

# SMART Transmitter Power Supply

## KFD2-STV4-Ex1.2O-1

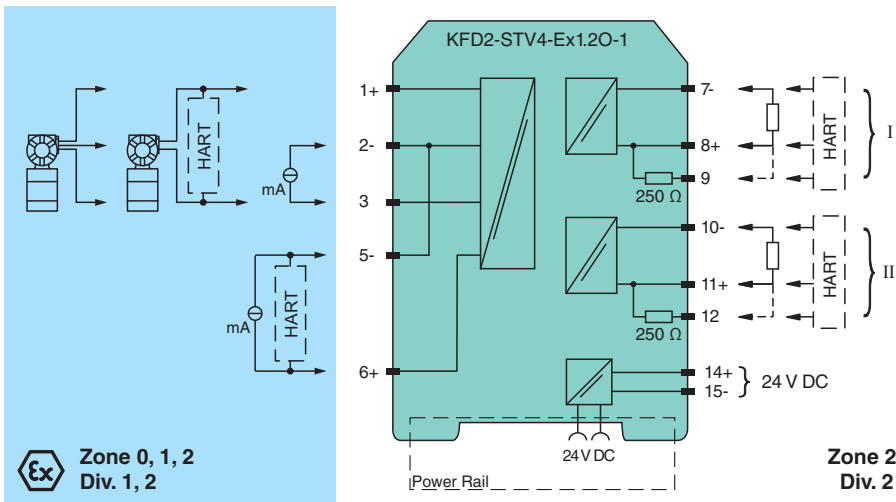
- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input 2-wire and 3-wire SMART transmitters and 2-wire SMART current sources
- Signal splitter (1 input and 2 outputs)
- Dual output 0/1 V ... 5 V
- Terminal blocks with test sockets
- Up to SIL 3 acc. to IEC/EN 61508



### Function

This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire and 3-wire SMART transmitters in a hazardous area, and can also be used with 2-wire SMART current sources. It transfers the analog input signal to the safe area as two isolated voltage values. Digital signals may be superimposed on the input signal in the hazardous or safe area and are transferred bi-directionally. If the HART communication resistance in the loop is too low, the internal resistance of 250 Ω between terminals 8, 9 and 11, 12 can be used. Test sockets for the connection of HART communicators are integrated into the terminals of the device.

### Connection



### Technical Data

General specifications	
Signal type	Analog input
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
Supply	
Connection	Power Rail or terminals 14+, 15-
Rated voltage	$U_r$ 20 ... 35 V DC
Ripple	within the supply tolerance
Power dissipation	1.8 W
Power consumption	2.4 W

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

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## Technical Data

<b>Input</b>	
Connection side	field side
Connection	terminals 1+, 2-, 3 or 5-, 6+
Input signal	0/4 ... 20 mA
Open circuit voltage/short-circuit current	terminals 1+, 3-: 22.7 V / 38 mA
Voltage drop	terminals 5, 6 : $\leq 2.4$ V at 20 mA
Input resistance	terminals 2-, 3: max. 76 $\Omega$ terminals 1+, 3: max. 500 $\Omega$ (250 $\Omega$ load)
Available voltage	terminals 1+, 3: $\geq 16$ V at 20 mA
<b>Output</b>	
Connection side	control side
Connection	terminals 7-, 8+,9; 10-, 11+,12
Load	output resistance: 250 $\Omega$
Output signal	0/1 ... 5 V
Ripple	max. 12.5 mV
<b>Transfer characteristics</b>	
Deviation	at 20 °C (68 °F), 0/1 ... 5 V $\leq 5$ mV incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage
Influence of ambient temperature	$\leq 20$ ppm/K
Frequency range	field side into the control side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 7.5 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0.3 ... 7.5 kHz (-3 dB)
Rise time	20 $\mu$ s
Settling time	200 $\mu$ s
De-energized delay	20 $\mu$ s
<b>Galvanic isolation</b>	
Output/power supply	functional insulation, rated insulation voltage 50 V AC
Output/Output	functional insulation, rated insulation voltage 50 V AC
<b>Indicators/settings</b>	
Display elements	LED
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 21:2011
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>	
Degree of protection	IP20
Connection	screw terminals
Mass	approx. 100 g
Dimensions	20 x 124 x 115 mm (0.8 x 4.9 x 4.5 inch) (W x H x D) , housing type B2
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
<b>Data for application in connection with hazardous areas</b>	
EU-type examination certificate	BAS 99 ATEX 7060 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 Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
Supply	
Maximum safe voltage	U <sub>m</sub> 250 V (Attention! The rated voltage can be lower.)
Equipment	terminals 1+, 3-
Voltage U <sub>o</sub>	25.4 V
Current I <sub>o</sub>	86.8 mA

