



SMART Current Driver/Repeater

KFD0-SCS-Ex1.55

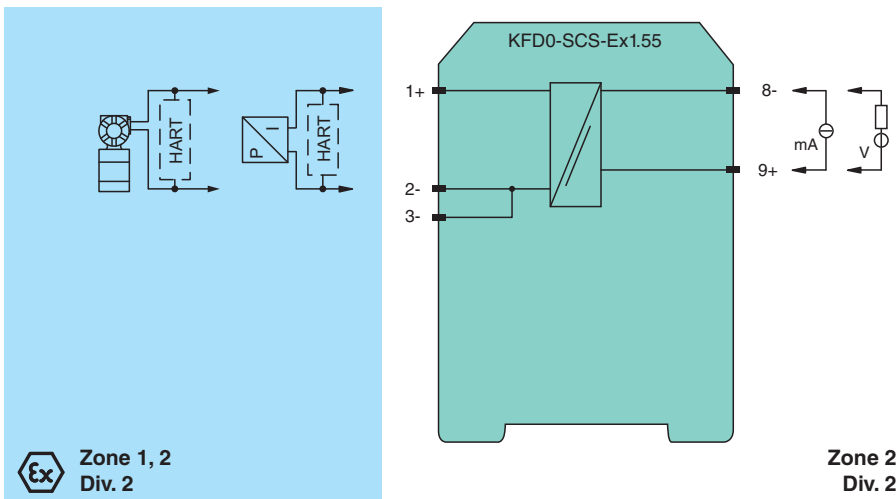
- 1-channel isolated barrier
- 24 V DC supply (loop powered)
- Current input/output 4 mA ... 20 mA
- HART I/P or transmitter power supply
- Low voltage drop
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC/EN 61508



Function

This isolated barrier is used for intrinsic safety applications. It is loop powered and isolates a 4 mA ... 20mA signal for transmitters and positioners and is HART compatible. With a noticeably lower power loss compared to active isolator modules, the barriers 5 V drop makes it suitable for transmitter applications with unstable power sources between 20 V DC ... 30 V DC. Line fault detection of the field circuit is possible if the control loop in the safe area is monitored for overscale or underscale conditions of the 4 mA ... 20mA range. The module can also be used for controlling solenoid valves and discrete outputs, such as LEDs. In this case, terminals 8- and 9+ are driven with a 24 V signal.

Connection



Technical Data

General specifications	
Signal type	Analog input/analog output
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 2
Supply	
Rated voltage	U_r loop powered
Power dissipation	0.2 W
Control circuit	
Connection	terminals 8-, 9+

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

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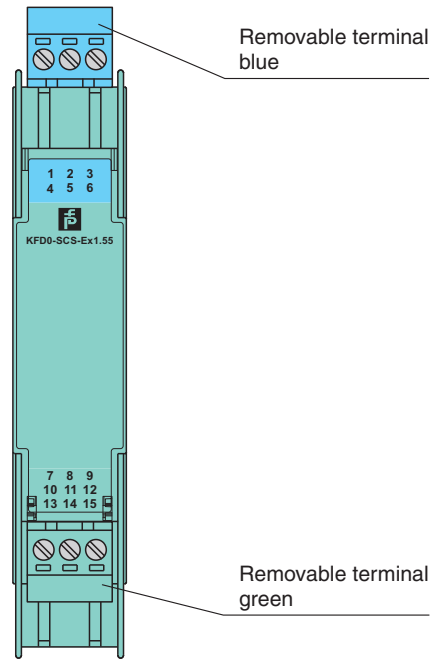
Technical Data

