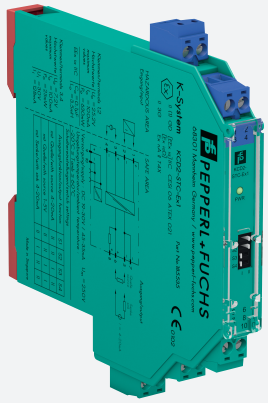


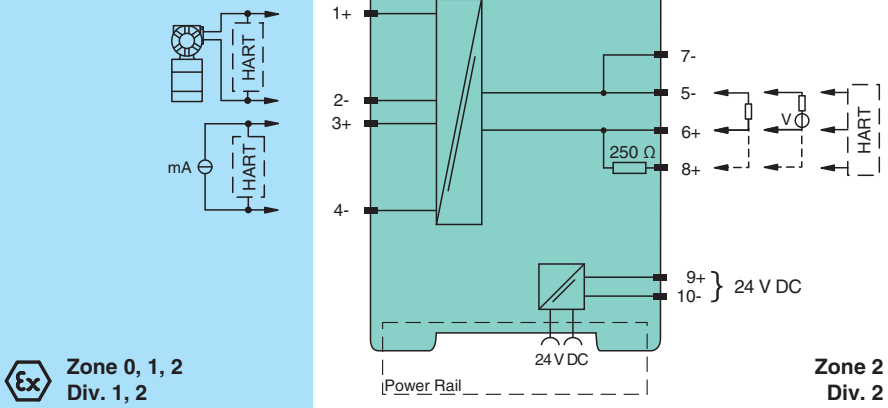
SMART Transmitter Power Supply
KCD2-STC-Ex1

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Input for 2-wire SMART transmitters and current sources
- Output for 4 mA ... 20 mA or 1 V ... 5 V
- Housing width 12.5 mm
- SIL 2 (SC 3) acc. to IEC/EN 61508

Function

This isolated barrier is used for intrinsic safety applications.
The device supplies 2-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 an isolated current value.
Digital signals may be superimposed on the input signal in the hazardous or safe area and are transferred bi-directionally.
Selectable output of current source, sink mode, or voltage output is available via DIP switches.
If the HART communication resistance in the loop is too low, the internal resistance of 250 Ω between terminals 6 and 8 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 2
Systematic capability (SC)		SC 3
Supply		
Connection		Power Rail or terminals 9+, 10-
Rated voltage	U_r	19 ... 30 V DC
Ripple		≤ 10 %
Rated current	I_r	≤ 45 mA at 24 V and 20 mA source mode output

Release date: 2021-09-13 Date of issue: 2021-09-13 Filename: 316910_eng.pdf

Technical Data

Power dissipation	≤ 800 mW
Power consumption	≤ 1.1 W
Input	
Connection side	field side
Connection	terminals 1+, 2-; 3+, 4-
Input signal	4 ... 20 mA limited to approx. 26 mA
Open circuit voltage/short-circuit current	terminals 1+, 2-: 22 V / 26 mA
Voltage drop	terminals 3+, 4- : approx. 5 V
Available voltage	terminals 1+, 2-: ≥ 15 V at 20 mA ; ≥ 18 V at 4 mA
Output	
Connection side	control side
Connection	terminals 5-, 6+ terminals 5-, 8+ for HART resistor
Load	0 ... 350 Ω (source mode)
Output signal	4 ... 20 mA or 1 ... 5 V (on 250 Ω, 0.1 % internal shunt) 4 ... 20 mA (sink mode), operating voltage 10 ... 30 V
Ripple	20 mV_{rms}
Transfer characteristics	
Deviation	at 20 °C (68 °F) < 0.1 % of full scale, incl. non-linearity and hysteresis (source mode and sink mode 4 ... 20 mA) ≤ ± 0.2 % incl. non-linearity and hysteresis (source mode 1 ... 5 V)
Influence of ambient temperature	< 2 µA/K (-20 ... 70 °C (-4 ... 158 °F)); < 4 µA/K (-40 ... -20 °C (-40 ... -4 °F)) (source mode and sink mode 4 ... 20mA) < 0.5 mV/K (-20 ... 70 °C (-4 ... 158 °F)); < 1 mV/K (-40 ... -20 °C (-40 ... -4 °F)) (source mode 1...5 V)
Frequency range	field side into the control side: bandwidth with 0.5 V_{pp} signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V_{pp} signal 0 ... 3 kHz (-3 dB)
Settling time	≤ 50 ms
Rise time/fall time	≤ 10 ms
Galvanic isolation	
Input/Output	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Input/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Output/power supply	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V_{eff}
Indicators/settings	
Display elements	LED
Control elements	DIP switch
Configuration	via DIP switches
Labeling	space for labeling at the front
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
Conformity	
Electromagnetic compatibility	NE 21:2017 EN 61326-3-2:2018
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
Ambient conditions	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications	
Degree of protection	IP20
Connection	screw terminals
Mass	approx. 100 g
Dimensions	12.5 x 114 x 124 mm (0.5 x 4.5 x 4.9 inch) , housing type A2
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas	

