

# Sentry Digital Panel Indicator

Universal Input Panel Indicator for Temperature & Process Measurement



**Transducer Excitation Supplies**  
Fitted as standard to power both pressure/strain gauge (10VDC) sensors or two wire (24VDC) 20mA loops.

**Universal Input**  
For Thermocouple, RTD, 20mA, 10v and 100mV signals.

**Universal Power Input**  
Wide ranging 90 to 265 VAC input allows worldwide installation. Low voltage AC/DC option available.

**Clear Display**  
The flat, slightly recessed 4 digit display together with high brightness red or green LEDs ensure maximum visibility even in difficult lighting conditions.

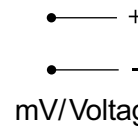
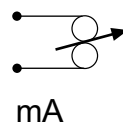
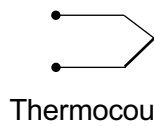
**Units of Measurement**  
Engineering unit labels are supplied for the most common measurements including temperature, flow, distance, power and pressure.

**Rugged Enclosure**  
The enclosure uses flame retarding (VO) materials and the front panel conforms to IP65. Less than 110mm depth behind the panel.

**Configuration Buttons**  
Two hidden buttons behind the front panel enable full configuration.

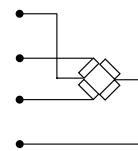
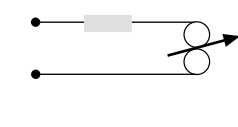


## ■ Features



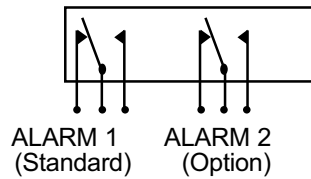
### Universal Input

The Sentry can be directly connected to most popular process sensors including Thermocouple, RTD, 20mA loop transmitters, DC signals up to 100mV and 10V. Temperature can be displayed in °C or °F to 0.1 degree resolution. Millivolt, 10 Volt and 20 mA DC signals can be scaled to engineering units using any portion of the -1999 to 9999 display range (with an adjustable decimal point position). There are six linearised thermocouple ranges for types K, T, J, N, R and S. Thermocouple inputs have automatic cold junction compensation (CJC) with up-scale sensor burnout detection. Two RTD ranges are available.



### Sensor Excitation

An isolated 24VDC transmitter is provided as standard to supply power for 2 wire (4 -20mA) sensors. In addition a regulated 10VDC (50mA) output is provided for strain gauge type sensors such as pressure transducers and load cells.



## Alarm Relays

The Sentry has one alarm relay fitted as standard. An optional second alarm is available. Setpoints can be set at time of configuration or can be adjusted using the hidden buttons behind the front panel. Each alarm can be configured to be high or low acting.



## Analogue Output (optional)

The measured value can be transmitted as a linear 4-20mA signal to other devices such as chart recorders (see below) or data loggers. The output can be scaled to any portion of the display range e.g. 4-20 mA = 500 to 800 (psi). The analogue output always follows the displayed value, so when using Thermocouples and RTDs, the analogue output is linear to temperature.



## Configuration

The instrument can be configured using concealed buttons, which are situated behind the front panel. The Sentry prompts the user for each set-up parameter.



## Sentinel Chart Recorder

The Sentinel range of micro-processor based circular chart recorders is available in 1, 2 and 3 channel versions.

Sentinel combines the simplicity and clarity of pen drawn traces together with the versatility of microprocessor control.

Each channel is equipped with a universal signal input which is compatible with all industry standard sensors and signals including thermocouple types J, K, T, E, N, R, S and B, Pt100 platinum resistance temperature detectors and 4 to 20mA current loops.

# ■ Specifications

## Display

Type: 14.2mm high brightness red LED  
Range: 4 digit ( -1999 to 9999 )  
Update rate: 2 per second

## A/D Converter

Type: Dual slope integrating with auto zero  
Conversion rate: 100mS  
Common mode rejection: >150dB  
Series mode rejection: >70dB (50 & 60Hz)

## Thermocouple Inputs

CJC accuracy: Better than 1°C after 30 minutes  
Open circuit sensor detection: Upscale  
Engineering units: °C or °F  
Measurement resolution: 1 or 0.1°C/°F

Thermocouple	Accuracy Including Linearisation		
	Range (°C)	Worst Case	Typical @ 25°C
Type J Fe/NiCu	-210 to 1200°C	±1.0°C	±0.5°C
Type K NiCh/Ni/Al	-270 to 1372°C	±1.0°C	±0.5°C
Type T Cu/CuNi	-270 to 400°C	±1.0°C	±0.5°C
Type N Nicrosil-Nisil	-200 to 1300°C	±1.0°C	±0.5°C
Type S Pt10%-Rh Pt	-50 to 1767°C	±2.0°C	±1.2°C
Type R Pt13%-RH Pt	-50 to 1767°C	±2.0°C	±1.2°C

## Resistance Thermometers

Configuration: 3 wire  
Excitation current: 0.25mA (nominal)  
Engineering units: °C or °F  
Measurement resolution: 1 or 0.1 °C or °F

RTD Type	Accuracy Including Linearisation		
	Range (°C)	Worst Case	Typical @ 25°C
Pt100 (alpha=385)	-200 to 850°C	±0.8°C	±0.5°C
Pt100 (alpha=392)	-200 to 457°C	±0.8°C	±0.5°C

## Sensor Excitation Supplies

24v (Nom) Two wire transmission supply (35 mA)  
10v regulated bridge supply (35 mA)

## Safety and EMC

Safety: EN61010  
Susceptibility: EN50082-2  
Emissions: EN50081-1

## Voltage & Current Inputs

Ranges: ±20mA, ±100mV, ±10V DC.  
Scaling: Any portion of the display range (decimal point in any position)  
Accuracy: ±0.1% (worst case), 0.05% typical @ 25°C ambient  
Drift with temperature: <200ppm/ °C  
Impedance (Ohms): <5(mA), >100M(mV), >1M(Volt)

## Analogue Output (Option)

Output: 4 to 20mA  
Maximum output: 22mA  
Temperature drift: <200ppm  
Accuracy: 0.4% of span (worst case)  
0.2% typical @ 25°C ambient  
Maximum load: 500 Ohms

## Alarm Relays (Relay 2 is optional)

Relays 1 & 2: Change over contacts  
Rating (all relays): 1 Amp @ 250VAC, 5 Amp @ 30VDC

## Physical / Mechanical

Front panel: Protection to IP65  
Dimensions (mm): 48(H) x 96(W) x 100(D)  
Panel cut-out (mm): 45(H) x 93(W)  
Weight: 0.4Kg (max), packed weight 0.55Kg

## Environmental



Sentry indicators have been tested and comply with the European Electromagnetic Compatibility Directives and safety requirements. The units are CE marked.



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