



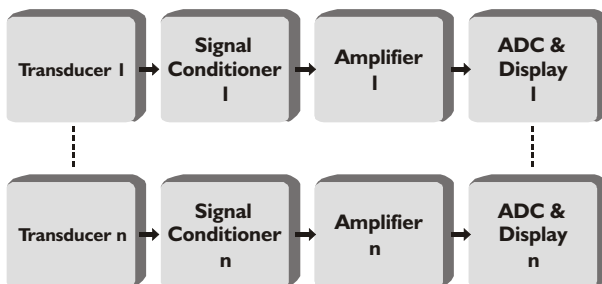
INTRODUCTION

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** 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** 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** 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** series temperature indicator can be used in almost any industry where simultaneously two or four channel temperature measurement is to be carried out. This unit is more convenient where these channels are interrelated to each other like wet bulb - dry bulb, inlet - outlet etc.

FEATURES

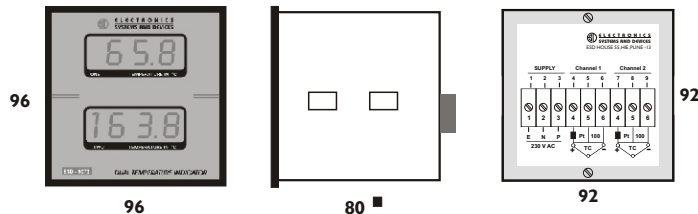
- ✓ Proven troublefree field performance
- ✓ Highly compact
- ✓ Dust and vermin proof enclosure with epoxy powder coating
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Available in different DIN std. cutouts
- ✓ Designed for Pt-100, Thermocouples and 4 - 20 mA input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

SPECIFICATIONS

Model	<input type="checkbox"/> ESD 9073 <input type="checkbox"/> ESD 9086	Accuracy deviation due to
Ranges	: Std. as per chart below (other on demand)	a) Temperature change : +/- 0.002 % / °C , ref at 25 °C b) Supply Variation : +/- 0.005 % / V
Input	: Pt - 100 / Thermocouple / 4 - 20 mA	Sensor break indication : Up scale [_ _ _] (Down on demand)
No of channels	<input type="checkbox"/> Two <input type="checkbox"/> Four	Input impedance : < 10 Mohms, (only for T/C input)
Indication	: 199.9 12.5 mm Red LED display	Recalibration (if reqd) : By Zero and Span pots inside
Indication accuracy	: +/- 0.5 % of fullscale +/- 1 digit	Power consumption : 5 VA
Least count	: 0.1 °C upto 200 °C, 1°C above 200 °C	Mounting : Flush mounting
Power supply	: 230 V AC, +/- 10 % , 50 Hz with Earth	Enclosure : IP 55 mild steel with power coating
Relative Humidity	: 90 % Non Condensing	Termination : PUT 2.5 mm ² / PBT
Ambient Temperature	: 0 to 55 °C	Weight : 1.5 Kgs
Amb. Temp. compensation	: Built in upto 55 °C	

INSTALLATION

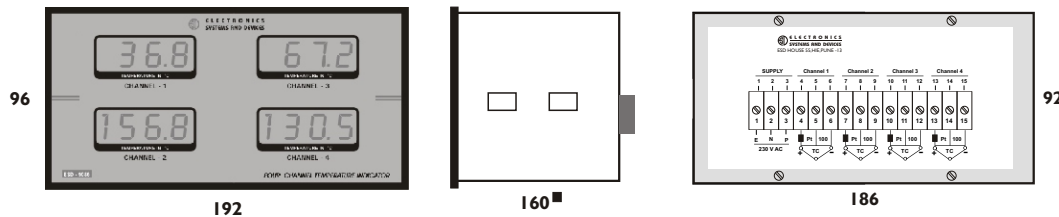
Model ESD 9073



Model	Facia	Cutout	Depth
ESD 9073	96 x 96	92 x 92	80
ESD 9086	192 x 96	186 x 92	160

■ Add 25 for terminals

Model ESD 9086



ORDERING INFORMATION

ESD 90	X1	X2	X3	X4	X5
No of Channels	7 - Two 8 - Four	Panel Cutout 3 - 92 x 92 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

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		

Ordering eg. ESD 9073 - 101	
Digital Temp. Indicator	ESD 90
No of channels -	Two (7)
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 ...

BACKEND

- ✓ Platinum Resistance Bulbs
- ✓ Thermocouples
- ✓ Thermowells
- ✓ Compensating Cables

SAME RANGE

- ✓ Single input Indicators
- ✓ Multi Input Indicators
- ✓ Portable Indicators
- ✓ Supersize Indicators
- ✓ Field mounting Indicators
- ✓ Flameproof Indicators

FRONT END

- ✓ Automation Panel



**ELECTRONICS
SYSTEMS AND DEVICES**
Process Control Instrumentation

ESD HOUSE,
55, Hadapsar Indl. Estate,
Pune - 411013 (INDIA).

Phone : (020) 26819611 to 15
Fax : (020) 26871951
e-mail : esdcdi@vsnl.com
Web : www.esd-india.com