

D5212

I.S. SIL2 2/4-Wire Transmitter Power Supply

The Repeater Power Supply D5212 module is a high integrity analog input interface suitable for applications requiring SIL 2 level in safety related systems for high risk industries. It provides a fully floating dc supply for energizing conventional 2 wires 0/4-20 mA, active or passive, transmitters located in Hazardous Area, and repeats the current in floating circuit to drive Safe Area loads. The module is fully configurable to achieve input/output multiplexing, scaling, duplication, inversion, and input elaboration (addition, subtraction, low/high selection). An additional alarm contact can be (de-)activated on programmable input trip points, including hysteresis and delays. Configuration and diagnostic parameters are programmable and can also be monitored/set through Modbus.

FEATURES

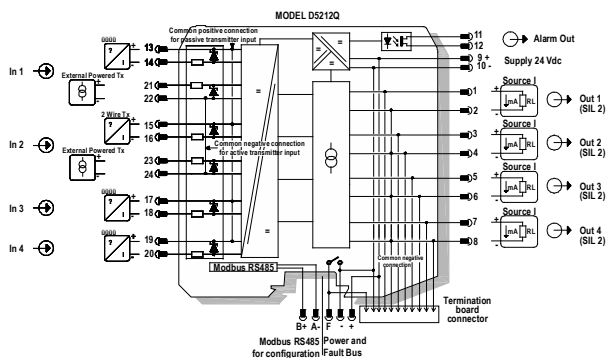
- SIL 2 (pending)
- Input from Zone 0/Div. 1
- Installation in Zone 2/Div. 2
- 0/4-20 mA Active-Passive Input, Source Output
- Duplication/inversion/scaling output
- Input operations (sum, dif, max, min) available
- Input and Output short circuit proof
- Out of range fault detection
- Alarm output with 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
- High Density, four 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 (21.5 to 30 Vdc), reverse polarity protected.

Current consumption: 200 mA @ 24 Vdc with 20 mA input/output, typical.

Power dissipation: 2.75 W @ 24 Vdc with 20 mA input/output, typical.

Input

0/4 to 20 mA (2 wire Tx current limited \approx 25 mA) or separately powered inputs (only for channels 1 and 2).

Transmitter line voltage: 14.5 V typical, 14.0 V minimum, @ 20 mA.

Integration time: 500 ms.

Output

0/4 to 20 mA, on max. 300 Ω load source mode, current limited \approx 25 mA.

Response time: 100 ms (10 to 90 % step change).

Alarm

Trip point range: within rated limits of the input sensor.

ON-OFF delay time: 0 to 1000 s, 100 ms step.

Hysteresis: within rated limits of input sensor.

Output: voltage free SPST photoMOS: 100 mA, 60 Vdc (\leq 1 V voltage drop).

Modbus interface

Modbus RTU RS-485 up to 57.6 kbps for monitor/configuration/control.

Performance

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

Input Calibration accuracy: $\leq \pm 0.05$ % FSR.

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

Analog output Calibration accuracy: $\leq \pm 0.05$ % FSR.

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

Isolation

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

Safety description

Associated apparatus and non-sparking electrical equipment.

$U_o = 24.1$ V, $I_o = 86$ mA, $P_o = 516$ mW at terminals 13-14, 15-16, 17-18, 19-20.

$U_o = 1.1$ V, $I_o = 56$ mA, $P_o = 16$ mW at terminals 21-22, 23-24.

$U_i = 30$ V at terminals 21-22, 23-24.

$I_i = 128$ mA at terminals 21-22, 23-24.

$C_i = 2.1$ nF, $L_i = 0$ nH at terminals 21-22, 23-24.

$U_m = 250$ 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 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

D5212Q: 4 channels

Accessories

Bus Connector JDFT050, Bus Mounting Kit OPT5096.

Programmable USB serial line Kit PPC5092 + SWC5090.