D5274

I.S. SIL2 Temp. Trip Amplifier with Zero/Span Trimmers

The Temperature Converter & Trip Amplifier D5274 accepts a low level dc signal from millivolt/thermocouple or 2-3-4 wire resistance/RTD or 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. Front trimmers allow easy zero & span current adjustment. Cold junction compensation can be programmed as automatic, using an internal or external temperature sensor or fixed to a user customizable temperature value. D5274S offers two independent trip amplifiers via two SPDT output relays, whose thresholds are fully programmable. Extended power supply range guarantees functionality at 24 Vdc as well as 12 Vdc nominal voltage.

FEATURES

- SIL 2 / SC 2 (pending)
- 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 fault monitor
- Alarm output with user-settable trip points
- Zero/span output current trimmers
- Extended power supply for 12/24 Vdc nominal voltage
- Fully programmable operating parameters
- High Accuracy, µP controlled A/D converter
- Three port isolation, Input/Output/Supply

ORDERING INFORMATION

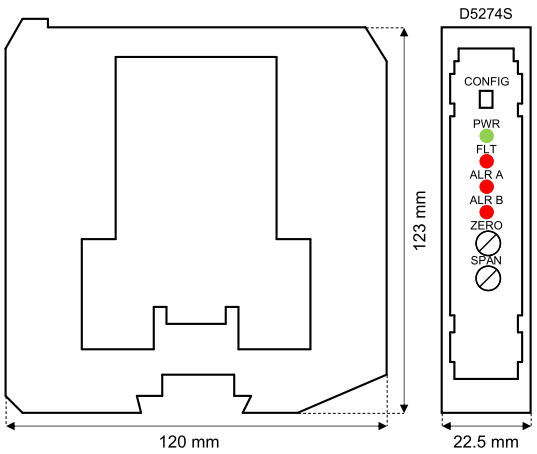
Ordering codes

D5274S: 1 channel

Accessories

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

OVERALL DIMENSIONS



TECHNICAL DATA

Supply

12/24 Vdc nom (9 to 30 Vdc), reverse polarity protected.
Current consumption: 45 mA @ 24 Vdc with 20 mA output and relays energized, typical.
Power dissipation: 1.0 W @ 24 Vdc with 20 mA output on 250Ω load and relays energized, typical.

Input

Millivolt/thermocouple, 2-3-4 wire resistance/RTD or 3 wire potentiometer. Refer to Instruction Manual for more details.
Response Time: 1 s.
Input range: ±500 mV (mV), 0-5 kΩ (res), up to 10 kΩ (pot).

Output

Current 0/4 to 20 mA.
Maximum load resistance: 300 Ω.
Maximum output voltage: 30 V.
Minimum output voltage: 15 V.
Short circuit current: 24 mA, typical
Transfer characteristic: linear, direct or reverse on all input sensors.
Trimmers: two front trimmers allow easy independent zero/span calibration. Trimmers can be modified in range or they can be excluded.

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). Linear derating from 4 A (60 °C) down to 2 A (70 °C).

Fault

Fault can be issued in case of input sensor burnout.
Response time: 1 s.
Fault signalling: common fault bus, alarm contacts, output current.

Performance

Ref. Conditions: 24 Vdc supply, 250 Ω load, 23 ± 1 °C Tamb.
Input accuracy: Refer to Instr. Manual for temperature sensor accuracy.
Linearity accuracy: ≤ ±25 µV (mV), ±0.25 Ω (res), ±0.05% (pot).
Calibration accuracy: ≤ ±40 µV (mV), ±0.5 Ω (res).
Temp. influence (1/°C): ≤ ±10 µV (mV), ±0.2 Ω (res), ±0.02% (pot).
Ouput accuracy:
Linearity accuracy: ≤ ±10 µA.
Calibration accuracy: ≤ ±10 µA.
Temp. influence (1/°C): ≤ ±1 µA.

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.
Uo = 7 V, Io = 22 mA, Po = 38 mW 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 195 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.

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.

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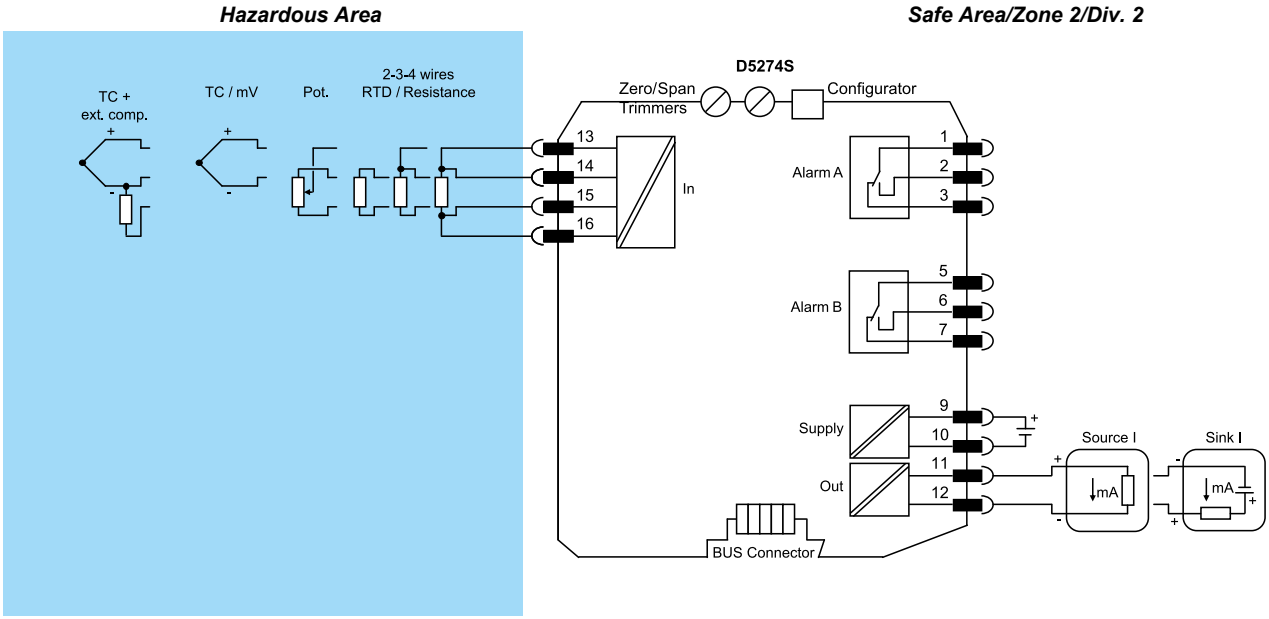
FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.



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