ELECTRONICS
SYSTEMS AND DEVICES
Process Control Instrumentation

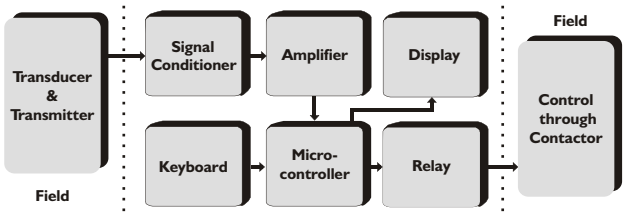
TEMPERATURE CONTROLLER
SLEEK 9257 PC

INTRODUCTION

Temperature indicators /controllers play an important part in any process industry. Quick and accurate measurement / 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 92 series is microcontroller based programmable temperature indicator/controller designed for fast and accurate measurement /control. The instrument is designed using highly reliable electronic components. The process temperature is displayed in digits, which gives better resolution compared to analog indicator. The Sleek 92 setpoint series accepts all types of Pt -100, Thermocouples, 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 92 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. This microcontroller then switches the relay ON or OFF depending upon the process value with respect to the setpoint. Linearisation of the transducer signal is done by software. The microcontroller also drives the LED display, indicating the temperature .

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

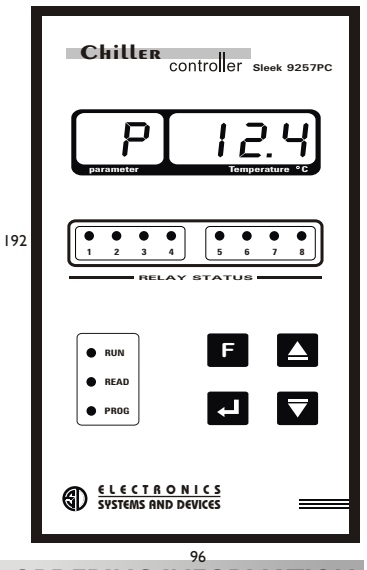
- ✓ Proven trouble free field performance
- ✓ Seperate display for setpoint no. 1
- ✓ Dust and vermin proof enclosure with epoxy powder coating
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Highly accurate
- ✓ Available in DIN std. cutouts
- ✓ Designed for Pt-100, Thermocouples and 4 - 20 mA input
- ✓ Fail safe relay logic
- ✓ Maximum MTBF and minimum MTTR
- ✓ Feather touch push button
- ✓ Wide supply variation and environmental band
- ✓ Minimum overshoot undershoot
- ✓ User friendly programming

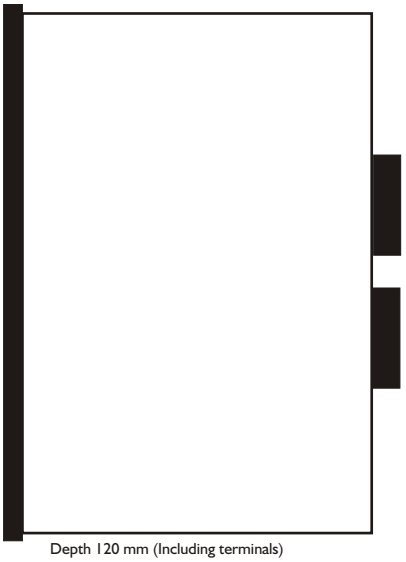
SPECIFICATIONS

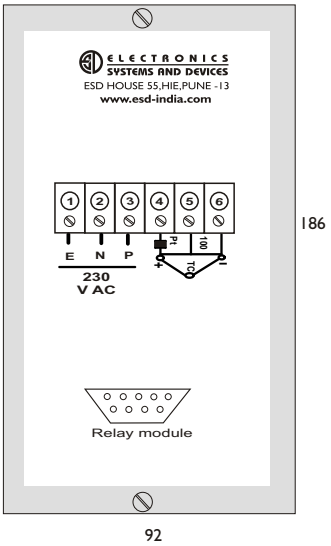
Model	: Sleek 9257 PC
Ranges	: Refer chart below (other on demand)
Input	: Pt - 100 / Thermocouple / 4 - 20 mA
Indication	: 4 digit 12.5 mm RED LED (1 for parameter & 3 for process value)
Indication accuracy	: +/- 0.25 % of full scale +/- 1 digit
Least count	: Refer chart below (other on demand)
Power 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
Programming	: Using 4 keys membrane keypad. Default password is 134
Power consumption	: 6 VA
Transmitter supply	: 24 V DC @ 30mA (only for 4-20mA)
Setpoints	: 5
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)
On / Off delay time	: From 0 to 240 seconds

Relay output	: One set of potential free relay changeover contact rated 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)
Front facia	: ABS plastic having size 96 x 192 mm
Cutout	: 92 x 186 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 approx
Relay card details	
Dimensions	: 110mm(L) x 100mm(H)
No. of relay's	: 8
Relay coil voltage	: 12V
Relay ON indication	: 3 mm RED LED
Relay contact	: 1 set of potential free c/o contact rated 5 amp. resis @ 230 V AC
Optional	
A) Retransmission o/p	: Isolated 4-20mA proportional to process value
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

INSTALLATION







ORDERING INFORMATION

Sleek 9257 PC

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 - 24 V AC
- 4 - 24 V DC
- 5 - Other

X4 Relay Output
- **1- 1 C/O 5 Amp**
- 2 - 1 C/O 10 Amp
- 3 - Other

Ordering eg. Sleek 9257 PC - 1111

Digital Temp. Controller Sleek 92		
Setpoint	- Five	(5)
Panel cutout	- 92 x 186 mm	(7)
Input	- Pt - 100	(1)
Range	- 0°C to 400°C	(1)
Relay output	- 1 C/O 5 Amp	(1)
Power Supply	- 230 V AC	(1)

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

ESD/PTC/4523

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.