D5254

I.S. SIL2 2/4-Wire Transmitter Trip Amplifier

The 2/4-Wire Transmitter Trip Amplifier D5254 provides a fully floating dc supply to energize conventional 2 wires 4-20 mA transmitters located in Hazardous Area; it also accepts 0/4-20 mA current input signals, as well as ±12 V voltage inputs from Hazardous Area. The module repeats/converts the input as on current signal, in a floating circuit to drive a Safe Area load, suitable for applications requiring SIL 2 in safety related systems for high risk industries. The output signal can be in direct or reverse form. Two independent Alarm Trip Amplifiers are also provided.

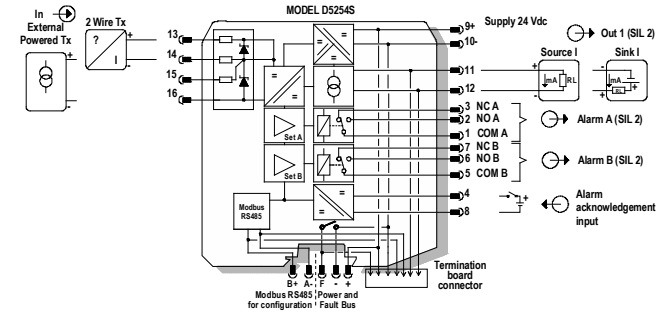
FEATURES

- SIL 2 / SC 3
- Input from Zone 0
- Installation in Zone 2
- ±12 V Voltage Input
- 0/4-20 mA Active-Passive Input, Source-Sink Output
- Input and Output short circuit proof
- Modbus RTU RS-485 for monitor & configuration
- Out-of-range fault detection
- Optional alarm acknowledgement input
- Fully programmable operating parameters
- High Accuracy, µP controlled A/D converter
- Three port isolation, Input/Output/Supply

FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.

Hazardous Area ***Safe Area/Zone 2***



TECHNICAL DATA

Supply

24 Vdc nom (21.5 to 30 Vdc), reverse polarity protected.
Current consumption: 110 mA @ 24 Vdc with 20 mA input/output and alarm relays energized, typical.
Power dissipation: 2.3 W @ 24 Vdc with 20 mA input/output and alarm relays energized, typical.

Input

0/4 to 20 mA (separately powered input, voltage drop ≤ 0.5 V) or 4 to 20 mA (2 wires Tx current limited ≈ 25 mA), or voltage input ±12 V.
Integration time: 100 ms.
Input range: 0 / +25 mA for current, ± 12 V for voltage.
Transmitter line voltage: 15.5 V typical, 15.0 V minimum, @ 20 mA.

Acknowledgement input

Logic level reverse polarity protected.
Voltage range: 0 V ≤ OFF ≤ 5 V, 18 V ≤ ON ≤ 30 V.
Current consumption: 10 mA @ 24 Vdc, typical.

Output

Fully customizable 0/4 to 20 mA, on max. 300 Ω load source mode, current limited @ 25 mA.
Transfer characteristic: linear, direct or reverse, square root.
Response time: ≤ 100 ms (10 to 90% step change).

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).
DC and AC load breaking capacity: refer to Instruction Manual.

Modbus interface

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

Isolation

I.S. In/Other 1.5 kV; Alarms/Other 1.5 kV; Alarm/Alarm 1.5 kV; Out/Supply 500 V; Out/Ack 500 V; Ack/Supply 500 V.

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 = 26 V, Io = 91 mA, Po = 588 mW at terminals 13-14 Uo = 1.1 V, Io = 56 mA, Po = 16 mW at terminals 14-16 Uo = 1.1 V, Io = 0.012 mA, Po = 0.004 mW at terminals 15-16 Ui = 30 V at terminals 14-16 or 15-16, Ii = 128 mA at terminals 14-16, Ci = 2.1 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 or on custom Term. Board.
Weight: about 120 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.

ORDERING INFORMATION

D5254S: 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.

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