

Isolated DIN Rail Loop-Powered Temperature Signal Conditioner

DRSL-TEMP



- ✓ Type J or K Thermocouple or 2, 3 or 4-Wire Pt100 RTD Input
- ✓ Powered By the Host (Output) Current Signal Loop
- ✓ Slimline 6 mm (0.24") Housing
- ✓ High Accuracy
- ✓ Excellent EMC Performance and 50/60 Hz Noise Suppression
- ✓ Fast Response Time <30 ms/300 ms (Selectable)
- ✓ Pre-Calibrated Temperature Ranges Selectable via DIP-Switches

The DRSL-TEMP isolated DIN rail loop-powered temperature signal conditioner measures a standard type J or K thermocouple or a 2-, 3- or 4-wire Pt100 RTD temperature sensor and provides a passive analog current output signal. The DRSL-TEMP offers 2-way isolation between input and output, provides surge suppression and protects control systems from transients and noise. The DRSL-TEMP provides a competitive choice in terms of both price and technology for interfacing thermocouple or RTD signals to SCADA systems or PLC equipment. This unit is powered by the host (output) current signal loop. Low power consumption facilitates DIN rail mounting without the need for any air gap. Easy configuration of more than 1000 factory calibrated measurement ranges is done via DIP-switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

THERMOCOUPLE INPUT

Type: J or K thermocouple

Temperature Range (DIP Switch Selectable)

Type J: -100 to 1200°C
(-148 to 2192°F)

Type K: -180 to 1372°C
(-292 to 2501°F)



DRSL-TEMP and RAIL-35-1 (sold separately) shown actual size.

Sensor and Cable Specifications:

5 kΩ per wire

Cold Junction Compensation (CJC):

Internal or external (selectable)

CJC Accuracy via External CJC

(Pt100 RTD Sensor): Better than ±0.15°C

CJC via Internally Mounted

Sensor: Better than ±2.5°C

Open Thermocouple Detection:

Yes (DIP switch selectable upscale or downscale)

Pt100 RTD INPUT

Type: 2, 3, or 4-wire Pt100 RTD

Temperature Range (DIP Switch

Selectable): -200 to 850°C
(-328 to 1562°F)

Sensor Current, RTD: <150 μA

Sensor Cable Specifications:

50 Ω per wire

Effect of Sensor Cable Resistance (3 or 4-Wire RTD): <0.002 Ω/Ω

Broken Sensor Detection: >800 Ω

Shorted Sensor Detection: <18 Ω

OUTPUT

Current Output

Programmable Signal Ranges:

0 to 20 mA and 4 to 20 mA

Range Limits (NAMUR NE43 Out of Range): Below 3.8 mA or above 20.5 mA

Sensor Error Detection

(Dip Switch Selectable for Enable or None): Below 3.5 mA or above 23 mA

Incorrect DIP-Switch Setting

Identification: Below 3.5 mA

Output Error Level: DIP switch selectable for upscale or downscale

Load Resistance (Ω):

$\leq (V_{\text{supply}} - 5.5) / 0.023$

Load Stability:

$\leq 0.01\%$ of span/100 Ω

GENERAL

Supply Voltage: 5.5 to 35 Vdc

Voltage Drop: 5.5 Vdc

Isolation: Input/output

Isolation Voltage (Test): 2.5 kVac (reinforced)

Isolation Voltage (Working): 300 Vac

Signal/Noise Ratio: >60 dB

Response Time (0 to 90%, 100 to 10%): <30 ms/300 ms (selectable, provides either fast response or signal dampening as needed)

Accuracy

Thermocouple Input: Better than 0.5°C or $\pm 0.05\%$ of span (selected input range)

RTD Input: Better than 0.1°C or $\pm 0.05\%$ of span (selected input range)

Temperature Coefficient

Thermocouple Input: $\leq \pm 0.1^\circ\text{C}/^\circ\text{C}$ or $\leq \pm 0.01\%/^\circ\text{C}$

RTD Input: $\leq \pm 0.02^\circ\text{C}/^\circ\text{C}$

EMC Immunity Influence: $\leq \pm 0.5\%$ of span

Extended EMC Immunity

NAMUR NE 21, A Criterion,

Burst: $\leq \pm 1\%$ of span (span = selected input range)

ENVIRONMENTAL

Operating Temperature: -25 to 70°C (-13 to 158°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Calibration Temperature: 20 to 28°C (68 to 82°F)

Relative Humidity: 0 to 95% RH non-condensing

Protection Degree: IP20

Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL

Dimensions:

113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")

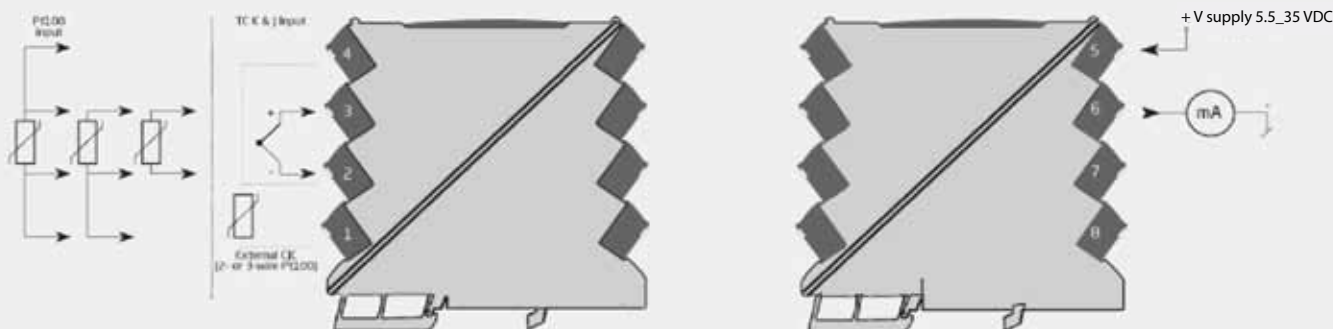
Weight: 70 g (0.15 lb) approx

DIN Rail Type: DIN EN 60715 - 35 mm

Wire Size: 0.13 x 2.5mm²/AWG 26 to 12 stranded wire

Screw Terminal Torque: 0.5 Nm

Connections



OMEGACARESM extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARESM covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-TEMP	Isolated DIN rail loop-powered temperature signal conditioner

Accessories

Model No.	Description
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
DRSL-MOD-STOP	Module stop (screwed onto DIN rail to support and hold mounted devices)

Ordering Example DRSL-TEMP isolated DIN rail loop-powered temperature signal conditioner, RAIL-35-1 DIN rail, DRSL-MOD-STOP module stop and OCW-1, OMEGACARESM extends standard 1-year warranty to a total of 2 years.