

D5273

I.S. SIL2 Temperature Converter & Trip Amplifier

The Temperature Converter & Trip Amplifier D5273 accepts a low level dc signal from millivolt, thermocouple or 2-3-4 wire RTD or transmitting potentiometer sensors, located in Hazardous Area, and converts, with isolation, the signal to drive a Safe Area load, suitable for applications requiring SIL 2 level in safety related systems for high risk industries. Output signal can be direct or reverse. Modbus RTU RS-485 output is available on Bus connector. Cold junction compensation can be programmed as Internal: provided by an internal PT1000 sensor; Fixed: to a user-customizable temperature value; External remote: ext. RTD placed away, on a support terminal board; External local: ext. RTD placed close to the module terminal block. D5273S offers two independent trip amplifiers via two SPDT output relays.

FEATURES

- SIL 2 / SC 3
- Input from Zone 0/Div. 1
- Installation in Zone 2/Div. 2
- mV, TC, 2/3/4wire res./RTD or potentiometer input
- Two independent Trip Amplifiers (SPDT relay contacts)
- Inversion/scaling/custom output
- Selectable CJC: internal PT1000, external RTD or fixed
- Burnout/internal/cjc/in sensor fault monitor
- Alarm output with user-settable trip points
- Modbus RTU RS-485 for monitor & configuration
- Fully programmable operating parameters
- High Accuracy, μ P controlled A/D converter
- Three port isolation, Input/Output/Supply

ORDERING INFORMATION

Ordering codes

D5273S: 1 channel

Accessories

Bus Connector JDFT050, Bus Mounting Kit OPT5096.
Programmable USB serial line Kit PPC5092 + SWC5090.

OVERALL DIMENSIONS



TECHNICAL DATA

Supply

24 Vdc nom (18 to 30 Vdc), reverse polarity protected.

Current consumption: 72 mA @ 24 Vdc with 20 mA output and relays energized, typical.

Power dissipation: 1.7 W @ 24 Vdc with 20 mA output and relays energized, typical.

Input

Millivolt, thermocouple, 2-3-4 wire RTD or 3 wire transmitting potentiometer. Refer to Instruction Manual for more details.

Integration time: from 50 ms to 500 ms.

Input range: -500 to +500 mV for TC/mV, 0-4 k Ω for resistance.

Output

0/4 to 20 mA, on max. 300 Ω load, current limited @ 24 mA.

Transfer characteristic: linear, direct or reverse on all input sensors.

Alarm

Trip point range: within rated limits of input sensor.

Output: two voltage free SPDT relay contacts.

Contact rating: 4 A 250 Vac 1000 VA, 4 A 250 Vdc 120 W (resistive load).

Modbus interface

Modbus RTU RS-485 up to 115.2 kbps for monitor/configuration/control.

Performance

Ref. Conditions: 24 V supply, 250 Ω load, 23 ± 1 °C ambient temperature, slow integration speed, 4 wires configuration for RTD.

Input:

Calibration & linearity accuracy: refer to Instruction Manual.

Temp. influence: $\leq \pm 2$ μ V on mV/Tc, ± 20 m Ω on RTD (≤ 300 Ω @ 0°C) or ± 200 m Ω on RTD (> 300 Ω @ 0°C), ± 0.02 % on pot. for a 1 °C change.

Ref. junction compensation accuracy: $\leq \pm 3$ °C (internal CJC), $\leq \pm 1.5$ °C (external local CJC), according to RTD (external remote CJC). Refer to Instruction Manual.

Out:

Calibration accuracy: $\leq \pm 10$ μ A.

Linearity accuracy: $\leq \pm 10$ μ A.

Temp. influence: $\leq \pm 2$ μ A/°C.

Isolation

I.S. In/Out 2.5 kV; I.S. In/Supply 2.5 kV; I.S. In/Alarms 2.5 kV; Out/Supply 500V; Out/Alarms 1.5 kV; Alarms/Supply 1.5 kV; Alarms/Alarms 1.5 kV.

Environmental conditions

Operating temperature: temperature limits -40 to +70 °C.

Storage temperature: temperature limits -45 to +80 °C.

Safety description

Associated apparatus and non-sparking electrical equipment.

$U_o = 7.2$ V, $I_o = 23$ mA, $P_o = 40$ mW at terminals 13-14-15-16.

$U_m = 250$ Vrms or Vdc, -40 °C $\leq T_a \leq 70$ °C.

Mounting

DIN-Rail 35 mm, with or without Power Bus.

Weight: about 195 g.

Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm² (13 AWG).

Dimensions: Width 22.5 mm, Depth 123 mm, Height 120 mm.

FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.

