

Thermocouple Input DIN Rail Signal Conditioners

DRSL-TC Series



- ✓ **DRSL-TC Non-Isolated and DRSL-TC-ISO Isolated Models**
- ✓ **Accepts Type J and Type K Thermocouples**
- ✓ **Pre-Calibrated Temperature Ranges Selectable via Dip-Switches**
- ✓ **Slimline Housing—Only 6 mm (0.24") Wide**
- ✓ **High Accuracy**
- ✓ **Fast Response Time <30 ms/300 ms (Selectable)**
- ✓ **Excellent EMC Performance and 50/60 Hz Noise Suppression**

The DRSL-TC Series thermocouple input DIN rail signal conditioners provide a competitive choice in terms of both price and technology for interfacing thermocouple inputs to SCADA systems or PLC equipment.

The DRSL-TC and DRSL-TC-ISO can be used for signal conversion of standard Type J or K thermocouple inputs into unipolar analog signals.

The DRSL-TC-ISO isolated model offers 3-way isolation between input, output and supply and provides surge suppression and protects control systems from transients and noise. 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

Type: J or K thermocouple
Temperature Range

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

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

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 (DRSL-TC-ISO only)



DRSL-TC-ISO and DRSL-PWR-RAIL (sold separately) shown actual size.

CJC via Internally Mounted Sensor:
Better than ±2.5°C

Open Thermocouple Detection:
Yes (DIP switch selectable upscale or downscale)

OUTPUT

Current Output

Programmable Signal Ranges:
0 to 20 and 4 to 20 mA

Range Limits (NAMUR NE43 Out of Range): Below 3.8 mA or above 20.5 mA for 4 to 20 mA output; 0 mA or above 20.5 mA for 0 to 20 mA output

Sensor Error Detection (Dip Switch Selectable for Enable or None):
Below 3.5 mA or above 23 mA for 4 to 20 mA output; 0 mA or above 23 mA for 0 to 20 mA output

Incorrect DIP-Switch Setting Identification: 0 mA

Output Error Level: DIP switch selectable for upscale or downscale

Load: 21 mA/600 Ω /12.6V max

Load Stability: ≤0.01% of span/100 Ω

Voltage Output

Programmable Signal Ranges:
0 to 10V, 2 to 10V, 0 to 5V and 1 to 5V

Range Limits (Out of Range):
Range ±2.5%

Incorrect DIP Switch Setting Identification: 0V
Load: >10 kΩ min

GENERAL

Supply Voltage:

DRSL-TC: 16.8 to 31.2 Vdc via connectors

DRSL-TC-ISO: 16.8 to 31.2 Vdc via power rail or connectors

Power Consumption: 0.7 W max

Internal Consumption: 0.65 W max

Isolation (DRSL-TC-ISO Only):
Input/output/supply

Isolation Voltage, Test (DRSL-TC-ISO Only): 2.5 kVac (reinforced)

Isolation Voltage, Working (DRSL-TC-ISO Only): 300 Vac

Status LED: Green LED indicates operational status of the unit and input sensor

Normal Operation: Flashes for 15 ms at 13 Hz rate

Sensor Error: Flashes for 15 ms at 1 Hz rate

Incorrect DIP Switch Setting:
Flashes for 500 ms at 1 Hz rate

Hardware Failure: LED off

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:

DRSL-TC: Better than 1.0°C or $\pm 0.1\%$ of selected input range

DRSL-TC-ISO: Better than 0.5°C or $\pm 0.05\%$ of selected input range

Temperature Coefficient:

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

EMC Immunity Influence:

$< \pm 0.5\%$ of span

Extended EMC Immunity

NAMUR NE 21, A Criterion, Burst:

$< \pm 1\%$ 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

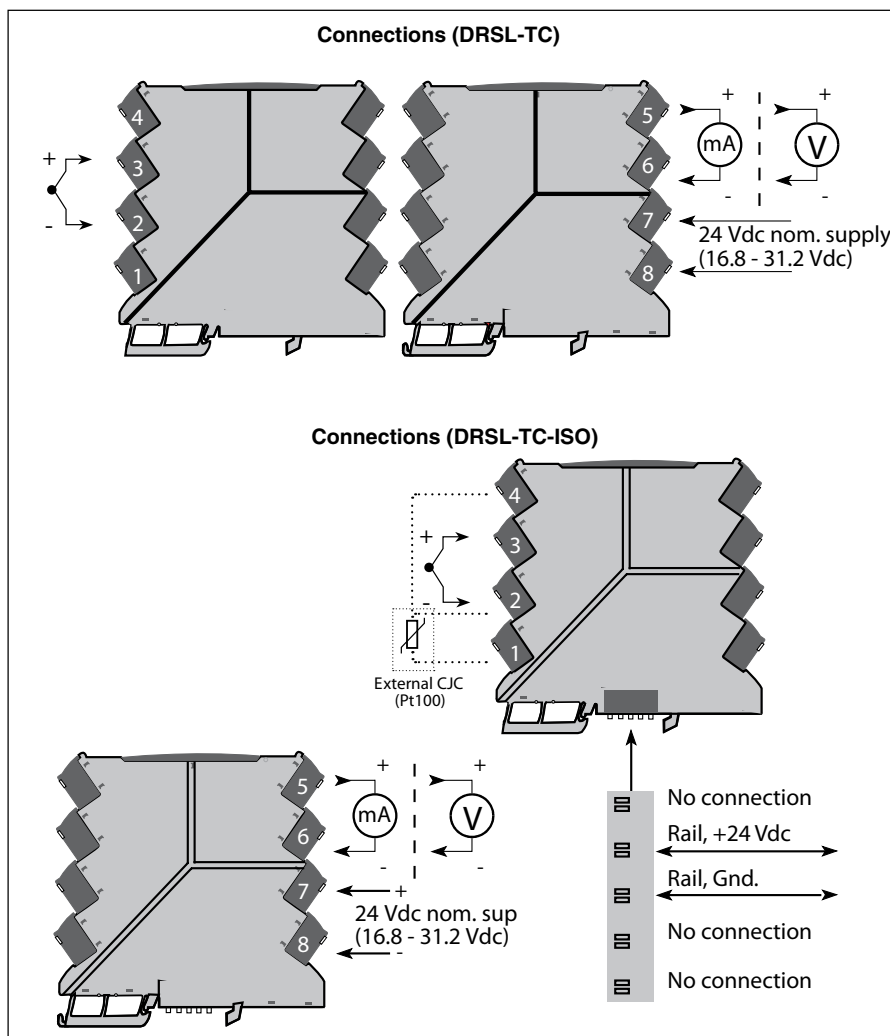
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")

Weight: 70 g (0.15 lb) approx

DIN Rail Type: DIN EN 60715 - 35 mm

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

Screw Terminal Torque: 0.5 Nm



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-TC	Non-isolated thermocouple input DIN rail signal conditioner
DRSL-TC-ISO	Isolated thermocouple input DIN rail signal conditioner

Accessories

Model No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length for use with DRSL-TC-ISO only
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail for use with DRSL-TC-ISO only
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

Ordering Example: DRSL-TC-ISO isolated thermocouple input DIN rail signal conditioner, DRSL-PWR-RAIL power rail, DRSL-PCU power connector unit, DRSL-MOD-STOP module stop and OCW-1, OMEGACARESM extends standard 1-year warranty to a total of 2 years.