

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
- Line fault detection (LFD)

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.

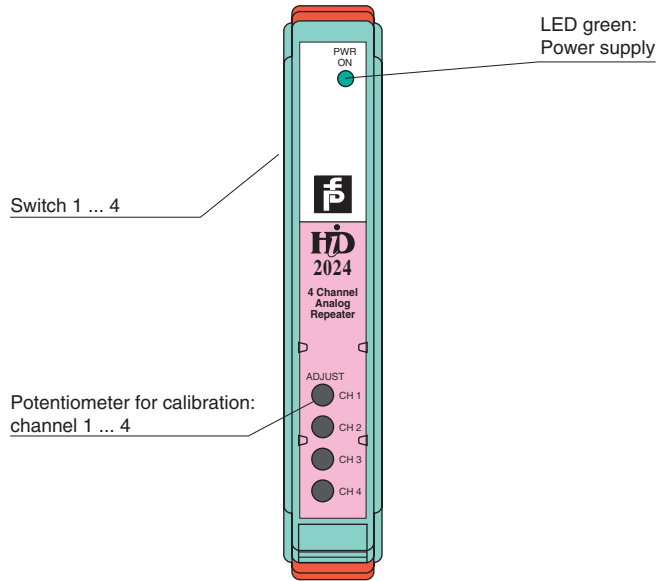
The outputs are fully isolated from the inputs, the power supply, and each other.

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

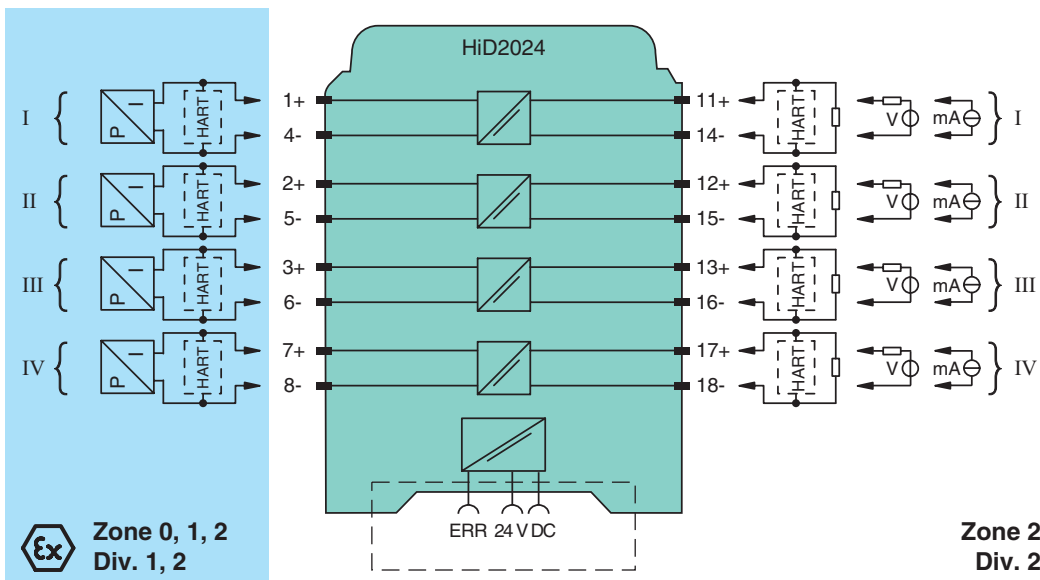
This module mounts on a HiD Termination Board.

