

# SMART Transmitter Power Supply KCD2-STC-Ex1.20.DE

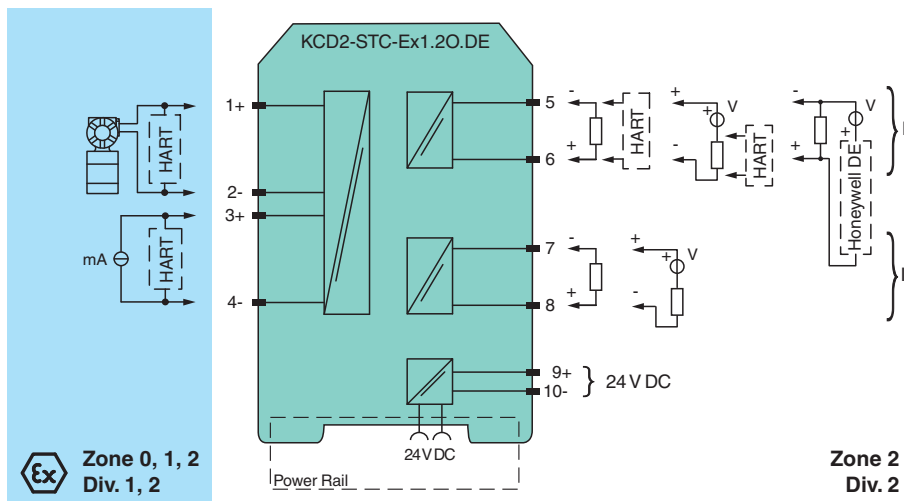
- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters and current sources
- Signal splitter (1 input and 2 outputs)
- Dual output 0/4 mA ... 20 mA or 0/1 V ... 5 V
- Terminal blocks with test sockets
- Up to SIL 2 acc. to IEC/EN 61508



## Function

This isolated barrier is used for intrinsic safety applications. The device supplies 2-wire transmitters in the hazardous area, and can also be used with current sources. It transfers the analog input signal to the safe area as two isolated output signals. Bi-directional communication is supported for SMART transmitters that use current modulation to transmit data and voltage modulation to receive data. The output is selected as a current source, current sink, or voltage source via switches. 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 2

### Supply

Connection Power Rail or terminals 9+, 10-

Rated voltage  $U_r$  19 ... 30 V DC

Ripple within the supply tolerance

Power dissipation approx. 1.4 W at 20 mA transfer current, 250  $\Omega$  in both outputs

Power consumption 2 W

Release date: 2021-11-29 Date of issue: 2021-11-29 Filename: 272956\_eng.pdf

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

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## Technical Data

<b>Interface</b>	
Protocol	Honeywell DE
<b>Input</b>	
Connection side	field side
Connection	terminals 1+, 2- (sink); 3+, 4- (source)
Input signal	0/4 ... 20 mA
Voltage drop	terminals 3, 4: $\leq 6.1$ V at 20 mA
Short-circuit current	terminals 1+, 2-: 25 mA , wake up pulse: 36 mA, 20 ms (Honeywell DE)
Input resistance	terminals 1+, 2-: max. 500 $\Omega$ (BRAIN) (250 $\Omega$ load)
Available voltage	terminals 1+, 2-: $\geq 16$ V at 20 mA , $\geq 18.5$ V at 4 mA
<b>Output</b>	
Connection side	control side
Connection	source: terminals 5-, 6+; 7-, 8+ sink: terminals 5+, 6-, 7+, 8-
Load	channel 1: 0 ... 500 $\Omega$ (20 mA)/ $> 1$ M $\Omega$ (5 V) channel 2: 0 ... 500 $\Omega$ (20 mA)/ $> 1$ M $\Omega$ (5 V)
Output signal	0/4 ... 20 mA or 0/1 ... 5 V
Ripple	max. 50 $\mu$ A <sub>rms</sub>
<b>Transfer characteristics</b>	
Deviation	$I_{out} < 20$ $\mu$ A (0.1 %); $V_{out} < 10$ mV (0.2 %) incl. calibration, linearity, hysteresis and fluctuation of supply voltage, at 20 °C (68 °F), 0/4 ... 20 mA, 0/1 ... 5 V
Influence of ambient temperature	current output: 0.25 $\mu$ A/K voltage output: 80 $\mu$ V/K
Frequency range	field side into the control side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 6 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0.3 ... 6 kHz (-3 dB) [DE 1 kHz (-3 dB)]
Settling time	6 ms
Rise time/fall time	2 ms
<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
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 21:2012 EN 61326-3-2:2008
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) extended ambient temperature range up to 70 °C (158 °F), refer to manual for necessary mounting conditions
<b>Mechanical specifications</b>	
Degree of protection	IP20
Connection	screw terminals
Mass	approx. 100 g
Dimensions	12.5 x 124 x 114 mm (0.5 x 4.9 x 4.5 inch) (W x H x D) , housing type A2
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	BASEEFA 13 ATEX 0077 X

