



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

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Current output up to 650  $\Omega$  load
- HART-IP and valve positioner
- Line fault detection (LFD)
- Housing width 12.5 mm
- Connection via spring terminals with push-in connection technology
- 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.

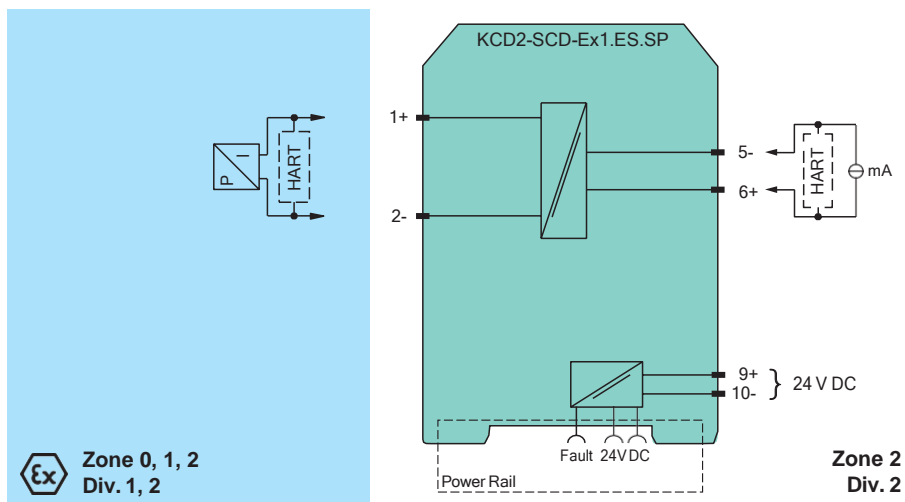
The current is transferred via a DC/DC converter and repeated at the output terminals.

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

Power dissipation

$\leq 700$  mW at 20 mA and 500  $\Omega$  load

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

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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 < 30 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		spring 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		1 II (1)G [Ex ia Ga] IIC 1 II (1)D [Ex ia Da] IIIC 1 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.)
Equipment		terminals 1+, 2-

**Technical Data**

Voltage	U <sub>o</sub>	25.2 V
Current	I <sub>o</sub>	100 mA
Power	P <sub>o</sub>	630 mW
Internal capacitance	C <sub>i</sub>	5.7 nF
Internal inductance	L <sub>i</sub>	negligible
Certificate	CESI 20 ATEX 017 X	
Marking	1 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	

**International approvals**

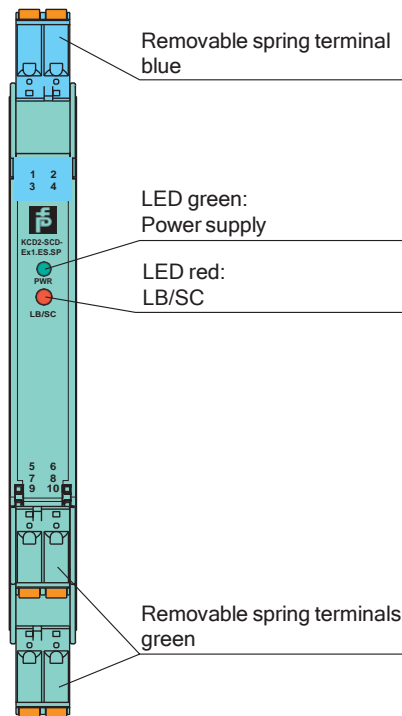
UL approval	E106378	
Control drawing	116-0471 (cULus)	
IECEx approval		
IECEx certificate	IECEx CES 20.0009X	
IECEx marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc	

**General information**

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

## 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-CTT-5GN</b>	Terminal block for KC modules, 2-pin spring terminal, with test sockets, green
	<b>KC-CTT-5BU</b>	Terminal block for KC modules, 2-pin spring terminal, with test sockets, blue
	<b>KC-CTT-3GN2BU</b>	Terminal block for KC modules, 2-pin spring terminal, with test sockets
	<b>KF-CP</b>	Red coding pins, packaging unit: 20 x 6