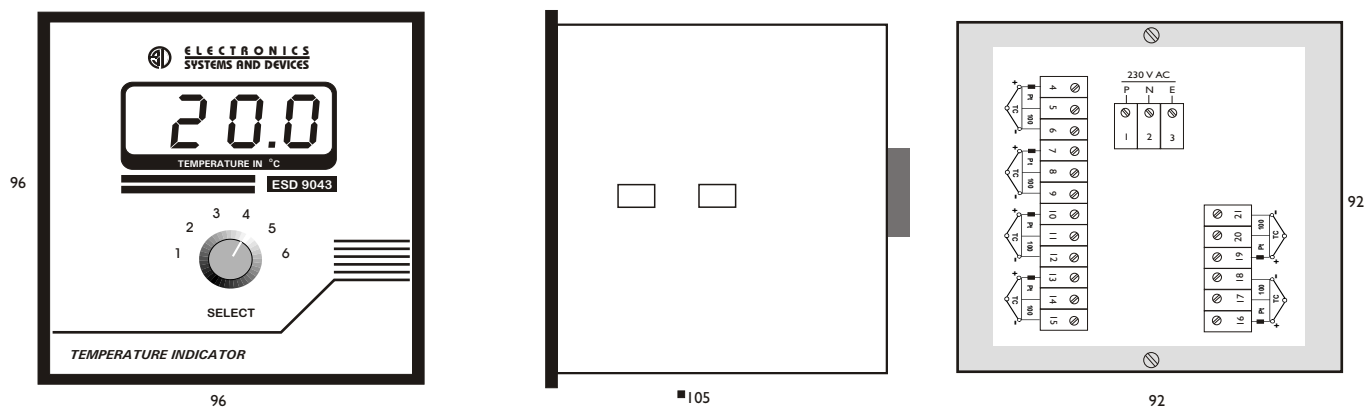
- ✓ Proven trouble free field performance
- ✓ Highly compact
- ✓ Dust and vermin proof enclosure with epoxy powder coating
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Available in different DIN std. cutouts
- ✓ Designed for Pt-100, Thermocouples and 4 - 20 mA input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

## SPECIFICATIONS

Model	: ESD 9043	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	: +/- 0.001 % / V
No of inputs	: 6	Sensor break indication	: Up scale [ ↑ _ _ _ ] (down on demand)
Input selection	: By gold plated selector switch	Input impedance	: < 10 Mohms, (only for T/C input )
Indication	: 1 9 9 . 9 12.5 mm RED LED display	Power consumption	: 3 VA
Indication accuracy	: +/- 0.5 % of full scale +/- 1 digit	Front facia	: ABS plastic suitable for IP 55 having size 96 x 96 mm
Least count	: 0.1°C up to 200°C, 1°C above 200°C	Panel cutout	: 92 x 92 mm
Power supply	: 230 V AC, +/- 10 %, 50 Hz with earth	Mounting	: Flush mounting
Relative humidity	: Less than 90% non condensing	Enclosure	: Mild Steel CRCA sheet with powder coating
Ambient temperature	: 0 to 55°C	Termination	: Screwed type suitable for 2.5 mm <sup>2</sup> wire
Recalibration (if reqd)	: By zero & span potentiometers inside	Weight	: 700 gram approximately
Amb. Temp. compensation	: Built in up to 55°C	Optional	: 4-20mA retransmission output

## INSTALLATION

Model ESD 9043



## ORDERING INFORMATION

■ Depth including terminals

ESD 90	X1	X2	X3	X4	X5
<b>No of inputs</b>	3 -- Three 4 -- Six 6 -- Twelve	<b>Panel cutout</b> 3 -- 92 x 92 6 -- 186 x 92	<b>Input</b> 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	<b>Range</b> 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	<b>Power supply</b> 1 -- 230 V AC 2 -- 110 V AC 3 -- 24 V AC 4 -- 24 V DC 5 -- Other

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
R, S	800 - 1600		
mA / mV	0 to 100 % or process value		

**Ordering eg.** ESD 9043 - 101  
Digital Temp. Indicator: ESD 90  
No of inputs -- Six (4)  
Panel cutout -- 92 x 92 mm (3)  
Input -- Pt - 100 (1)  
Range -- -50 °C to 50 °C (0)  
Power Supply -- 230 V AC (1)

ALSO SELECT ESD ...	BACK END	SAME RANGE	FRONT END
	<ul style="list-style-type: none"> <li>✓ Pt - 100</li> <li>✓ Thermocouples</li> <li>✓ Thermowells</li> <li>✓ Compensating Cables</li> </ul>	<ul style="list-style-type: none"> <li>✓ Single Input Indicators</li> <li>✓ Supersize Display Indicators</li> <li>✓ Multi Channel Indicators</li> </ul>	<ul style="list-style-type: none"> <li>✓ Flameproof Indicators</li> <li>✓ Portable Indicators</li> <li>✓ Field Mounting Indicators</li> <li>✓ Automation Panel</li> </ul>



**ELECTRONICS  
SYSTEMS AND DEVICES**  
Process Control Instrumentation

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