

**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.

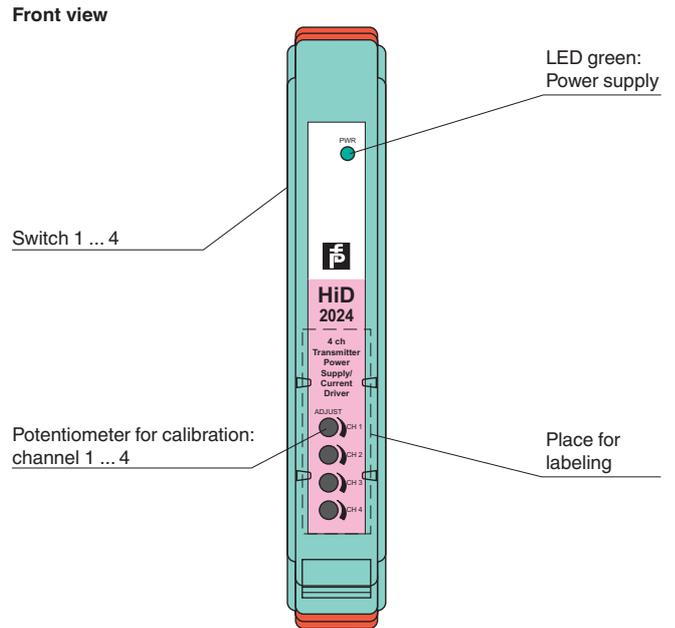
Bi-directional communication is supported for SMART transmitters that use current modulation to transmit data and voltage modulation to receive data.

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

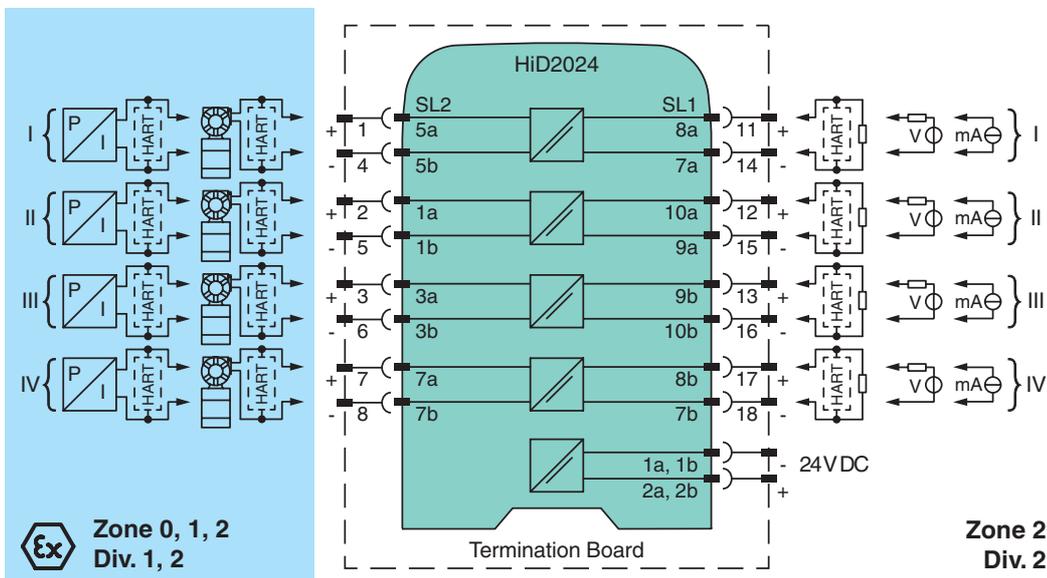
An open field circuit presents a high impedance to the control side to allow alarm conditions to be monitored by control systems.

This module mounts on a HiD Termination Board.