Voltage	max. 30 V DC	
Current	4 ... 20 mA (quiescent current < 0.5 mA)	
Power dissipation	150 mW at 20 mA and $U_m < 24$ V	
Field circuit		
Connection	terminals 1+, 2 / 3-	
Voltage	≥ 16 V for supply voltage > 21 V	
Current	4 ... 20 mA (linear transmission 1 ... 22 mA)	
Load	$\leq 800 \Omega$ (at 20 mA)	
Transfer characteristics		
Voltage drop	see note	
Deviation		
After calibration	$\leq \pm 80 \mu\text{A}$ linearity, load and voltage dependence at 20 °C (68 °F)	
Influence of ambient temperature	< 0.5 $\mu\text{A/K}$	
Damping	approx. 3 dB	
Rise time	$\leq 20 \mu\text{s}$ at 0 Ω , $\leq 600 \mu\text{s}$ with 800 Ω load	
Galvanic isolation		
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
Indicators/settings		
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 21:2007	
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. 120 g	
Dimensions	20 x 124 x 115 mm (0.8 x 4.9 x 4.5 inch) (W x H x D) , housing type B2	
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001	
Data for application in connection with hazardous areas		
EU-type examination certificate	PTB 02 ATEX 2064	
Marking	⊕ II (2)G [Ex ib] IIC	
Voltage	U_o	23.1 V DC
Current	I_o	28 mA
Power	P_o	0.647 W
Supply		
Maximum safe voltage	U_m	253 V (Attention! The rated voltage can be lower.)
Certificate	PF 11 CERT 0902 X	
Marking	⊕ II 3G Ex nA IIC T4 Gc	
Galvanic isolation		
Input/Output	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 60079-15:2010	
International approvals		
FM approval	device with FM approval on request	
General information		
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .	


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Assembly





Front view



Matching System Components

	K-DUCT-BU	Profile rail, wiring comb field side, blue
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Accessories

	KF-ST-5GN	Terminal block for KF modules, 3-pin screw terminal, green
	KF-STP-5GN	Terminal block for KF modules, 3-pin screw terminal, with test sockets, green
	KF-STP-5BU	Terminal block for KF modules, 3-pin screw terminal, with test sockets, blue
	KF-CP	Red coding pins, packaging unit: 20 x 6

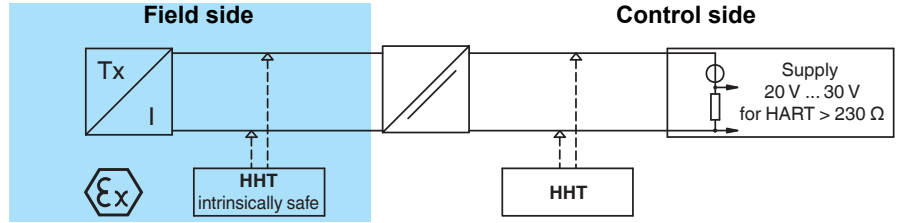
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Connection

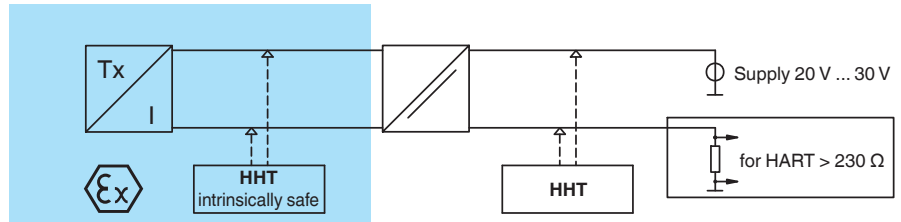
In addition, the voltage drop across the resistance (load) of the active measurement input must be considered when calculating the field voltage (terminals 1+ and 2-).

Lead breakage monitoring is possible by means of the reaction of the field current signal to the control side, which means the control system must monitor whether the 4 mA ... 20 mA range was exceeded or fallen short of.

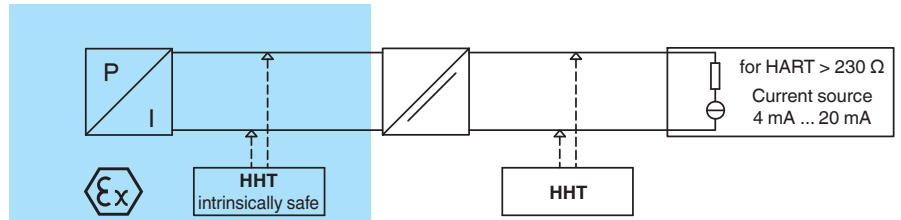
SMART repeater supply isolator for **active** interfaces
 Transmitters with or without HART
 Voltage drop in case of 20 mA:
 max. 5 V



SMART repeater for **passive** interfaces
 Transmitters with or without HART
 Voltage drop in case of 20 mA:
 max. 5 V



Current driver for positioners, I/P converters
 Positioners with or without HART
 Voltage drop in case of 20 mA:
 5 V, 500 Ω ... 800 Ω load
 6 V, 250 Ω load
 8 V, 50 Ω load



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