

## SMART Current Driver KCD2-SCD-Ex1.ES

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Current output up to 650 Ω load
- HART I/P and valve positioner
- Line fault detection (LFD)
- Housing width 12.5 mm
- Up to SIL 3 acc. to IEC/EN 61508



### Function

This isolated barrier is used for intrinsic safety applications.

The device repeats the input signal from a control system to drive HART 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.

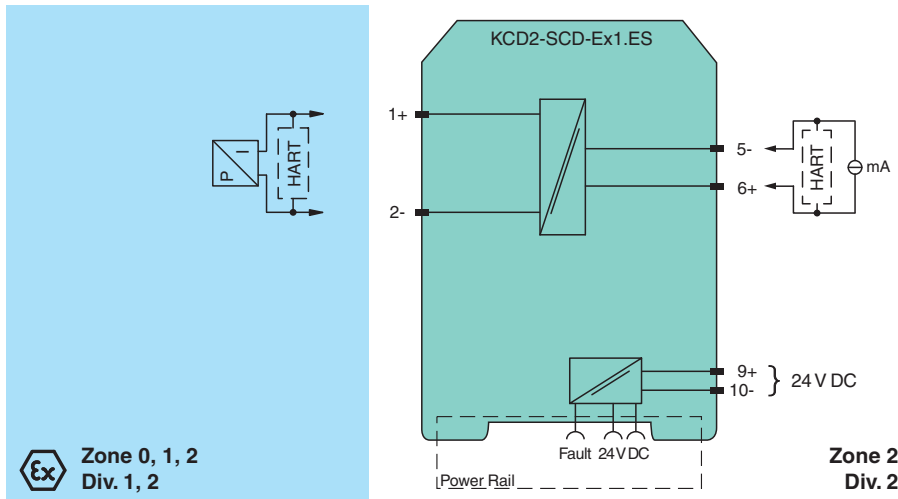
The current is transferred via a DC/DC converter and repeated at the output terminals.

An open or short 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.

A fault is signaled by LEDs and a separate collective error message output.

### Connection



### Technical Data

#### General specifications

Signal type Analog output

#### Functional safety related parameters

Safety Integrity Level (SIL) SIL 3

#### Supply

Connection Power Rail or terminals 9+, 10-

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

Ripple  $\leq 10$  %

Rated current  $I_r$   $\leq 33$  mA at 24 V

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

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## Technical Data

Power dissipation	≤ 700 mW at 20 mA and 500 Ω load
Power consumption	≤ 800 mW
<b>Input</b>	
Connection side	control side
Connection	terminals 5-, 6+
Input signal	4 ... 20 mA , limited to approx. 25 mA
Input voltage	open loop voltage of the control system < 60 V
Voltage drop	approx. 6 V at 20 mA
Input resistance	> 100 kΩ, with field wiring open or < 50 Ω
<b>Output</b>	
Connection side	field side
Connection	terminals 1+, 2-
Voltage	≥ 13 V at 20 mA
Current	4 ... 20 mA
Load	100 ... 650 Ω
Ripple	20 mV <sub>rms</sub>
Line fault detection	field wiring open or < 50 Ω and test current < 2 mA
<b>Transfer characteristics</b>	
Deviation	at 20 °C (68 °F), 4 ... 20 mA < 0.1 % of full scale, incl. non-linearity and hysteresis
Influence of ambient temperature	< 2 μA/K (-20 ... 70 °C (-4 ... 158 °F)); < 4 μA/K (-40 ... -20 °C (-40 ... -4 °F))
Frequency range	field side into the control side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 1 mA <sub>pp</sub> signal 0 ... 3 kHz (-3 dB)
Rise time	10 to 90 % ≤ 10 ms
<b>Galvanic isolation</b>	
Input/Output	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Input/power supply	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Output/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 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 21:2017 EN 61326-3-2:2018
Degree of protection	IEC 60529
Protection against electrical shock	UL 61010-1:2012
<b>Ambient conditions</b>	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
<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	CESI 20 ATEX 016 X
Marking	⊕ II (1)G [Ex ia Ga] IIC ⊕ II (1)D [Ex ia Da] IIIC ⊕ I (M1) [Ex ia Ma] I
Output	Ex ia
Supply	
Maximum safe voltage	U <sub>m</sub> 250 V AC (Attention! U <sub>m</sub> is no rated voltage.)

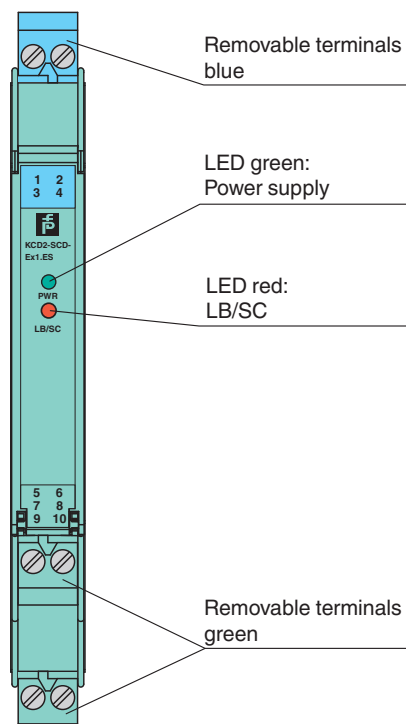
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**Technical Data**


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
Certificate	CESI 20 ATEX 017 X
Marking	Ⓜ 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 IEC 60079-0:2018 , EN 60079-11:2012 , EN 60079-7:2015
<b>International approvals</b>	
UL approval	E106378
Control drawing	116-0471 (cULus)
IECEX approval	
IECEX certificate	IECEX CES 20.0009X
IECEX marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc
<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








**Matching System Components**

	<b>KFD2-EB2</b>	Power Feed Module
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## Matching System Components

	<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-ST-5GN</b>	Terminal block for KC modules, 2-pin screw terminal, 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