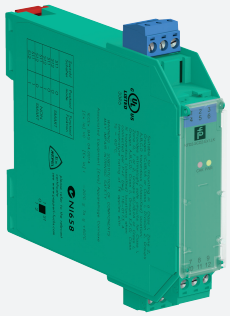


SMART Current Driver

KFD2-SCD-Ex1.LK

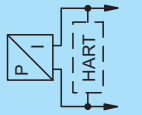
SIL 2

- 1-channel isolated barrier
- 24 V DC supply (Power Rail)
- Current output up to 700 Ω load
- HART I/P and valve positioner
- Line fault detection (LFD)
- Accuracy 0.1 %
- Terminal blocks with test sockets
- Up to SIL 2 acc. to IEC 61508

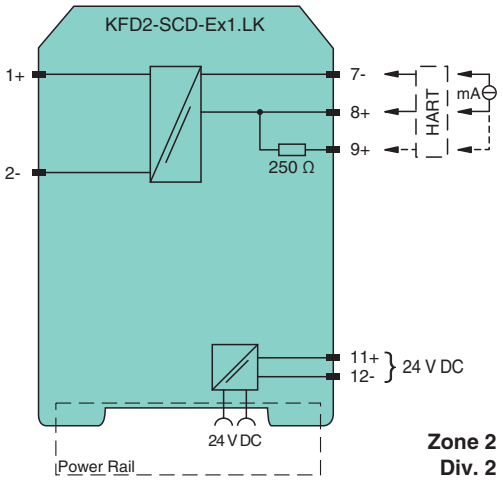
Function

This isolated barrier is used for intrinsic safety applications. It drives SMART I/P converters, electrical valves, and positioners in hazardous areas.
Digital signals are superimposed on the analog values at the field or control side and are transferred bi-directionally.
Current transferred across the DC/DC converter is repeated at terminals 1 and 2.
An open field circuit presents a high input impedance to the control side to allow lead breakage monitoring by control system.
If the loop resistance for the digital communication is too low, an internal resistor of 250 Ω between terminals 8 and 9 is available, which may be used as the HART communication resistor.
Sockets for the connection of a HART communicator are integrated into the terminals of the device.

Connection



Zone 0, 1, 2
Div. 1, 2



Zone 2
Div. 2

Technical Data

General specifications		
Signal type		Analog output
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 2
Supply		
Connection		Power Rail or terminals 11+, 12-
Rated voltage	U_r	20 ... 35 V DC
Ripple		within the supply tolerance
Power dissipation		1.1 W at 20 mA into 10 V (equivalent to 500 Ω) load
Power consumption		1.3 W

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Technical Data

Input		
Connection side		control side
Connection		terminals 7-, 8+
Voltage drop		approx. 4 V or internal resistance 200 Ω at 20 mA
Input resistance		> 100 kΩ, when wiring resistance in the field < 50 Ω or > 800 Ω at 20 mA
Current		4 ... 20 mA limited to approx. 25 mA
Output		
Connection side		field side
Connection		terminals 1+, 2-
Current		4 ... 20 mA
Load		100 ... 700 Ω
Voltage		≥ 14 V at 20 mA
Transfer characteristics		
Accuracy		0.1 %
Deviation		
After calibration		at 20 °C (68 °F): ≤ ± 0.1 % incl. non-linearity and hysteresis
Influence of ambient temperature		≤ ± 20 ppm/K
Rise time		< 100 µs at bounce from 10 ... 90 %
Galvanic isolation		
Input/power supply		basic insulation acc. to EN 50178, rated insulation voltage of 50 V AC
Indicators/settings		
Display elements		LEDs
Labeling		space for labeling at the front
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
Conformity		
Insulation coordination		EN 50178:1997
Galvanic isolation		EN 50178:1997
Electromagnetic compatibility		NE 21:2006
Degree of protection		IEC 60529:2001
Ambient conditions		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
Mechanical specifications		
Degree of protection		IP20
Connection		screw terminals
Mass		approx. 100 g
Dimensions		20 x 115 x 115 mm (0.8 x 4.5 x 4.5 inch) , housing type B1
Mounting		on 35 mm DIN mounting rail acc. to EN 60715:2001
Data for application in connection with hazardous areas		
EU-type examination certificate		BAS 00 ATEX 7215
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 IIC, Ex iaD
Voltage	U_o	25.2 V
Current	I_o	93 mA
Power	P_o	0.58 W
Supply		
Maximum safe voltage	U_m	250 V_{rms} (Attention! The rated voltage can be lower.)
Certificate		TÜV 99 ATEX 1499 X
Marking		⟨Ex⟩ II 3G Ex nA II T4 [device in zone 2]
Galvanic isolation		
Input/Output		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V
Output/power supply		safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V

