ELECTRONICS
SYSTEMS AND DEVICES
Process Control Instrumentation

DIFFERENTIAL TEMPERATURE CONTROLLER

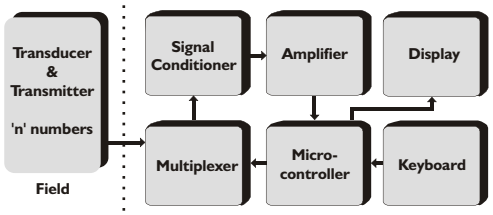
INTRODUCTION

Temperature indicators and controllers play an important part in any process industry. Quick and accurate measurement and control of a process temperature will 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 Sleek 92D is a On / Off type Digital Differential Temperature Controller designed for fast and accurate measurement and control. The instrument is designed using highly reliable electronic components. Process temperature is displayed directly in digits, giving better resolution compared to analog indicator. The Sleek 92D accepts 2 Pt - 100 sensors (3 Wire) as the inputs. Input No - 1, Input No - 2 and Differential Temperatures can be monitored with the help of scrolling display. The Differential Temperature and High temp. alarm can be set using the keypads provided on the front panel.

The instrument is immune to mechanical vibrations. Even the mounting position will not affect the measurement accuracy. Use of highly reliable electronic components with low tempco ensure long and trouble free service. The instrument is tested for its performance under various climatic conditions. 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 Sleek 92D is based on the principle high input impedance amplifier feeding a microcontroller followed by a relay and an analog to digital convertor. The input signals namely the reference and variable generated by the transducers are fed to a sensor compensation circuit where 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 microcontroller and digital display. The microcontroller generates a differential signal i.e. variable minus reference. This signal is used to control the relay action as per the desired value (Set point).

The linearisation of the input signal from the transducer is done by hardware in the input circuit. This gives a standardized signal to the analog to digital convertor which drives the LED display, indicating the temperature directly.

APPLICATION

The Sleek 92 series temperature controllers can be used in almost any industry, laboratory etc. where accurate temperature control is needed to be carried out.

FEATURES

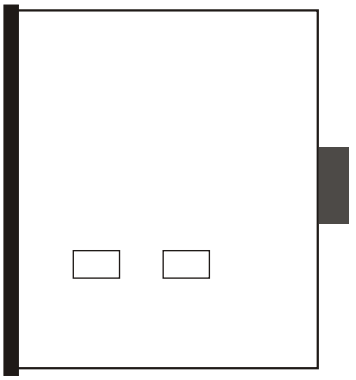
- ✓ Proven trouble free field performance
- ✓ Highly compact
- ✓ Dust and vermin proof enclosure with epoxy powder coating
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Highly accurate
- ✓ High temperature alarm
- ✓ Designed for Pt-100, Thermocouples and 4 - 20 mA input
- ✓ Maximum MTBF and minimum MTTR
- ✓ Feather touch push buttons
- ✓ Wide supply variation and environmental band
- ✓ User friendly programming

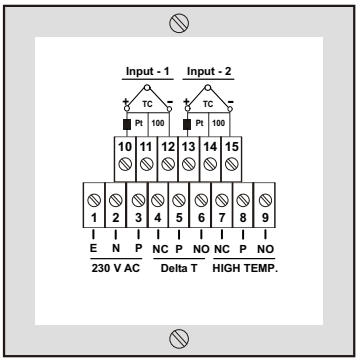
SPECIFICATIONS

Model	: Sleek 92D
Number of inputs	: Two
Ranges	: Refer chart below (other on demand)
Input	: Pt - 100 / Thermocouple / 4 - 20 mA
Indication	: 999.9 12.5 mm RED LED display
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
Channel skip	: By setting scan time as zero
Scan time	: Individually adjustable from 0-99 seconds
Programming	: Using 4 keys membrane keypad
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	: OPEN
Input impedance	: < 10 Mohms, (only for T/C input)

Setpoints	: Two (One for Delta T and one for high temperature Alarm on input no - 1.
Control action	: ON / OFF
Set point Adjust	: Using 4 keys membrane keypad
On / Off differential	: From 1 to 99°C (for LC = 1°C) From 0.1 to 9.9°C (for LC = 0.1 °C)
Relay output	: One set of potential free Relay c/o contact 5 Amp resistive at 230V AC per setpoint
Relay logic	: User selectable high or low
Relay ON indication	: 3mm RED LED
Sensor break protection	: Relay 'Off' (Relay 'On' on demand)
Power consumption	: 6 VA
Enclosure	: Mild steel CRCA sheet with powder coting
Termination	: Screwed type suitable for 2.5mm^2 wire
Front facia	: ABC plastic suitable for IP having size 96 x 96 mm
Mounting	: flush panel
Panel cutout	: 92 x 92mm
Weight	: 700 grams approximately

INSTALLATION





ORDERING INFORMATION

SLEEK 92D

X1

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

X2

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

X3

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	

Ordering eg. Sleek 92D - 111
Differential Temp. Cont. Sleek 92D
Input - Pt - 100 (1)
Range - 0 °C to 400 °C (1)
Power Supply - 230 V AC (1)

ALSO SELECT ESD ...

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

SAME RANGE
- ✓ Dual Channel Controllers
- ✓ Supersize Controllers
- ✓ PI Controllers
- ✓ Field Mounting Controllers
- ✓ Profile Controllers

FRONT END
- ✓ Alarm Annunciators
- ✓ Automation Panels

ELECTRONICS SYSTEMS AND DEVICES
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CE

ESD / SD /4525

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