



# 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 acc. to IEC 61508



SIL 2



### Function

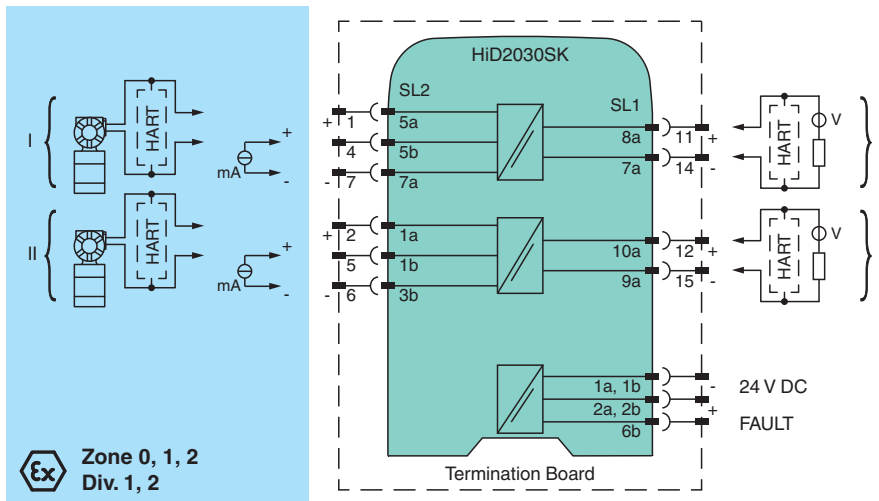
This isolated barrier is used for intrinsic safety applications. It provides a fully floating supply to power 2-wire SMART transmitters in the hazardous area, and repeats the current to drive a safe area load. It is also used with 2-wire current sources. It is designed to provide a sink mode output on 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.

### Connection



### 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	$I_r$ 40 mA at 24 V, 20 mA output (per channel)
Power dissipation	1.05 W at 20 mA and 24 V external from PCS or PLC (per channel)
Input	

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com



## 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(-)
Output		sink mode from external supply
Output signal		4 ... 20 mA , current limit 24 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>		
Calibrated accuracy		< ± 0.1 % of full-scale value
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
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
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
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

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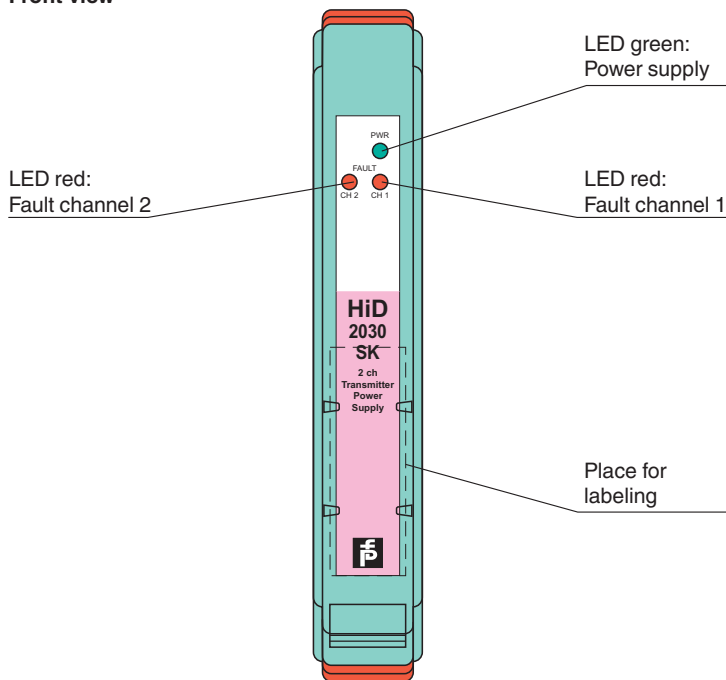
Pepperl+Fuchs Group  
www.pepperl-fuchs.comUSA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.comGermany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.comSingapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com
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**Technical Data**

Current	$I_o$	93 mA
Power	$P_o$	605 mW
Supply		
Maximum safe voltage	$U_m$	250 V AC (Attention! $U_m$ 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

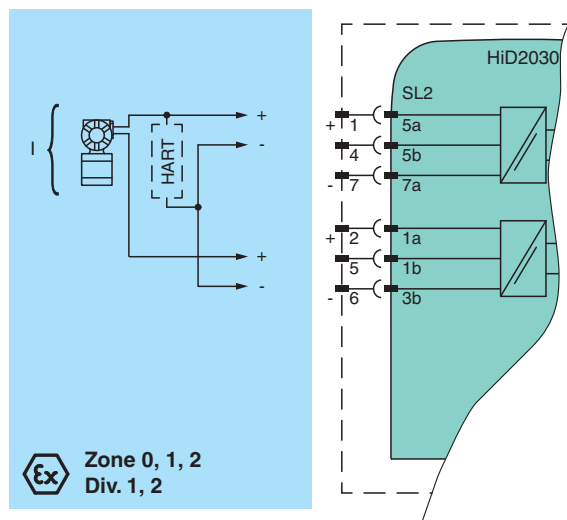
No user configuration available for this device.



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



**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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