Sentry
Trip Amplifier

This DIN Rail unit can be used for a myriad of control and alarm applications. It will also be at home in the signal conditioning arena.

- **Universal input** Thermocouple, RTD, NTC, mA, V, mV, potentiometer, digital pulse and AC current sensors
- **Universal wide range AC/DC power supply**
- **22V excitation** Powers two wire transmitters without an external power supply
- **Relay outputs** 1 x Form A, 1 x Form C
- **Optional retransmission** 0(4)–20mA or 0–10V (software selectable)
- **Convenient 0.4" display** – Ideal for commissioning and fault-finding
- **Designed for harsh industrial environments**
- **Simple USB powered setup** Using Define ToolBox - Free download from defineinstruments.com/toolbox

CE E2180

Specifications

General

Power supply 24–250V AC / 19.5–250V DC, 47–63Hz, 6VA max

Isolation 2,300Vrms for 1min to all inputs and outputs

Simple software programming using Define ToolBox Bridge Key required, sold separately

Universal input Specifications below

Excitation 22V ±10% (25mA max)

Display

Digits 4 digit red LED, 0.4" (10mm), 7-segment characters

Display range -1999 to 9999

Annunciators 2 x setpoint LEDs

Relay output

Number of relay outputs 2

Type 1 x Form C, 1 x Form A

Isolation to sensor and user input commons 2,300Vrms for 1min
Working voltage 240Vrms

Contact rating
Form C relay: 10A @ 120/240V AC or 28V DC (resistive load)
Form A relay: 3A @ 120/240V AC or 28V DC (resistive load)

Life expectancy 100K cycles min at full load rating

User input

One user input is available, and can be programmed for manual relay reset, latching or zero functions

Max continuous input 20V DC

Not isolated to sensor input common

Analog output (optional)

Analog output (R2A model only)
1 x 0(4)–20mA or 0–10V DC
Software selectable

Isolation to sensor and user input commons 1,400Vrms for 1min
Working voltage 125V

Max output drive 20mA (600Ω max load at 12V DC)

Accuracy/repeatability 0.05% of FSO

Resolution 0(4)–20mA = 1µA
0–10V = 1mV

Temperature drift 30ppm/°C typical

Powered Self-powered (active)

Environmental conditions

Operating humidity 5–85%RH max (non-condensing)

Operating temperature -10 to 50°C (14 to 122°F)

Storage temperature -20 to 60°C (-4 to 140°F)

Altitude Up to 2,000m (approx 1.2mi)

Construction

35mm DIN rail mount casing
IP20 rated - Install in a protective enclosure. Installation Category II, Pollution Degree 2. Flame resistant.

Dimensions (H x W x D)
101 x 23 x 120 mm (3.98 x 0.91 x 4.72")

Weight 177g (6.2oz), including plugs

Plastic flap To protect front display. (Swing upward to access programming port)

Thermocouple input

TC types J, K, B, E, N, R, S, T

Input impedance 1MΩ min

TC lead resistance 100Ω max

Cold junction comp. -10 to 70°C

Accuracy E, J, K, N, T: <±1°C
B, R, S: <±2°C

Temp. drift E, J, K, N, T: <±0.05°C/C
B, R , S: <±0.2°C/C

Sensor break output drive Function high upscale/low downscale

CJC error <±1°C

Response time 400msec

RTD input

RTD Pt100/Pt1000 DIN 3-wire type (2-wire can be used with offset trim)

Pt100 lead wire resistance
50Ω/wire max. 0.02% FSO offset error per Ω of lead resistance mismatch

Pt1000 lead wire resistance
20Ω/wire max. 0.002% FSO offset error per Ω of lead resistance mismatch

Sensor current 0.3mA nominal

Sensor break output drive
Function high upscale/low downscale

Accuracy Better than 0.2°C

Temperature drift <0.007°C/C

Response time 400msec

NTC input

NTC -55 to 125°C (various thermistors)

Sensor types 10K Beta 3984/3435

Response time 100msec

Accuracy Better than 0.4°C

Temperature drift <50ppm/°C

Current input

Range 0/4–20.000mA

USB prog zero 0–±99% of span

Field prog span 1µA–24mA DC

Input resistance 10Ω

Max over-range 50mA DC continuous

Linearity and repeatability
<±0.02% FSO typical

Temperature drift <50ppm/°C

Response time 100msec

Voltage input

Ranges ±200mV, -200mV to 1V, 0–10V, ±10V, -10 to 30V, 0–300V

USB prog zero 0–±99% of span

USB prog span 95% of FSO

Input resistance 1MΩ min

Linearity and repeatability
<±0.02% FSO typical
(0–10V= <±0.05%; 0–300V= <±0.1%)

Temperature drift <50ppm/°C

Response time 100msec

Digital pulse

Frequency range 0–2000.0Hz

Sensors Open collector (NPN, PNP)

Software modes General frequency, Flow rate (pulse), or RPM (pulse)

Excitation +22V DC, 25mA max

Response time 100msec

Linearity and repeatability 0.05%

Temperature drift <50ppm/°C

Potentiometer input

Potentiometer input 3 wire

Excitation voltage Variable

Potentiometer resistance <1kΩ low pot; 1–4kΩ med pot; 4–20kΩ high pot

Field prog zero 0–90% of span

Field prog span 0.1–100%

Linearity and repeatability <±0.05% FSO typical

Response time 100msec

Temperature drift <50ppm/°C

AC current sensor input

Sensor type Current transformer
Define ACCS-420(-L) and ACCS-010

Header selectable amperage range
ACCS-420/010 = 100/150/200A
ACCS-420-L = 10/20/50A

Overload (continuous)
ACCS-420/010 = 175/300/400A
ACCS-420-L = 80/120/200A

Output Representing 0–100% of full scale input range. ACCS-010: 0–10V DC
ACCS-420: 4–20mA DC loop powered

Power supply ACCS-010: Self powered
ACCS-420: Loop powered, 15–36V DC

Accuracy 1% of full scale

Response time 250ms (10–90%)

Isolation voltage 2,000V

Frequency 50–60Hz

Compliances

EN 61326-1 Immunity to Industrial Locations

Emission CISPR 11 Class A (EN 61326)

Safety requirements for electrical equipment for measurement control, and laboratory use
EN 61010-1 General Requirements; EN 61010-2-030 Particular Requirements for Testing and Measuring Circuits

IP20 Enclosure rating

Sentry Product Codes

SEN-UV	Sentry Trip Amplifier Universal power supply (24–250V AC / 19.5–250V DC)
-R2	2 x relay outputs (default)
-R2A	2 x relay outputs 1 x analog output (4–20mA)

Accessories (Sold Separately)

BRIDGE-KEY	USB Bridge Key for PC programming

SEN-DS-16V01 (0302)
Sentry

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