Assembly

Front view



Connection



Release date 2009-09-29 11:09 Date of issue 2009-09-29 185930_ENG.xml

General specifications	
Signal type	Analog input
Supply	
Connection	via Termination Board
Rated voltage	20.4 ... 30 V via Termination Board
Ripple	≤ 10 %
Rated current	140 mA at 24 V and 20 mA
Power loss	≤ 1.8 W at 20 mA
Power consumption	≤ 3.3 W at 20 mA
Hazardous area connection	
Number of channels	4
Connection	terminals 1+, 4-; 2+, 5-; 3+, 6-; 7+, 8-
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	terminals 11+, 14-; 12+, 15-; 13+, 16-; 17+, 18-
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 (293 K) ≤ ± 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/°C (0 ... +60 °C); < 4 μA/°C (-20 ... 0 °C)
Frequency range	hazardous area to safe area: bandwidth with 0.5 V _{pp} signal 0 ... 3 kHz (-3 dB) safe area to hazardous area: 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}
Indicators/settings	
LED PWR	green
DIP-switch	selection of operating mode: current source, current sink or voltage source
Factory setting	analog input with source output
Potentiometer	calibration adjustment
Labeling	space for labeling at the front
Directive conformity	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Conformity	
Electromagnetic compatibility	NE 21
Protection degree	IEC 60529
Ambient conditions	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Mechanical specifications	
Protection degree	IP20
Material	Polycarbonate
Mass	approx. 140 g
Dimensions	18 x 106 x 128 mm (0.7 x 4.2 x 5 in)
Data for application in conjunction with hazardous areas	
EC-Type Examination Certificate	CESI 02 ATEX 086, for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	Ⓔ II (1)GD [Ex ia] IIC, [Ex ia D] [circuit(s) in zone 0/1/2/20/21/22]
Input	Ex ia/Ex ia D
Supply	
Safety maximum voltage U _m	253 V AC (Attention! U _m is no rated voltage.)

Release date 2009-09-29 11:09 Date of issue 2009-09-29 185930_ENG.xml

Equipment		
Voltage	U_o	25.2 V
Current	I_o	93 mA
Power	P_o	586 mW
Internal capacitance	C_i	1.2 nF
Internal inductance	L_i	negligible
Statement of conformity		
Group, category, type of protection, temperature classification		Ⓔ II 3G Ex nA II T4 X
Electrical isolation		
Input/output		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Input/power supply		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V
Directive conformity		
Directive 94/9/EC		EN 60079-0, EN 60079-11, EN 61241-11, EN 61241-0, EN 60079-15, EN 60079-26
General information		
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com .

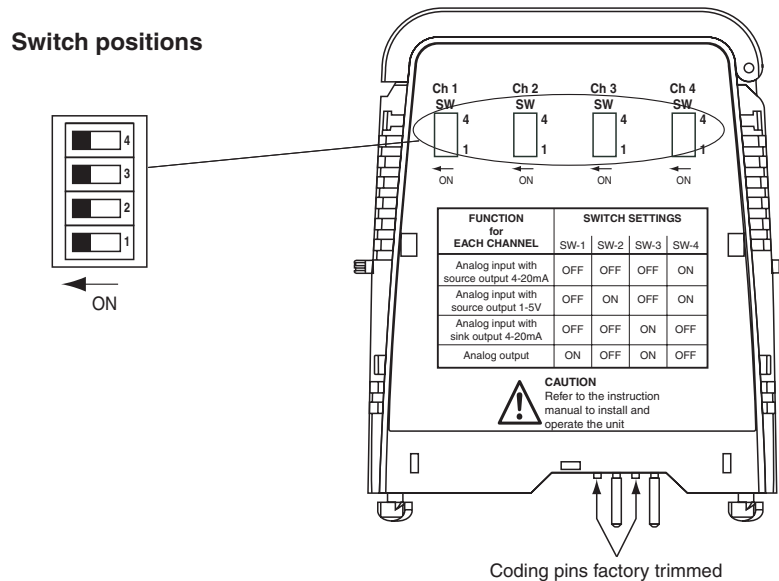
Additional information

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.

Configuration

Switches 1 ... 4



The configuration is performed in the following way:

- Remove the module from termination board, pulling-up the tab on each side of the module.
- Set the DIP switches according to the figure.



The coding pins for this device are trimmed to polarise it according to it's safety parameter. Do not change!

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.