**Assembly**



**Connection**



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

<b>General specifications</b>		
Signal type		Analog input/analog output
<b>Functional safety related parameters</b>		
Safety Integrity Level (SIL)		SIL 2
<b>Supply</b>		
Connection		SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	$U_r$	20.4 ... 30 V DC bus powered via Termination Board
Ripple		$\leq 10 \%$
Rated current	$I_r$	140 mA at 24 V and 20 mA
Power dissipation		$\leq 1.8 \text{ W}$ at 20 mA
Power consumption		$\leq 3.3 \text{ W}$ at 20 mA
<b>Control circuit</b>		
Connection		SL1: 8a(+), 7a(-); 10a(+), 9a(-); 9b(+), 10b(-); 8b(+), 7b(-)
Voltage drop		approx. 6 V or internal resistance 300 $\Omega$ at 20 mA
Ripple		200 mV <sub>eff</sub>
<b>Input</b>		
Signal		4 ... 20 mA
Resistor		$> 100 \text{ k}\Omega$ at max. 23 V, with field wiring open
<b>Output</b>		
Signal		4 ... 20 mA or 1 ... 5 V (on 250 $\Omega$ , 0.1 % internal shunt) 4 ... 20 mA (sink mode), operating voltage 15 ... 26 V
Load		0 ... 300 $\Omega$ (source mode)
<b>Field circuit</b>		
Connection		SL2: 5a(+), 5b(-); 1a(+), 1b(-); 3a(+), 3b(-); 7a(+), 7b(-)
Voltage		$\geq 15 \text{ V}$ at 20 mA
<b>Input</b>		
Signal		4 ... 20 mA, limited to approx. 30 mA
<b>Output</b>		
Signal		4 ... 20 mA
Load		0 ... 650 $\Omega$
<b>Transfer characteristics</b>		
Deviation		at 20 °C (68 °F) $\leq \pm 0.1 \%$ incl. non-linearity and hysteresis (source mode 4 ... 20 mA) $\leq \pm 0.2 \%$ incl. non-linearity and hysteresis (sink mode 4 ... 20 mA) $\leq \pm 0.2 \%$ incl. non-linearity and hysteresis (source mode 1 ... 5 V) $\leq \pm 0.2 \%$ incl. non-linearity and hysteresis (analog output mode 4 ... 20 mA)
Influence of ambient temperature		$< 2 \mu\text{A/K}$ (0 ... 60 °C (32 ... 140 °F)); $< 4 \mu\text{A/K}$ (-20 ... 0 °C (-4 ... 32 °F))
Frequency range		field side into the control side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB)
Rise time		10 to 90 % $\leq 20 \text{ ms}$
<b>Galvanic isolation</b>		
Output/power supply		basic insulation according to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
<b>Indicators/settings</b>		
Display elements		LED
Control elements		DIP-switch potentiometer
Configuration		via DIP switches via potentiometer
Labeling		space for labeling at the front
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
<b>Conformity</b>		
Electromagnetic compatibility		NE 21:2006 For further information see system description.
Degree of protection		IEC 60529
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>		
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

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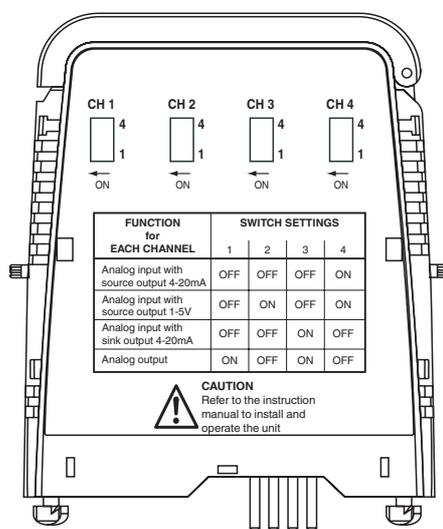
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Coding	pin 1 and 3 trimmed For further information see system description.	
<b>Data for application in connection with hazardous areas</b>		
EU-Type Examination Certificate	CESI 02 ATEX 086	
Marking	⊕ II (1)G [Ex ia Ga] IIC , ⊕ II (1)D [Ex ia Da] IIIC	
Input	Ex ia, Ex iaD	
Supply		
Maximum safe voltage	U <sub>m</sub>	250 V AC (Attention! U <sub>m</sub> is no rated voltage.)
Equipment		
Voltage	U <sub>o</sub>	25.2 V
Current	I <sub>o</sub>	93 mA
Power	P <sub>o</sub>	586 mW
Certificate	PF 11 CERT 2109 X	
Marking	⊕ II 3G Ex nA IIC T4 Gc	
Galvanic 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	
<b>International approvals</b>		
IECEX approval	IECEX TUN 04.0012	
Approved for	[Ex ia] IIC	
<b>General information</b>		
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .	

## 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.*

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## 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.