ELECTRONICS
SYSTEMS AND DEVICES
Process Control Instrumentation

TEMPERATURE SCANNER
SMART S216

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.

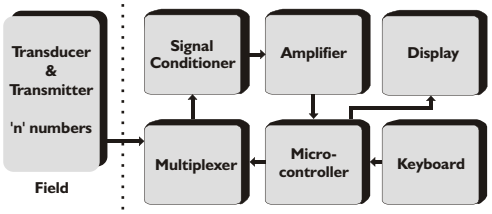
The ESD Process Scanner series is based on microcontroller and is designed for fast and accurate measurement and control of temperature. The instrument is designed using highly reliable electronic components. The process temperature is displayed directly in digits, which gives better resolution .

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 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
- ✓ 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	: Smart S216
Number of inputs	: Sixteen
Ranges	: Refer chart below (other on demand)
Input	: Pt - 100 / Thermocouple / 4 - 20 mA
Indication	: 999.9 12.5 mm RED LED display
Number of digits	: 7 (2 for channel number, 4 for process value and 1 for unit)
Indication accuracy	: +/- 0.25 % of full scale +/- 1 digit
Least count	: Refer chart below (other on demand)
Power supply	: 230 V AC, +/- 10 % , 50 Hz with earth
Relative humidity	: Less than 90% non condensing
Ambient temperature	: 0 to 55°C
Amb. Temp. compensation	: Built in up to 55°C
Accuracy deviation due to	
a) Temperature change	: +/- 0.002 % /°C, ref at 25°C
b) Supply variation	: +/- 0.001 % / V
Sensor break indication	: OPEN
Input impedance	: < 10 Mohms, (only for T/C input)
Recalibration (if reqd)	: By software using keypad. To be done on channel 1 only.
Programming	: Using 4 keys membrane keypad. Default password is 134
Power consumption	: 6 VA
Channel skip	: By setting scan time as zero seconds
Scan time	: Individually adjustable from 0 - 99 seconds
Display response time	: 0.5 seconds /channel
Front facia	: ABS plastic suitable for IP 55 having size 192 x 96 mm
Panel cutout	: 186 x 92 mm
Mounting	: Flush panel
Enclosure	: Mild steel CRCA sheet with powder coating
Termination	: Screwed type suitable for 2.5 mm^2 wire
Weight	: 1 kg approximately

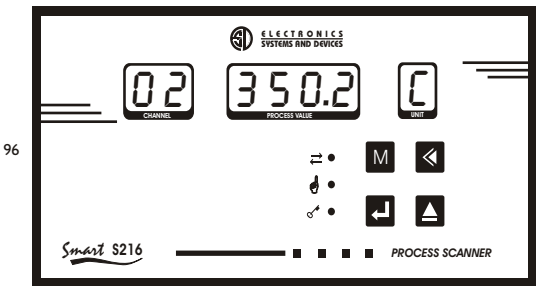
Optional

A) Retransmission o/p	: Isolated 4-20 mA proportional to average value of all inputs
Resolution	: 10 bit (0.016 mA step change)
Load resistance	: Max 500 ohms
B) Serial interface	: Isolated RS 485 (2 wire) / RS 232
Protocol	: Modbus RTU

Chart

Input	Std. Ranges in °C	Least count
Pt-100	-100 to 200 0 to 400	0.1°C
J	0 to 600	1°C
K	0 to1200	
R, S	0 to1600	
mA / mV	Programmable from -999 to 9999	Settable

INSTALLATION



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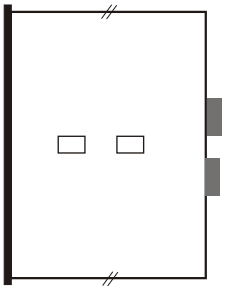
192



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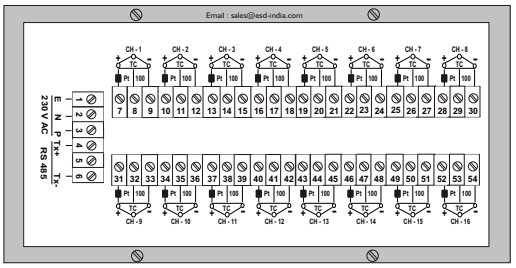
Depth including terminals



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ORDERING INFORMATION

Smart S X1 X2 X3 X4 X5

Panel Cutout
0 - 92 x 45
1 - 92 x 92
2 - 186 x 92

No. of Inputs
04 - Four
08 - Eight
16 - Sixteen

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 - -100 to 200°C
1 - 0 to 400°C
2 - 0 to 600°C
3 - 0 to 1200°C
4 - 0 to 1600°C
5 - Other

Power Supply
1 - 230 V AC
2 - 110 V AC
3 - 24 V AC
4 - 24 V DC
5 - Other

Ordering eg. Smart S216 - 101
Digital Temp. Scanner Smart S216

Panel cutout	- 186 x 92 mm	(2)
No of inputs	- Sixteen	(16)
Input	- Pt - 100	(1)
Range	- -100°C to 200°C	(0)
Power Supply	- 230 V AC	(1)

ALSO SELECT ESD ...

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

SAME RANGE
- ✓ Scanners With Alarm
- ✓ Scanners With Controllers
- ✓ Data Acquisition System

FRONT END
- ✓ Automation Panels
- ✓ PLC

ESD/SD/4705

ELECTRONICS SYSTEMS AND DEVICES
Process Control Instrumentation

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CE

Unspecified dimensions are in mm. Photos not to the scale. Due to continuous development above details are likely to change.