



# SMART Transmitter Power Supply HiD2030

- 2-channel isolated barrier
- 24 V DC supply (bus powered)
- 2-wire SMART transmitters or current sources
- Usable as signal splitter (1 input and 2 outputs)
- Dual output 4 mA ... 20 mA or 1 V ... 5 V
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC 61508



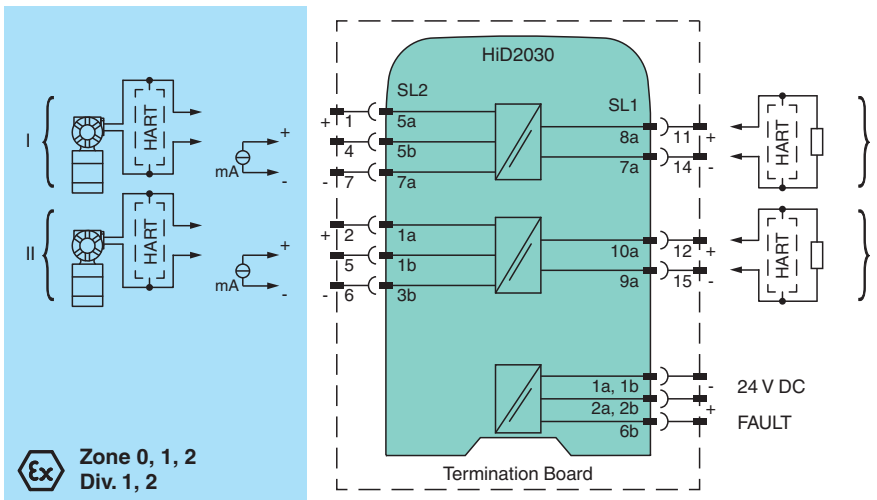
SIL 2



## Function

This isolated barrier is used for intrinsic safety applications. It provides a fully floating supply to power 2-wire SMART transmitters in the hazardous area, and repeats the current to drive a safe area load. It is also used with 2-wire current sources. Digital signals may be superimposed on the analog values in the hazardous or safe area, which are transferred bidirectionally. A separate fault output on the bus is signaled if the input signal is outside the range 0.2 mA ... 24 mA. The fault conditions can be monitored via a Fault Indication Board. This module mounts on a HiD Termination Board.

## Connection



**Ex** Zone 0, 1, 2  
Div. 1, 2

## Technical Data

### General specifications

Signal type Analog input

### Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

### Supply

Connection SL1: 1a(-), 1b(-); 2a(+), 2b(+)

Rated voltage  $U_r$  20.4 ... 30 V DC bus powered via Termination Board

Rated current  $I_r$  60 mA at 24 V, 20 mA output (per channel)

Power dissipation 1.05 W at 24 V (per channel)

### Input

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## Technical Data

Connection side	field side
Connection	SL2: 5a(+), 5b, 7a(-); 1a(+), 1b, 3b(-)
Input current	4 ... 20 mA , current limit 26 mA typ.
Input resistance	40 Ω , for current source
Ripple	10 mV <sub>eff</sub>
Voltage	min. 15.5 V at 20 mA
Communication	pass-through of HART signal to safe area The current sink terminals 4, 7 and 5, 6 do not pass the HART signal to safe area.
<b>Output</b>	
Connection side	control side
Connection	SL1: 8a(+), 7a(-); 10a(+), 9a(-)
Load	0 ... 650 Ω
Output signal	4 ... 20 mA or 1 ... 5 V (on 250 Ω, 0.1 % internal shunt)
Ripple	10 mV <sub>eff</sub> on a load of 250 Ω
Response time	70 ms , 10 ... 90 % step change
Signal level	no fault: 1 mA ... 23.5 mA input current fault detection: < 0.2 mA or > 24 mA input current
<b>Fault indication output</b>	
Connection	SL1: 6b
Output type	open collector transistor (common to both channels) fault bus signal, collective error message
<b>Transfer characteristics</b>	
Calibrated accuracy	< ± 0.1 % of full-scale value (current output)
Influence of temperature	< ± 0.01 %/ K
Frequency range	communication channel: 0.5 ... 40 kHz within 3 db, (-6 db at 100 kHz), Tx to output and output to Tx, suitable for use with SMART transmitters using HART or similar protocol
Influence of load	< ± 0.1 % of full-scale value from 0 ... 650 Ω
Linearity	< ± 0.05 % of full-scale value
<b>Galvanic isolation</b>	
Output/power supply	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V <sub>eff</sub>
Output/Output	functional insulation acc. to DIN EN 50178, rated insulation voltage 50 V <sub>eff</sub>
<b>Indicators/settings</b>	
Display elements	LEDs
Control elements	DIP-switch
Configuration	via DIP switches
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 60529:2001
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Relative humidity	5 ... 90 %, non-condensing up to 35 °C (95 °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
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

