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. Output function can be configured as: Adder, subtractor, low/high selector. Modbus RTU RS-485 output is available on Bus connector. Cold junction compensation can be programmed as automatic, using an internal temperature sensor or fixed to a user-customizable temperature value. D5273S offers two independent trip amplifiers via two SPDT output relays.

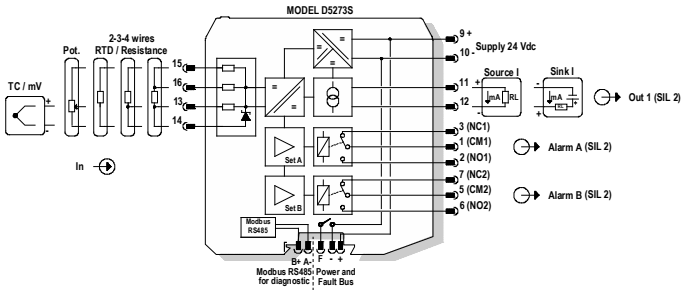
FEATURES

- SIL 2
- 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)
- Duplication/inversion/scaling/custom output
- Selectable CJC: internal PT1000, external RTD or fixed
- Fastest integration time: 50 ms
- 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, µP controlled A/D converter
- Three port isolation, Input/Output/Supply
- High Density, two channels per unit

FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.

Hazardous Area ***Safe Area/Zone 2/Div. 2***



TECHNICAL DATA

Supply

24 Vdc nom (18 to 30 Vdc), reverse polarity protected.
Current consumption: 50 mA @ 24 Vdc with 20 mA output and relays energized, typical.
Power dissipation: 1.3 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: -50 to +80 mV for TC/mV, 0-4 kΩ 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.
Input Temp. influence: ≤ ± 2 µV on mV/Tc, ± 20 mΩ on RTD (≤ 300 Ω @ 0°C) or ± 200 mΩ on RTD (> 300 Ω @ 0°C), ± 0.02 % on pot. for a 1 °C change.
Out Calibration accuracy: ≤ ± 0.05 % FSR.
Out Linearity accuracy: ≤ ± 0.05 % FSR.
Out Temp. influence: ≤ ± 0.01 % on zero/span for a 1 °C change.

Isolation

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

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.
Uo = 7.2 V, Io = 23 mA, Po = 40 mW, Ui = 12.8 V, Ci = 0 nF, Li = 0 nH at terminals 13-14-15-16.
Um = 250 Vrms or Vdc, -40 °C ≤ Ta ≤ 70 °C.

Mounting

DIN-Rail 35 mm, with or without Power Bus.
Weight: about 120 g.
Connection: by polarized plug-in disconnect screw terminal blocks to accomodate terminations up to 2.5 mm² (13 AWG).
Dimensions: Width 22.5 mm, Depth 123 mm, Height 120 mm.

ORDERING INFORMATION

D5273S: 1 channel

Accessories

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

FSM SIL 3 Functional Safety Management Certification:
GM International is certified to conform to IEC61508:2010 part 1 clauses 5-6 for safety related systems up to and included SIL3. In addition, GM International products have been granted I.S. certificates from the most credited Notified Bodies in the world.