Release date: 2021-09-13 Date of issue: 2021-09-13 Filename: 316910_eng.pdf

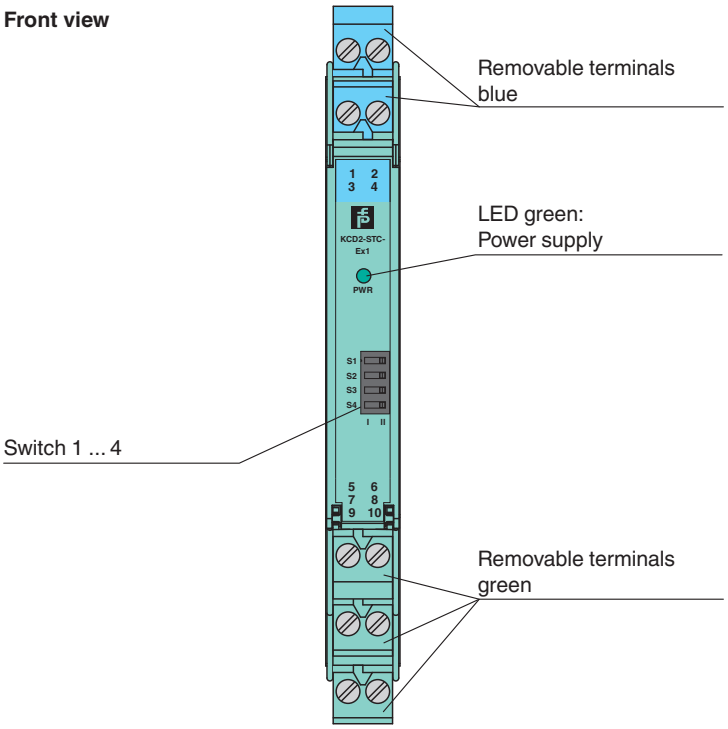
Technical Data

EU-type examination certificate		CESI 06 ATEX 021
Marking		⟨Ex⟩ II (1)G [Ex ia Ga] IIC ⟨Ex⟩ II (1)D [Ex ia Da] IIIC ⟨Ex⟩ I (M1) [Ex ia Ma] I
Input		Ex ia
Supply		
Maximum safe voltage	U_m	250 V AC (Attention! U_m is no rated voltage.)
Equipment		terminals 1+, 2-
Voltage U_o		25.2 V
Current I_o		100 mA
Power P_o		630 mW
Internal capacitance C_i		5.7 nF
Internal inductance L_i		negligible
Equipment		terminals 3+, 4-
Voltage U_i		30 V
Current I_i		128 mA
Voltage U_o		7.2 V
Current I_o		100 mA
Power P_o		25 mW
Internal capacitance C_i		5.7 nF
Internal inductance L_i		negligible
Certificate		CESI 19 ATEX 021 X
Marking		⟨Ex⟩ II 3G Ex ec IIC T4 Gc
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 60079-7:2015
International approvals		
FM approval		
FM certificate		FM 18 CA 0116 X , FM 19 US 0117 X
Control drawing		116-0469 (cFMus)
UL approval		E106378
Control drawing		116-0459 (cULus)
IECEx approval		
IECEx certificate		IECEx CES 06.0001X
IECEx marking		[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

Release date: 2021-09-13 Date of issue: 2021-09-13 Filename: 316910_eng.pdf

Assembly

Front view



Matching System Components

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

Accessories

	**KC-ST-5GN**	Terminal block for KC modules, 2-pin screw terminal, green
	**KC-STP-5GN**	Terminal block for KC modules, 2-pin screw terminal, with test sockets, green
	**KC-STP-5BU**	Terminal block for KC modules, 2-pin screw terminal, with test sockets, blue
	**KF-CP**	Red coding pins, packaging unit: 20 x 6

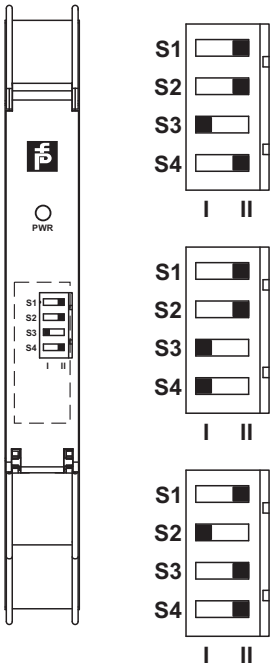
Release date: 2021-09-13 Date of issue: 2021-09-13 Filename: 316910_eng.pdf

Application

The device supports the following SMART protocols:

- HART
- BRAIN

Configuration



Operating mode

Output as current source
4 mA ... 20 mA

Output as voltage source
1 V ... 5 V

Output as current sink
4 mA ... 20 mA

Factory settings: output as current source 4 mA ... 20 mA

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