



# SMART Transmitter Power Supply HiD2030SK

- 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, current sink
- Line fault detection (LFD)
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



## 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. It is designed to provide a sink mode output on the safe area terminals.

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.

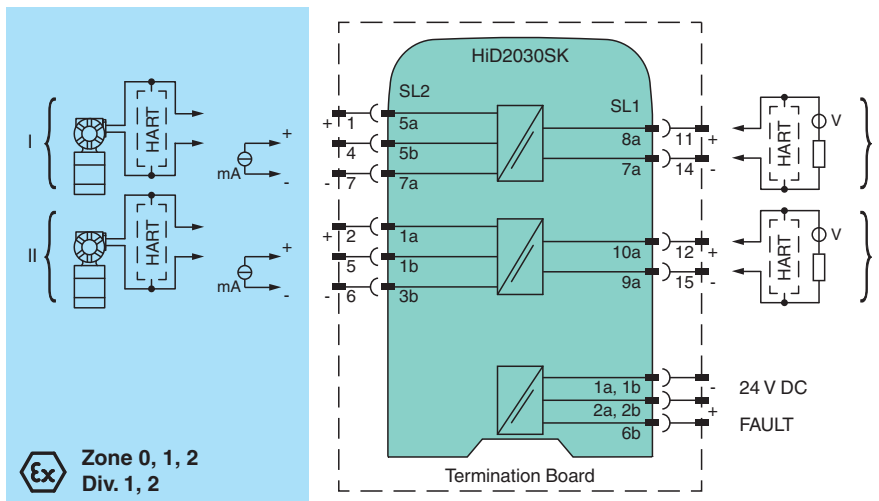
This module mounts on a HiD Termination Board.

## Application

The device supports the following SMART protocols:

- HART
- BRAIN

## Connection



## Technical Data

### General specifications

Signal type Analog input

### Functional safety related parameters

Safety Integrity Level (SIL) SIL 2

Systematic capability (SC) SC 3

### Supply

Release date: 2023-06-01 Date of issue: 2023-06-01 Filename: 70122721\_eng.pdf

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

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## Technical Data

Connection		SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	$U_r$	19 ... 30 V DC bus powered via Termination Board
Rated current	$I_r$	14 mA at 24 V, 250 $\Omega$ load, 20 mA output (per channel)
Power dissipation		350 mW at 24 V, 250 $\Omega$ load, 20 mA output (per channel)
<b>Input</b>		
Connection side		field side
Connection		SL2: 5a(+), 5b, 7a(-); 1a(+), 1b, 3b(-)
Input current		4 ... 20 mA, current limit approx. 26 mA typ.
Input resistance		< 40 $\Omega$ , 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 HART signal to safe area.
<b>Output</b>		
Connection side		control side
Connection		SL1: 8a(+), 7a(-); 10a(+), 9a(-)
Output		sink mode from external supply
Output signal		4 ... 20 mA
Voltage		working voltage 7 ... 30 V
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>		
Deviation		at 20 °C (68 °F), 0/4 ... 20 mA ≤ 20 $\mu$ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage
Influence of ambient temperature		≤ 2 $\mu$ A/K
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)
<b>Galvanic isolation</b>		
Input/Output		basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Input/power supply		reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output/power supply		basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output/Output		functional insulation, rated insulation voltage 50 V AC
<b>Indicators/settings</b>		
Display elements		LEDs
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 21:2017 EN 61326-3-2:2018
Degree of protection		IEC 60529:2001
Protection against electrical shock		UL 61010-1:2012
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 60 °C (-40 ... 140 °F)
Relative humidity		5 ... 90 %, non-condensing up to 35 °C (95 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP20
Mass		140 g
Dimensions		18 x 114 x 130 mm (0.7 x 4.5 x 5.1 inch) (W x H x D)

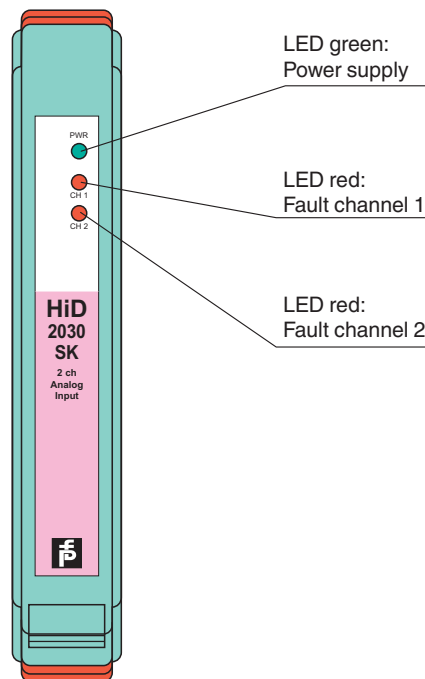
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**Technical Data**

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	CSANe 21 ATEX 2149 X	
Marking	Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I	
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
<b>Supply</b>		
Maximum safe voltage	U <sub>m</sub>	250 V AC (Attention! U <sub>m</sub> is no rated voltage.)
<b>Galvanic isolation</b>		
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	
<b>Directive conformity</b>		
Directive 2014/34/EU	EN 60079-0:2018 , EN 60079-11:2012	
<b>International approvals</b>		
CSA approval	CoC 80072560 (cCSAus)	
Control drawing	116-0486	
<b>IECEX approval</b>		
IECEX certificate	IECEX CSAE 21.0010X	
IECEX marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I	
<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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## Safety Information

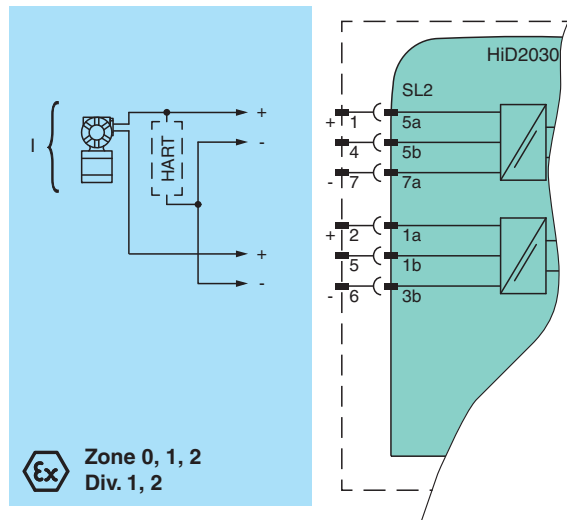
The pins for this device are trimmed to polarize it according to its safety parameter. Do not change this setting!  
For further information see system manual.

## Configuration

No user configuration available for this device.

**Application**

Connection for signal splitter function: 1 input → 2 outputs



**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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