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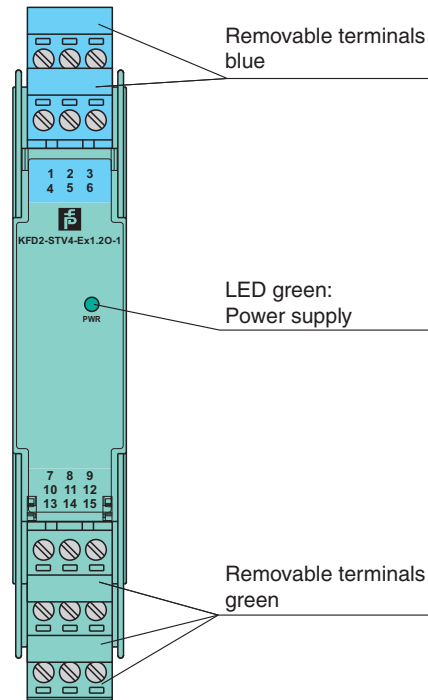
## Technical Data

Power $P_o$	551 mW
Internal capacitance $C_i$	12 nF
Internal inductance $L_i$	0
Equipment	terminals 2-, 3
Current $I_o$ /Current $I_i$	74 mA / 115 mA
Current $I_i$	115 mA
Voltage $U_o$	3.5 V
Current $I_o$	74 mA
Power $P_o$	64 mW
Equipment	terminals 1+, 2 / 3-
Voltage $U_i$	30 V
Current $I_i$	115 mA
Voltage $U_o$	25.4 V
Current $I_o$	115 mA
Power $P_o$	584 mW
Equipment	terminals 5-, 6+
Voltage $U_i$	30 V
Current $I_i$	115 mA
Voltage $U_o$	8.7 V
Current $I_o$	0 mA
Certificate	TÜV 99 ATEX 1499 X
Marking	Ⓜ II 3G Ex nA II T4 [device in zone 2]
Galvanic 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 2014/34/EU	EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
<b>International approvals</b>	
UL approval	
Control drawing	116-0428 (cULus)
IECEX approval	
IECEX certificate	IECEX BAS 04.0016X IECEX CML 15.0055X
IECEX marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex nA IIC T4 Gc
<b>General information</b>	
Note	Both output loads must be connected to ensure complete and correct operation within the technical specification.
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> .







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**Assembly**





Front view



**Matching System Components**

	<b>KFD2-EB2</b>	Power Feed Module
	<b>UPR-03</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 2 m
	<b>UPR-03-M</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 1,6 m
	<b>UPR-03-S</b>	Universal Power Rail with end caps and cover, 3 conductors, length: 0.8 m
	<b>K-DUCT-BU</b>	Profile rail, wiring comb field side, blue
	<b>K-DUCT-BU-UPR-03</b>	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side, blue

**Accessories**

	<b>KF-STP-5BU</b>	Terminal block for KF modules, 3-pin screw terminal, with test sockets, blue
	<b>KF-STP-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, with test sockets, green
	<b>KF-ST-5GN</b>	Terminal block for KF modules, 3-pin screw terminal, green
	<b>KF-CP</b>	Red coding pins, packaging unit: 20 x 6

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## Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Foxboro

## Configuration

### Configuration active output (source)

If only one output of the two outputs is used, a plug-in jumper have to be set as follows.

