



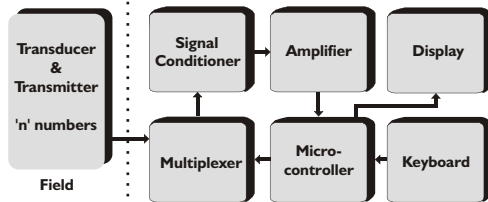
## INTRODUCTION

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 with alarm 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

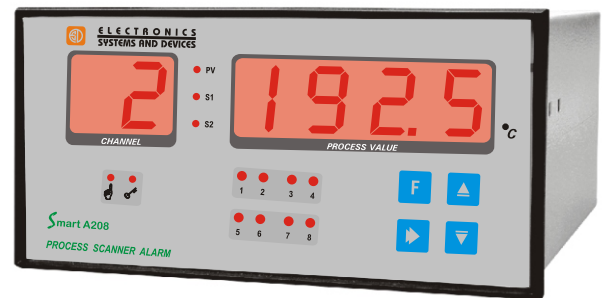
## PRINCIPLE OF OPERATION



The ESD PROCESS SCANNER WITH ALARM 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. Depending upon the status of input w.r.t. set point output to the relay driver is activated.

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.



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.

## FEATURES

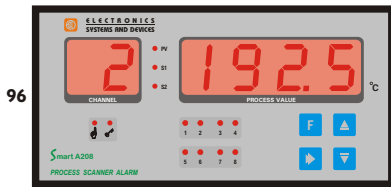
- ✓ Proven troublefree field performance
- ✓ Highly compact
- ✓ Dust and vermin proof enclosure with epoxy powder coating
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Highly accurate
- ✓ Available in different DIN std. cutouts
- ✓ Designed for Pt-100, Thermocouples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

## SPECIFICATIONS

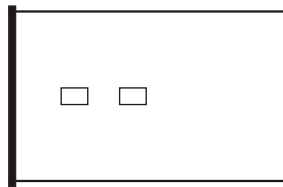
Model	<input type="checkbox"/> Smart A108 <input type="checkbox"/> Smart A208 <input type="checkbox"/> Smart A216	Output	: 2 Nos. potential free relay contacts rated 5 amp resistive at 230 V AC
No. of Inputs	<input type="checkbox"/> Eight <input type="checkbox"/> Eight <input type="checkbox"/> Sixteen	Amb. Temp. compensation	: Built in upto 55 °C
Ranges	: Std. as per chart below (other on demand)	Accuracy deviation due to	
Input	: Pt - 100 / Thermocouple / 4 - 20 mA	a) Temperature change	: +/- 0.002 % / °C, ref at 25 °C
Indication	: <input type="checkbox"/> 3 9 9 . 9 25 mm Red LED display	b) Supply Variation	: +/- 0.005 % / V
Indication accuracy	: +/- 0.2 % of fullscale +/- 1 digit	Sensor break indication	: <input type="checkbox"/> P E N
Least count	: 0.1°C upto 400 °C, 1°C above 400 °C	Input impedance	: < 10 Mohms, (only for T/C input )
Power supply	: 230 V AC, +/- 10 % , 50 Hz with Earth	Recalibration (if reqd)	: By Zero and Span pots inside
Relative Humidity	: 90 % Non Condensing	Power consumption	: 6 VA
Ambient Temperature	: 0 to 55 °C	Output (optional)	<input type="checkbox"/> 4 - 20 mA for retransmission <input type="checkbox"/> 24 V DC, 100mA field supply
Channel Skip	: By setting scan time as zero	Mounting	: Flush mounting
Scan Time	: Individually adjustable from 0 - 99 seconds	Enclosure	: IP 55 mild steel with power coating
Programming	: Through membrane feather touch switches	Termination	: PBT
Setpoint	: Two per channel	Weight	: 800 grams
Setpoint logic	: A1 < A2		
Relay logic	: Selectable between High- High, Low- Low and Low - High		

## INSTALLATION

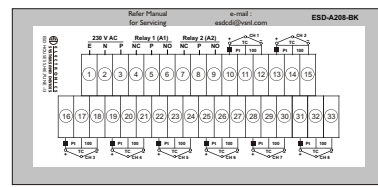
### Model Smart A208



192

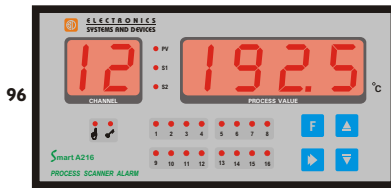


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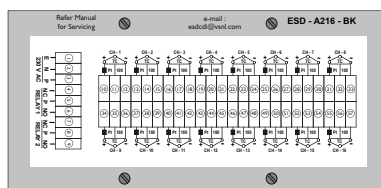


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### Model Smart A216



192

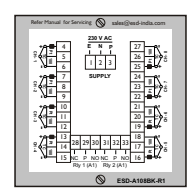


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### Model Smart A108



96



92

## ORDERING INFORMATION

### Smart A X1

**Panel Cutout**  
1 - 92 x 92  
2 - 186 x 92

### X2

**No. of Inputs**  
08 - Eight  
16 - Sixteen

### X3

**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

### X4

**Range**  
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

### X5

**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	-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	

Model	Facia	Cutout	Depth
Smart A108	96 x 96	92 x 92	120
Smart A208	192 x 96	186 x 92	140
Smart A216			

■ Add 25 for terminals

**Ordering eg. Smart A208 - 1111**  
Digital Temp. Scanner Smart A208  
Panel cutout - 186 x 92 mm (2)  
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
- ✓ Scanners with Controllers
- ✓ Data Acquisition System

### FRONT END

- ✓ Alarm Annunciators
- ✓ Automation Panels
- ✓ PLC



**ELECTRONICS**  
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Process Control Instrumentation

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