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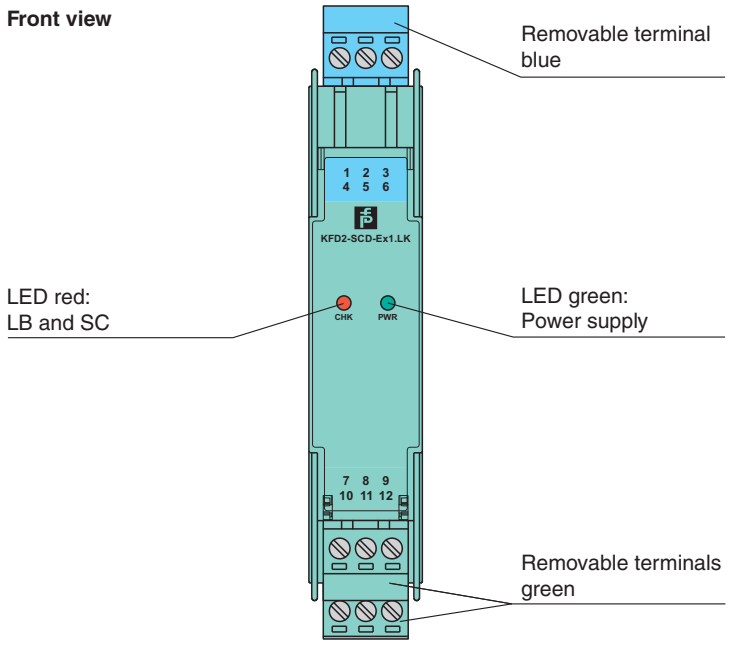
Technical Data

Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals	
FM approval	
Control drawing	116-0129
UL approval	
Control drawing	116-0173 (cULus)
IECEx approval	IECEx BAS 16.0045
Approved for	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.
Accessories	
Optional accessories	- power feed module KFD2-EB2(.R4A.B)(.SP) - universal power rail UPR-03(-M)(-S) - profile rail K-DUCT-BU(-UPR-03)

Assembly

Front view



Accessories

	**KFD2-EB2**	Power Feed Module
	**KFD2-EB2.R4A.B**	Power feed module, redundant supply
	**KFD2-EB2.R4A.B.SP**	Power feed module with spring terminals, redundant supply
	**KFD2-EB2.SP**	Power feed module with spring terminals

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Accessories

	**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**	
	**K-DUCT-BU-UPR-03**	Profile rail with UPR-03- * insert, 3 conductors, wiring comb field side blue

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Application

Lead monitoring, input characteristics

The range above a field load of 700 Ω is not designated for transferring signals. In case of short circuit or lead breakage in the field circuit the input resistance is increased to > 100 kΩ. The field current decreases to < 1 mA, and the red LED flashes.

During normal operation the DC input voltage is lower than 4 V (200 Ω at 20 mA respectively). The AC input impedance corresponds to the output impedance of the unit.

- Normal operation: 100 Ω ... 700 Ω field load
- Lead short circuit: up to < 50 Ω field load
- Lead breakage: up to > 2 kΩ field load when I_{on} = 20 mA

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