



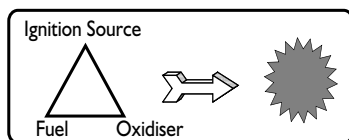
INTRODUCTION

Process Indicators 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.

Process indicators may be installed in a variety of surroundings. However installation of electrical / electronic equipments in hazardous locations needs special considerations.

A hazardous location may be defined as one where combustible gases, vapours, fumes or dust particles are present in explosive proportions. On such locations the condition that may lead to fire or explosion is the presence of the following at the same time :

- 1) Flammable liquid, vapour, gas, dust or fibre in an ignitable concentration.



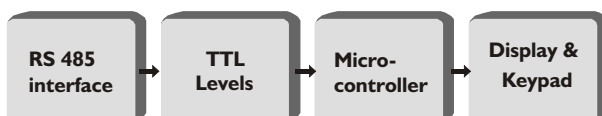
It is for such applications that ESD offers process indicators mounted in Explosion proof housings. However it may be noted that the specific precautions vary with the degree of hazard and the probability of it's presence.

The Sleek 90 series Digital Process indicators

FEATURES

- ✓ Proven trouble free field performance
- ✓ Highly compact
- ✓ Explosion proof housing certified by CMRI (Dhanbad)
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Designed for RS 485 (2 wire), Modbus RTU protocol
- ✓ Maximum MTBF and minimum MTTR
- ✓ Wide supply variation and environmental band

PRINCIPLE OF OPERATION



The Sleek 90 series is based on the principle of a RS 485 digital communication interface. Data from RS 485 2 wire loop is fed to the TTL circuit and then to the microcontoller.



are designed for fast and accurate process measurement. The instrument is designed using highly reliable electronic components. The process is displayed directly in digits, which gives better resolution compared to analog indicator. Our explosion proof enclosures are certified by CMRI Dhanbad and are suitable for Class I / II and group A, B

Class I : Combustible material in the form of gas or vapour
Class II : Combustible material in the form of dust
Group A : Acetylene.

Group B: Hydrogen or similar hazardous gases.
The Sleek 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 coefficient ensure long and trouble free service. The instrument is tested for its performance under various climatic conditions.

APPLICATION

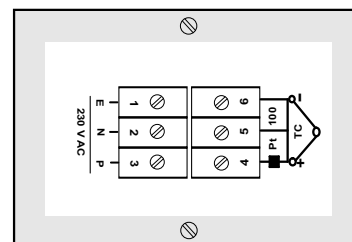
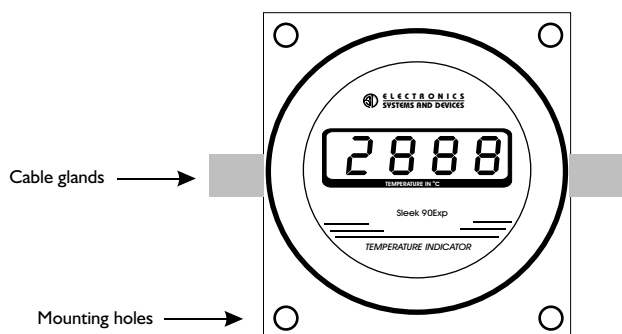
Designed specially for work under hazardous conditions where possibilities of fire and explosion are extremely high e.g. Chemical reactors, Petroleum industry, etc

SPECIFICATIONS

Model	: Sleek 90Exp	Programming	: 3 keys keypad (Internally accessible)
Ranges	: Refer chart below (other on demand)	Power consumption	: 3 VA
Input	: Pt 100 / Thermocouple / 4-20mA	Dimension	: 120 mm (L) x 120 mm (W)
Indication	: 9 9 9 . 9 12.5 mm RED LED	Mounting	: Wall
Indication accuracy	: +/- 0.25 % of full scale +/- 1 digit	Mounting CTC	: 97 x 97 mm
Least count	: Refer chart below (other on demand)	Enclosure	: IP 65 CMRI certified in die cast aluminium
Power supply	: 230 V AC, +/- 10 %, 50 Hz with earth	Termination	: Screwed type suitable for 2.5 mm ² wire
Relative humidity	: Less than 90 % non condensing	Weight	: 1 kg approximately
Ambient temperature	: 0 to 55°C	Cable entry	: 2 no of 1/2 inch NPT
Ambient temp compensation	: Built in up to 55°C	Cable glands	: 2 no of 1/2 inch NPT double compression flameproof glands
Accuracy deviation due to			
a) Temperature change	: +/- 0.002 % /°C, ref at 25°C		
b) Supply variation	: +/- 0.001 % / V		
Sensor break indication	: \square P E N		
Input impedance	: < 10 Mohms, (only for T/C input)		
Recalibration (if reqd)	: By software using keypad		

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 to 1200	
R, S	0 to 1600	
mA / mV	Programmable from -999 to 9999	Settable

INSTALLATION



Internal termination details

ORDERING INFORMATION

Sleek 90 Exp

X1	X2	X3	Ordering eg. Sleek 90Exp
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 - 4 to 20 mA 7 - Other	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	Power supply 1 - 230 V AC 2 - 110 V AC 3 - 24 V AC 4 - 24 V DC 5 - Other	Flameproof Indicator Sleek 90Exp Input - Pt - 100 (1) Range - 0°C to 400°C (1) Power supply - 230 V AC (1)

ALSO SELECT ESD ...

BACK END

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

SAME RANGE

- ✓ Single Input Indicators
- ✓ Multi Input Indicators
- ✓ Supersize Display Indicators
- ✓ Multi Channel Indicators
- ✓ Portable Indicators
- ✓ Field Mounting Indicators

FRONT END

- ✓ Flameproof Controller
- ✓ Flameproof Scanner



ELECTRONICS SYSTEMS AND DEVICES
Process Control Instrumentation

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

Phone : (020) 26819611 to 15
E-mail : sales@esd-india.com
Web : www.esd-india.com

