

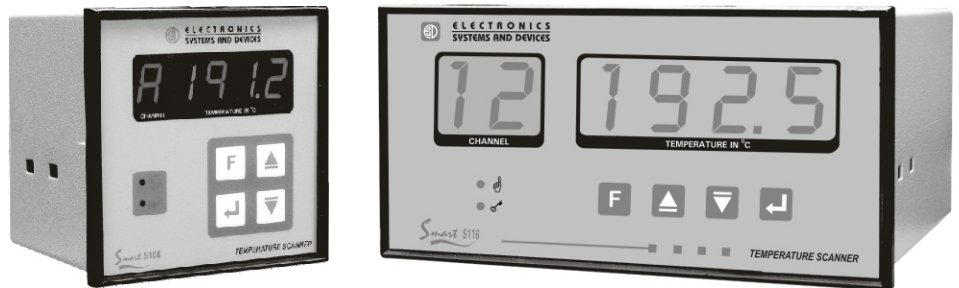


**INTRODUCTION**

Temperature Indicators and Controllers play an important part in any process industry. Quick and accurate measurement and control of a process temperature will help to improve the final product quality, reliability and reduce rejection. Temperature indication and control is therefore one of the prime considerations in any process industry.

The ESD Process Scanner series is based on microcontroller and is designed for fast and accurate measurement and control of temperature. The instrument is designed using highly reliable electronic components. The process temperature is displayed directly in digits, which gives better resolution.

ESD offers different application oriented models

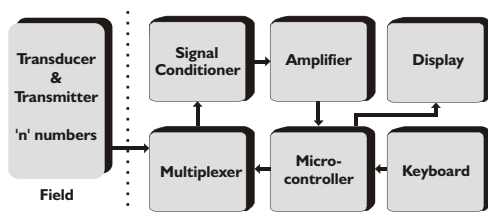


like only scanner, scanner with common alarm, scanner with group alarm, scanner with controller. All above models are available in different DIN standard cutouts suitable for 8 and 16 channels.

This series accepts all types of Thermocouples, Pt - 100, 0 to 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 coefficient ensure long and trouble free service. The instrument is tested for its performance under various climatic conditions.

**PRINCIPLE OF OPERATION**



The ESD PROCESS SCANNER series is based on the principle 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 CPU through ADC.

The linearization of the input signal from the transducer is done by software. This linearized signal is directly displayed on the display and compared with the set value by processor.

The processor scans all the inputs at a very fast rate and stores it in the memory. This stored data and programmed set values are displayed automatically as per the preset scan times.

**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
- ✓ Highly accurate
- ✓ Available in different DIN std. cutouts
- ✓ Designed for Pt-100, Thermocouples and 4 - 20 mA input
- ✓ Maximum MTBF and minimum MTTR
- ✓ Feather touch push button
- ✓ Wide supply variation and environmental band
- ✓ User friendly programming

