

Features

- 4-channel isolated barrier
- 24 V DC supply (bus powered)
- Analog in or analog out signals
- Sink and source mode outputs
- SMART pass-through
- Up to SIL 2 acc. to IEC 61508

Function

This isolated barrier is used for intrinsic safety applications. It operates as a SMART transmitter power supply or as a repeater.

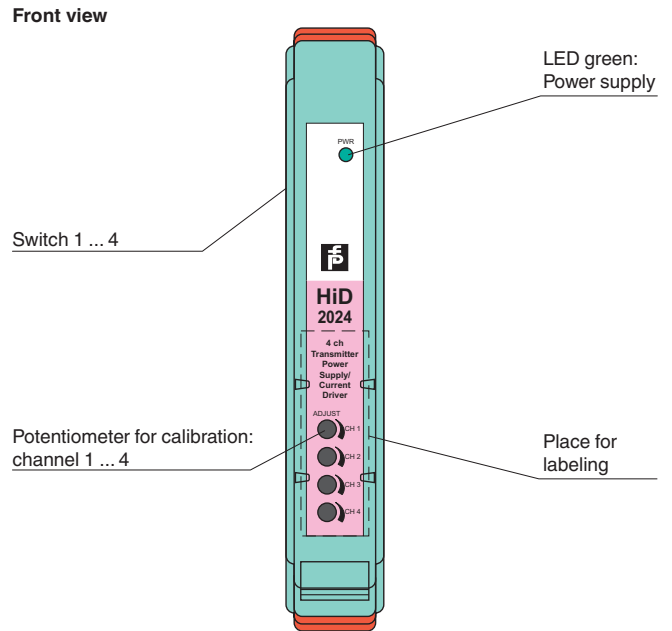
Bi-directional communication is supported for SMART transmitters that use current modulation to transmit data and voltage modulation to receive data.

The outputs are fully isolated from the inputs, the power supply, and each other.

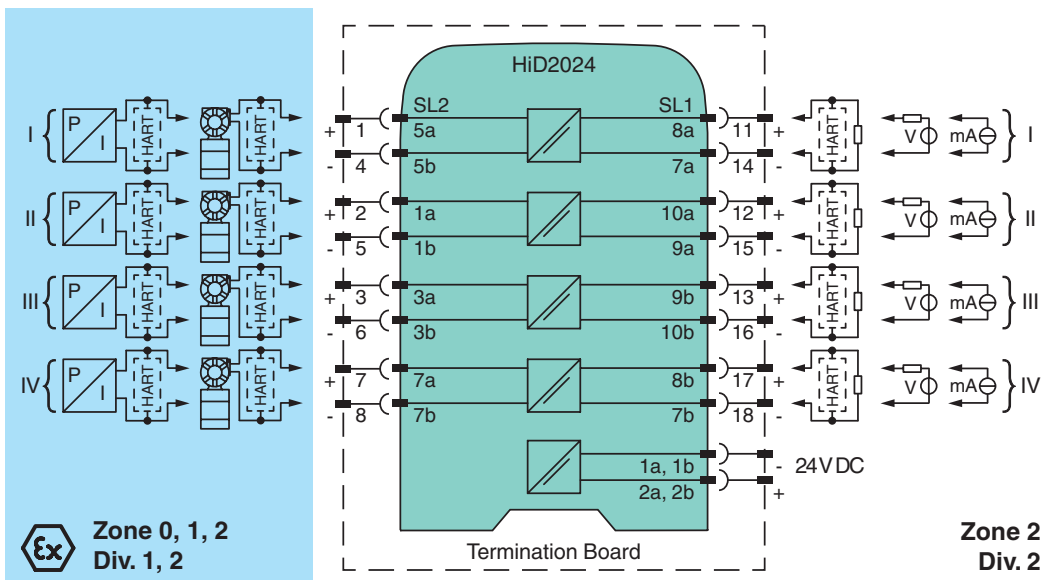
An open field circuit presents a high impedance to the control side to allow alarm conditions to be monitored by control systems.

This module mounts on a HiD Termination Board.

