

D5014

I.S. SIL3 2/4-Wire HART® Transmitter Power Supply

The Repeater Power Supply D5014 module is a high integrity analog input interface suitable for applications requiring SIL 3 level in safety related systems for high risk industries. It provides a fully floating dc supply for energizing conventional 2 wires 4-20 mA, active or passive, transmitters located in Hazardous Area, and repeats the current in floating circuit to drive a Safe Area load. The circuit allows bi-directional communication signals, for HART® devices.

FEATURES

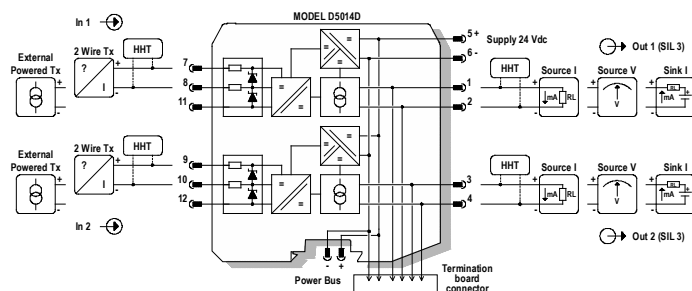
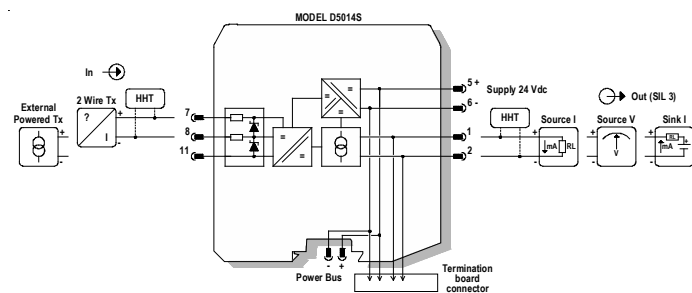
- SIL 3 / SC 3
- Input from Zone 0/Div. 1
- Installation in Zone 2/Div. 2
- 2 fully independent channels
- 4-20 mA Active-Passive Input, Source-Sink Output
- HART® compatible
- Input and Output short circuit proof
- In-field programmability by DIP Switch
- High Accuracy
- Three port isolation, Input/Output/Supply
- 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: 90 mA (D5014D), 45 mA (D5014S), @ 24 Vdc with 20 mA output, typical.

Power dissipation: 1.35 W (D5014D), 0.68 W (D5014S), @ 24 Vdc with 20 mA output, typical.

Input

4 to 20 mA (separately powered input, voltage drop ≤ 0.5 V) or 4 to 20 mA (2 wires Tx current limited ≈ 25 mA), reading range 0 to 24 mA.

Transmitter line voltage: 15.0 V typical, 14.5 V minimum, @ 20 mA.

Output

4 to 20 mA, on max. 550 Ω load in source mode (typical 12 V compliance); V min. 8 V @ 0 Ω load V max. 30 V in sink mode, current limited ≈ 25 mA or 1 to 5 V on internal 250 Ω shunt (or 2 to 10 V on internal 500 Ω shunt on request).

Response time: 5 ms (0 to 100 % step change).

Performance

Ref. Conditions: 24 V supply, 250 Ω load, 23 \pm 1 $^{\circ}$ C ambient temperature.

Calibration accuracy: $\leq \pm 0.1$ % FSR.

Linearity accuracy: $\leq \pm 0.05$ % FSR.

Temp. influence: $\leq \pm 0.01$ % FSR on zero/span for a 1 $^{\circ}$ C change.

Isolation

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

Environmental conditions

Operating temperature: temperature limits -40 to $+70$ $^{\circ}$ C.

Storage temperature: temperature limits -45 to $+80$ $^{\circ}$ C.

Safety description

Associated apparatus and non-sparking electrical equipment.

$U_o = 25.9$ V, $I_o = 92$ mA, $P_o = 594$ mW at terminals 7-8, 9-10.

$U_o = 1.1$ V, $I_o = 56$ mA, $P_o = 16$ mW at terminals 8-11, 10-12.

$U_i = 30$ V, $I_i = 128$ mA, $C_i = 0$ nF, $L_i = 0$ nH at terminals 8-11, 10-12.

$U_m = 250$ Vrms or Vdc, -40 $^{\circ}$ C $\leq T_a \leq 70$ $^{\circ}$ C.

Mounting

DIN-Rail 35 mm, with or without Power Bus or on custom Term. Board.

Weight: about 155 g (D5014D), 130 g (D5014S).

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

Dimensions: Width 12.5 mm, Depth 123 mm, Height 120 mm.

ORDERING INFORMATION

D5014S: 1 channel

D5014D: 2 channels

Accessories

Bus Connector JDFT049, Bus Mounting Kit OPT5096.