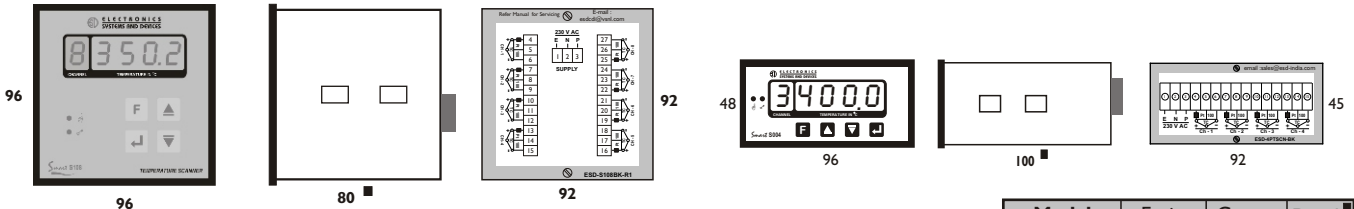
## SPECIFICATIONS

Model	<input type="checkbox"/> Smart S104 <input type="checkbox"/> Smart S108 <input type="checkbox"/> Smart S216 <input type="checkbox"/> Smart S216
No. of Inputs	<input type="checkbox"/> Four <input type="checkbox"/> Eight <input type="checkbox"/> Sixteen
Ranges	: Std. as per chart below (other on demand)
Input	: Pt - 100 / Thermocouple / 4 - 20 mA
Indication	: <input type="checkbox"/> 3 9 9 . 9 12.5 mm Red LED display <input type="checkbox"/> 3 9 9 . 9 25 mm Red LED display
Indication accuracy	: +/- 0.2 % of fullscale +/- 1 digit
Least count	: 0.1°C upto 400 °C, 1°C above 400 °C
Power supply	: 230 V AC, +/- 10 % , 50 Hz with Earth
Relative Humidity	: 90 % Non Condensing
Ambient Temperature	: 0 to 55 °C
Channel Skip	: By setting scan time as zero
Scan Time	: Individually adjustable from 0 - 99 seconds
Programming	: Through membrane feather touch switches

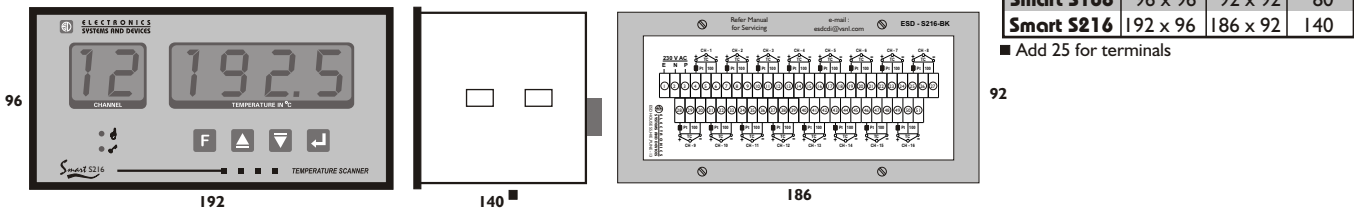
Amb. Temp. compensation	: Built in upto 55 °C
Accuracy deviation due to	
a) Temperature change	: +/- 0.002 % / °C , ref at 25 °C
b) Supply Variation	: +/- 0.005 % / V
Sensor break indication	: <b>O P E N</b>
Input impedance	: < 10 Mohms, (only for T/C input )
Recalibration (if reqd)	: By Zero and Span pots inside
Power consumption	: 6 VA
Output (optional)	<input type="checkbox"/> 4 - 20 mA for retransmission <input type="checkbox"/> 24 V DC, 100mA field supply
Mounting	: Flush mounting
Enclosure	: IP 55 mild steel with power coating
Termination	: PBT
Weight	: 1.0 kgs

## INSTALLATION

Model Smart S108



Model Smart S216



Model	Facia	Cutout	Depth
Smart S004	96 x 48	92 x 45	100
Smart S108	96 x 96	92 x 92	80
Smart S216	192 x 96	186 x 92	140

■ Add 25 for terminals

## ORDERING INFORMATION

Smart S	X1	X2	X3	X4	X5
<b>Panel Cutout</b>	0 - 92 x 45 1 - 92 x 92 2 - 186 x 92	<b>No. of Inputs</b> 04 - Four 08 - Eight 16 - Sixteen	<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 - -100 to 200 °C 1 - 0 to 400 °C 2 - 0 to 100 % 3 - 0 to 600 °C 4 - 0 to 1200 °C 5 - 0 to 1600 °C 6 - Other	<b>Power Supply</b> 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	-100 - 200	0 - 400
J	0 - 400	0 - 600
K	0 - 400	0 - 1200
R, S	0 - 1600	
mA / mV	0 to 100 % or process value	

**Ordering eg. Smart S108 - 1111**  
 Digital Temp. Scanner Smart S108  
 Panel cutout - 92 x 92 mm (1)  
 No of inputs - Eight (08)  
 Input - Pt - 100 (1)  
 Range - 0 °C to 400 °C (0)  
 Power Supply - 230 V AC (1)

ALSO SELECT  
ESD ...

### BACKEND

- ✓ Pt - 100
- ✓ Thermocouples
- ✓ Thermowells
- ✓ Compensating Cables

### SAME RANGE

- ✓ Scanners with Alarm
- ✓ Scanners with Controllers
- ✓ Data Acquisition System

### FRONT END

- ✓ Automation Panels
- ✓ PLC



**ELECTRONICS  
SYSTEMS AND DEVICES**  
Process Control Instrumentation

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