



SMART Current Driver

KCD2-SCD-Ex1

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Current output up to 650 Ω load
- HART-IP and valve positioner
- Lead breakage monitoring
- Housing width 12.5 mm
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



SIL 2



Function

This isolated barrier is used for intrinsic safety applications.

The device repeats the input signal from a control system to drive SMART I/P converters, electrical valves, and positioners located in a hazardous area.

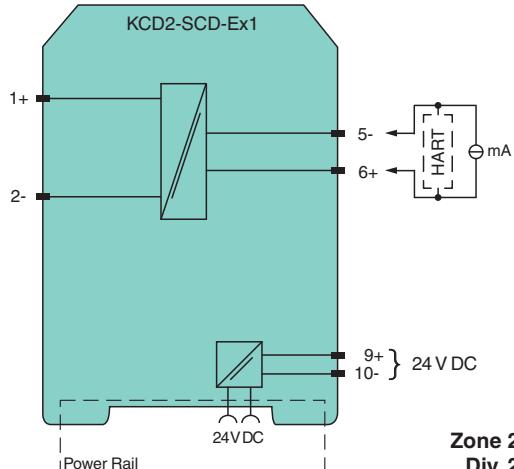
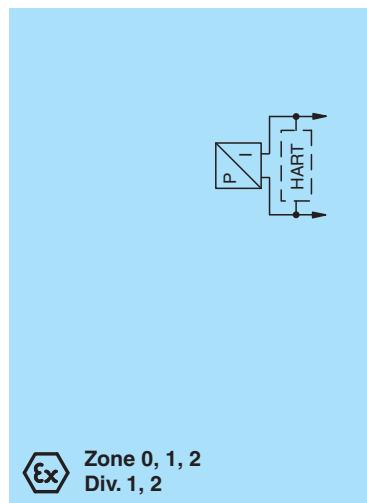
Digital signals are superimposed on the analog values at the field side or control side and are transferred bi-directionally.

The current is transferred via a DC/DC converter and repeated at the output terminals.

An open field circuit presents a high impedance to the control side to allow alarm conditions to be monitored by the control system.

Test sockets for the connection of HART communicators are integrated into the terminals of the device.

Connection



Technical Data

General specifications

Signal type	Analog output	
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Functional safety related parameters

Safety Integrity Level (SIL)	SIL 2	
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Systematic capability (SC)	SC 3	
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Supply

Connection	Power Rail or terminals 9+, 10-	
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Rated voltage	U_r	19 ... 30 V DC
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Ripple	$\leq 10\%$	
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Rated current	I_r	$\leq 30\text{ mA}$ at 24 V
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Technical Data

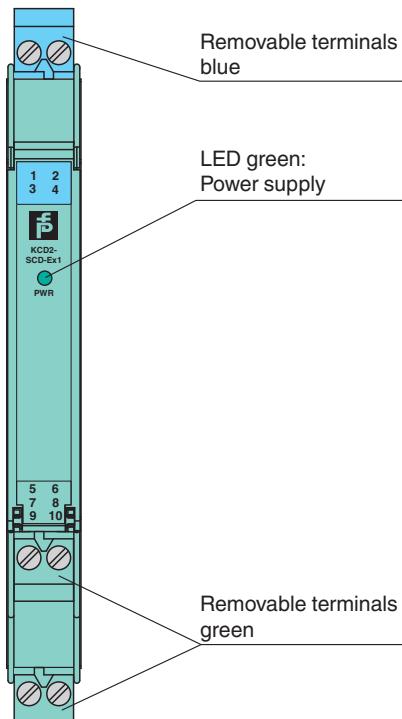
Power dissipation	$\leq 600 \text{ mW}$ at 20 mA and 500 Ω load	
Power consumption	$\leq 700 \text{ mW}$	
Input		
Connection side	control side	
Connection	terminals 5-, 6+	
Input signal	4 ... 20 mA, limited to approx. 26 mA	
Input voltage	open loop voltage of the control system $< 30 \text{ V}$	
Voltage drop	approx. 6 V at 20 mA	
Input resistance	$> 100 \text{ k}\Omega$, with field wiring open	
Output		
Connection side	field side	
Connection	terminals 1+, 2-	
Voltage	$\geq 13 \text{ V}$ at 20 mA	
Current	4 ... 20 mA	
Load	0 ... 650 Ω	
Ripple	20 mV _{rms}	
Transfer characteristics		
Deviation	at 20 °C (68 °F), 4 ... 20 mA $< 0.1 \%$ of full scale, incl. non-linearity and hysteresis	
Influence of ambient temperature	$< 2 \mu\text{A/K}$ (-20 ... 70 °C (-4 ... 158 °F)); $< 4 \mu\text{A/K}$ (-40 ... -20 °C (-40 ... -4 °F))	
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)	
Rise time	10 to 90 % $\leq 10 \text{ ms}$	
Galvanic isolation		
Input/Output	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}	
Input/power supply	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}	
Output/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V _{eff}	
Indicators/settings		
Display elements	LED	
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	
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 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	
Data for application in connection with hazardous areas		
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	
Output	Ex ia	
Supply		
Maximum safe voltage	U _m	250 V AC (Attention! U _m is no rated voltage.)
Equipment	terminals 1+, 2-	

Technical Data

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
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
Output/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 .

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-ST-5BU	Terminal block for KC modules, 2-pin screw terminal, blue
	KF-CP	Red coding pins, packaging unit: 20 x 6