Assembly



Connection



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

General specifications		
Signal type		Analog input
Supply		
Connection		SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	U_n	20.4 ... 30 V DC via Termination Board
Ripple		≤ 10 %
Rated current	I_n	140 mA at 24 V and 20 mA
Power dissipation		≤ 1.8 W at 20 mA
Power consumption		≤ 3.3 W at 20 mA
Hazardous area connection		
Number of channels		4
Connection		SL2: 5a(+), 5b(-); 1a(+), 1b(-); 3a(+), 3b(-); 7a(+), 7b(-)
Input signal		4 ... 20 mA , limited to approx. 30 mA
Available voltage		≥ 15 V at 20 mA
Output signal		4 ... 20 mA
Output load		0 ... 650 Ω
Safe area connection		
Number of channels		4
Connection		SL1: 8a(+), 7a(-); 10a(+), 9a(-); 9b(+), 10b(-); 8b(+), 7b(-)
Input signal		4 ... 20 mA
Input resistance		> 100 kΩ at max. 23 V, with field wiring open
Voltage drop		approx. 6 V or internal resistance 300 Ω at 20 mA
Output signal		4 ... 20 mA or 1 ... 5 V (on 250 Ω, 0.1 % internal shunt) 4 ... 20 mA (sink mode), operating voltage 15 ... 26 V
Output load		0 ... 300 Ω (source mode)
Ripple		20 mV _{rms}
Transfer characteristics		
Deviation		at 20 °C (68 °F) ≤ ± 0.1 % incl. non-linearity and hysteresis (source mode 4 ... 20 mA) ≤ ± 0.2 % incl. non-linearity and hysteresis (sink mode 4 ... 20 mA) ≤ ± 0.2 % incl. non-linearity and hysteresis (source mode 1 ... 5 V) ≤ ± 0.2 % incl. non-linearity and hysteresis (analog output mode 4 ... 20 mA)
Influence of ambient temperature		< 2 μA/K (0 ... 60 °C (32 ... 140 °F)); < 4 μA/K (-20 ... 0 °C (-4 ... 32 °F))
Frequency range		field side into the control side: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB)
Rise time		10 to 90 % ≤ 20 ms
Electrical isolation		
Output/power supply		basic insulation according to IEC 62103, rated insulation voltage 50 V _{eff}
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Conformity		
Electromagnetic compatibility		NE 21:2006 For further information see system description.
Degree of protection		IEC 60529
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Mass		approx. 140 g
Dimensions		18 x 106 x 128 mm (0.7 x 4.2 x 5 inch)
Mounting		on Termination Board
Coding		pin 1 and 3 trimmed For further information see system description.
Data for application in connection with Ex-areas		
EC-Type Examination Certificate		CESI 02 ATEX 086
Group, category, type of protection		⊕ II (1)G [Ex ia Ga] IIC , ⊕ II (1)D [Ex ia Da] IIIC
Input		Ex ia, Ex iaD
Supply		
Maximum safe voltage	U_m	250 V AC (Attention! U_m is no rated voltage.)
Equipment		
Voltage	U_o	25.2 V
Current	I_o	93 mA

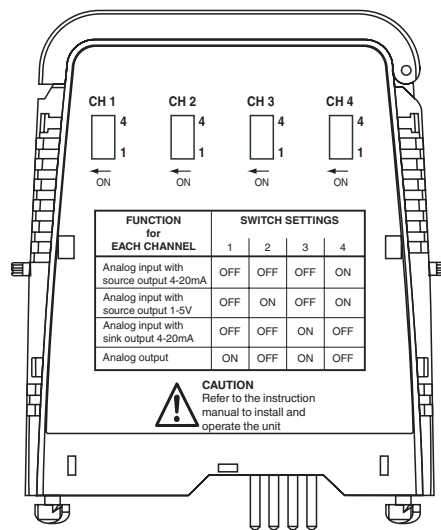
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Power	P _O	586 mW
Statement of conformity		PF 11 CERT 2109 X
Group, category, type of protection, temperature class		Ex II 3G Ex nA IIC T4 Gc
Electrical isolation		
Input/Output		safe electrical isolation acc. to EN 60079-11: 2007, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to EN 60079-11: 2007, voltage peak value 375 V
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

Configuration

Switches 1 ... 4



Potentiometer 1 ... 4

The front-mounted potentiometers are used for fine adjustment of current transfer. The factory-setting of the device is calibrated to the function transmitter power supply. If using the device as current driver, the Offset of the output stage can be calibrated via the potentiometers.

Configure the device in the following way:

- Push the red Quick Lok Bars on each side of the device in the upper position.
- Remove the device from Termination Board.
- Set the DIP switches according to the figure.



The pins for this device are trimmed to polarize it according to its safety parameter. Do not change!
For further information see system description.

Additional information

The device operates as a SMART transmitter power supply or as a repeater:

- As a SMART transmitter power supply, it provides a fully floating supply to power up to four 2-wire transmitters in a hazardous area, repeating the current to drive a safe area source or sink mode output.
- As a repeater, it transmits a 4 mA ... 20 mA input signal from a control system to drive HART I/P converters, valve actuators, and displays in a hazardous area.

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