



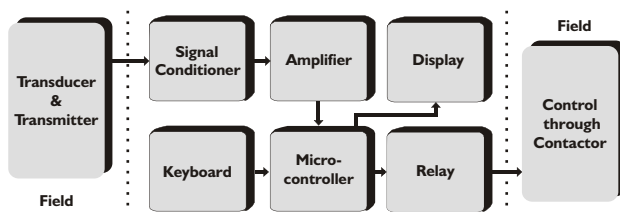
## INTRODUCTION

Process Indicators / Controllers play an important part in any process industry. Quick and accurate measurement / control of a process parameter will improve the final product quality, reliability and reduce rejection. Process indication and control is therefore one of the prime considerations in any process industry. The Sleek 90 series is microcontroller based programmable pressure indicator/controller designed for fast and accurate measurement/control. The instrument is designed using highly reliable electronic components. The process parameter is displayed in digits, which gives better resolution compared to analog indicator. The Sleek 90 series accepts 0 - 20 mA as well as 4 - 20 mA as input. 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 lowest temperature coefficient ensure long and trouble free service. The instrument is tested for its performance under various climatic conditions. Wide ranges of measurements are available depending on the sensor used.

## PRINCIPLE OF OPERATION



The Sleek 90 series is based on the principle of a high input impedance amplifier feeding a microcontroller followed by a relay and an inbuilt ADC. The signal from 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 the 12 bit analog to digital convertor which is inbuilt the microcontroller. The linearisation of the transducer signal is done by software. The microcontroller also drives the LED display, indicating the temperature .

## APPLICATION

The Sleek 90 series process indicators can be used in almost any industry, laboratory etc. where accurate process value measurement is to be carried out.

## 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

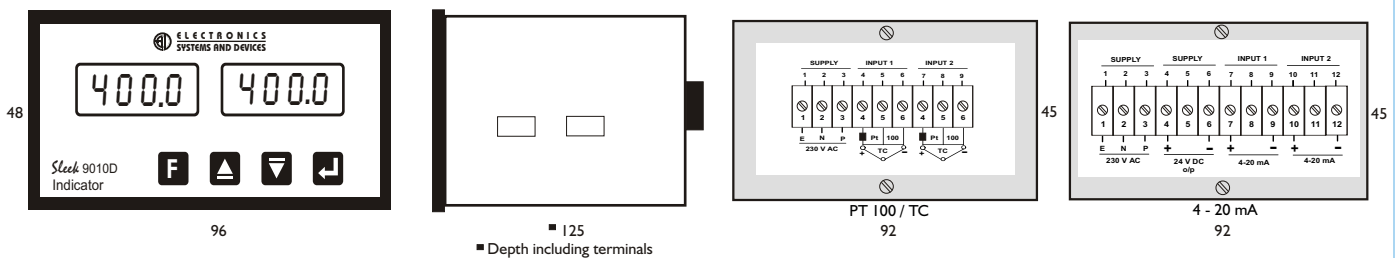
|                           |   |
|---------------------------|---|
| Model                     | : Sleek 9010 D  |
| Ranges                    | : Refer chart below (other on demand)                   |
| No of inputs              | : 2   |
| Input                     | : Pt - 100 / Thermocouple / 4 - 20 mA                   |
| Indication                | : 9 9 9 . 9 12.5 mm RED LED display                     |
| Indication accuracy       | : +/- 0.25 % of full scale +/- 1 digit                  |
| Least count               | : Refer chart below (other on demand)                   |
| No of displays            | : 2   |
| 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                              |
| Programming               | : Using 4 keys membrane keypad. Default password is 134 |

|                    |   |
|--------------------|---|
| Power consumption  | : 5 VA  |
| Transmitter supply | : 24 V DC @50mA (only for 4-20mA)                       |
| Front facia        | : ABS plastic suitable for IP 55 having size 96 x 48 mm |
| Mounting           | : Flush panel   |
| Enclosure          | : Mild steel CRCA sheet with powder coating             |
| Termination        | : Screwed type suitable for 2.5mm <sup>2</sup> wire     |
| Panel cutout       | : 92 x 45 mm  |
| Weight             | : 800 grams approximately                               |
| Optional           |   |
| 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<br>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

### Sleek 9010D



## ORDERING INFORMATION

|           |    |   |    |    |    |  |  |
|-----------|----|---|----|----|----|--|--|
| Sleek 901 | X1 | D | X2 | X3 | X4 | Ordering eg. Sleek 9010D - 101<br>Process Indicator Sleek 9010D<br>Panel cutout - 92 x 45 mm (0)<br>Input - Pt - 100 (1)<br>Range - -100 to 200 (0)<br>Power supply - 230 V AC (1) |  |
|           |    |   |    |    |    |  | Panel Cutout<br>0 - 92 x 45<br>3 - 92 x 92   |
|           |    |   |    |    |    |  | Input<br>1 - Pt - 100<br>2 - J type T/C<br>3 - K type T/C<br>4 - R type T/C<br>5 - S type T/C<br>6 - 0 to 20 mA<br>7 - 4 to 20 mA<br>8 - 0 to 2V DC<br>9 - Other |
|           |    |   |    |    |    |  | Range<br>0 - -100 to 200<br>1 - 0 to 400<br>2 - 0 to 600<br>3 - 0 to 1200<br>4 - 0 to 1600<br>5 - Programmable   |
|           |    |   |    |    |    |  | Power Supply<br>1 - 230 V AC<br>2 - 110 V AC<br>3 - 24 V AC<br>4 - 24 V DC<br>5 - Other  |

ALSO SELECT  
ESD ...

### BACK END

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

### SAME RANGE

- ✓ Temperature Indicators
- ✓ Supersize Indicators
- ✓ Loop Powered Indicators
- ✓ Portable Indicators
- ✓ Field Mounting Indicators
- ✓ Flameproof Indicators
- ✓ Auto Manual Station

### FRONT END

- ✓ ON OFF Controllers
- ✓ PI Controllers
- ✓ Process Scanners
- ✓ Automation Panels



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