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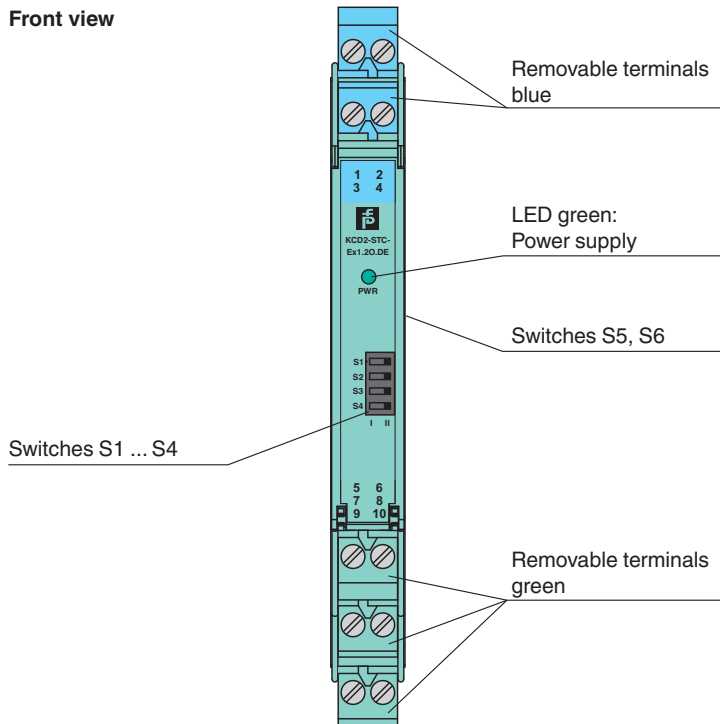
## Technical Data

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	$U_m$	250 V (Attention! The rated voltage can be lower.)
Equipment		terminals 1+, 2-
Voltage $U_o$		25.2 V
Voltage $U_q$		28.2 V
Current $I_o$		93 mA
Power $P_o$		656 mW
Internal capacitance $C_i$		10 nF
Internal inductance $L_i$		0 mH
Equipment		terminals 3+, 4-
Voltage $U_i$		30 V
Current $I_i$		115 mA
Power $P_i$		700 mW
Voltage $U_o$		5 V
Current $I_o$		6.8 mA
Power $P_o$		1.6 mW
Output		
Maximum safe voltage	$U_m$	250 V (Attention! The rated voltage can be lower.)
Certificate		BASEEFA 13 ATEX 0078 X
Marking		Ⓜ II 3G Ex nA II T4 Gc [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		116-0380 (cULus)
IECEX approval		
IECEX certificate		IECEX BAS 13.0043X
IECEX marking		[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
<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>KC-STP-5GN</b>	Terminal block for KC modules, 2-pin screw terminal, with test sockets, green
	<b>KC-STP-5BU</b>	Terminal block for KC modules, 2-pin screw terminal, with test sockets, blue
	<b>KF-CP</b>	Red coding pins, packaging unit: 20 x 6

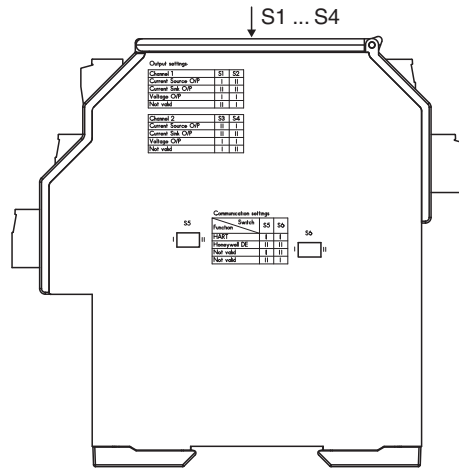
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## Application

The device supports the following SMART protocols:

- HART
- BRAIN
- Honeywell DE

## Configuration



### Output switch settings

Channel 1	S1	S2
Current source output	I	II
Current sink output	II	II
Voltage output	I	I
Not valid	II	I

### Communication switch settings

Function	S5	S6
HART transparency	I	I
Honeywell DE transparency	II	II
Not valid	I	II
Not valid	II	I

Channel 2	S3	S4
Current source output	II	I
Current sink output	II	II
Voltage output	I	I
Not valid	I	II

Factory settings: current source output, for both channels with HART transparency.