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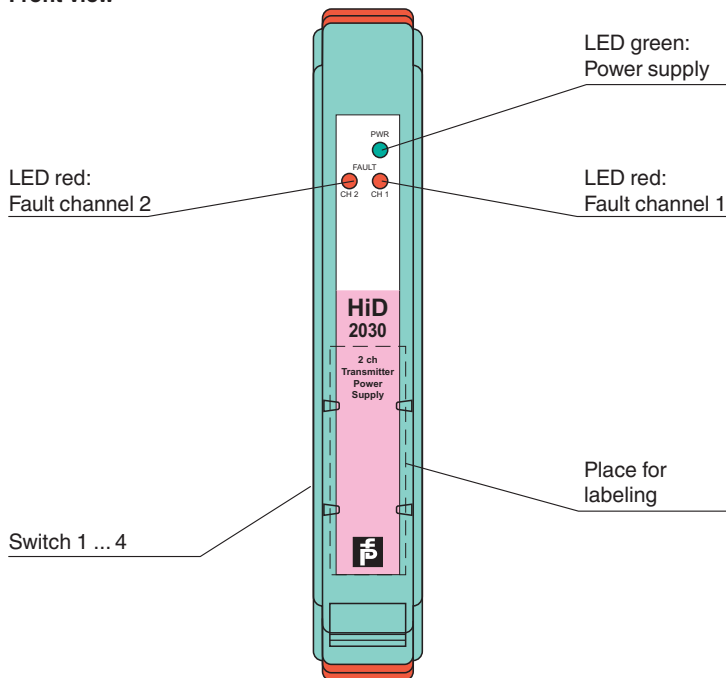
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**Technical Data**

Marking	Ⓜ II (1)G [Ex ia Ga] IIC , Ⓜ II (1)D [Ex ia Da] IIIC	
Input	Ex ia, Ex iaD	
Voltage	U <sub>o</sub>	26 V
Current	I <sub>o</sub>	93 mA
Power	P <sub>o</sub>	605 mW
Supply		
Maximum safe voltage	U <sub>m</sub>	250 V AC (Attention! U <sub>m</sub> is no rated voltage.)
Certificate	PF 11 CERT 2109 X	
Marking	Ⓜ II 3G Ex nA IIC T4 Gc [device in zone 2]	
Galvanic isolation		
Input/input	safe electrical isolation acc. to EN 60079-11:2007, voltage peak value 60 V	
Input/Output	safe electrical isolation acc. to IEC 60079-11:2007, voltage peak value 375 V	
Input/power supply	safe electrical isolation acc. to IEC 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>		
CSA approval		
Control drawing	366-005CS-12B (cCSAus)	
IECEX approval		
IECEX certificate	IECEX TUN 04.0012	
IECEX marking	[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> .	

**Assembly**

**Front view**



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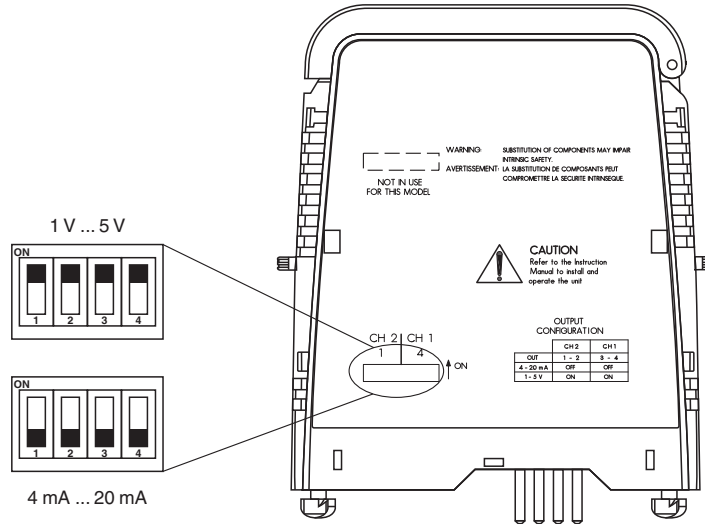
## Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Bailey (only STT02 communication, e. g. BCN series)
- Foxboro

## Configuration

### Switch



The outputs can be configured as:

- Current output 4 mA ... 20 mA
- Voltage output 1 V ... 5 V

Output	CH 1		CH 2	
	SW4	SW3	SW2	SW1
4 mA ... 20 mA	OFF	OFF	OFF	OFF
1 V ... 5 V	ON	ON	ON	ON

## Configuration

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.



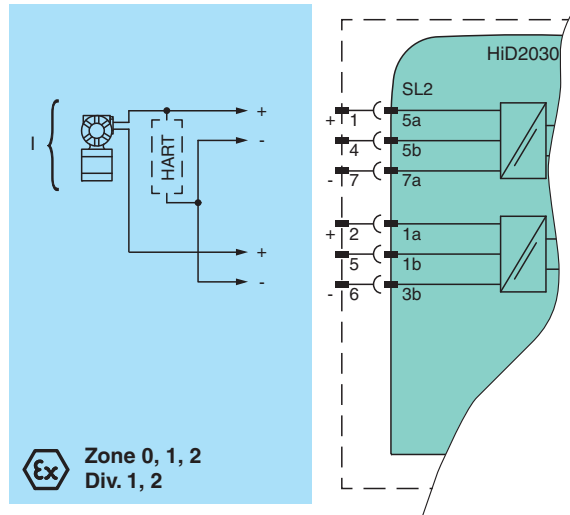
*The pins for this device are trimmed to polarize it according to its safety parameter. Do not change! For further information see system description.*

## Application

Connection for signal splitter function: 1 input → 2 outputs

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Div. 1, 2

**Note:**

- Communication for SMART transmitter is provided only on output channel 1.
- Minimum supply voltage available for field transmitters is 14.7 V at 20 mA.
- Safety parameters are now:
  - $U_o = 27.2\text{ V}$
  - $I_o = 93\text{ mA}$
  - $P_o = 633\text{ mW}$
- See operating instructions for other connection options and for more details.

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