



# SMART Current Driver/Repeater

## KFD0-SCS-Ex1.55

**SIL 2**

- 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 61508



### Function

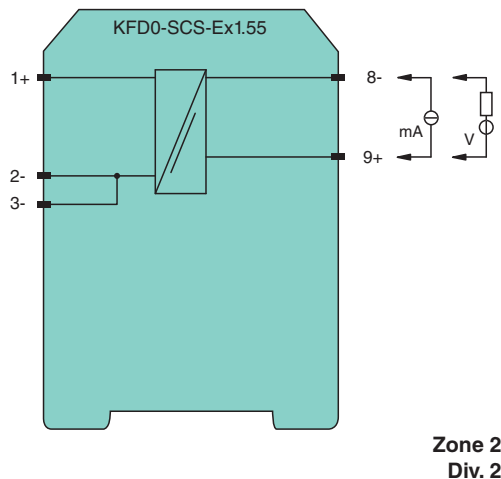
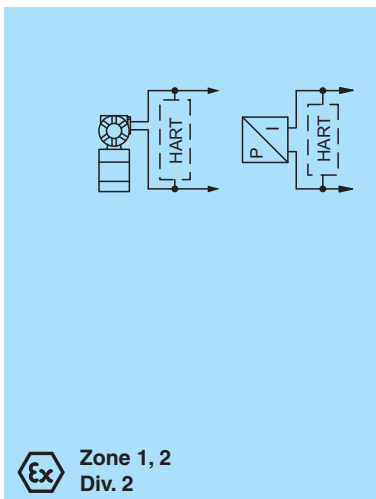
This isolated barrier is used for intrinsic safety applications. It is loop powered and isolates a 4 mA ... 20mA signal for transmitters and positioners and is HART compatible.

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+

Release date: 2020-09-23 Date of issue: 2020-09-23 Filename: 240495\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

**PEPPERL+FUCHS**

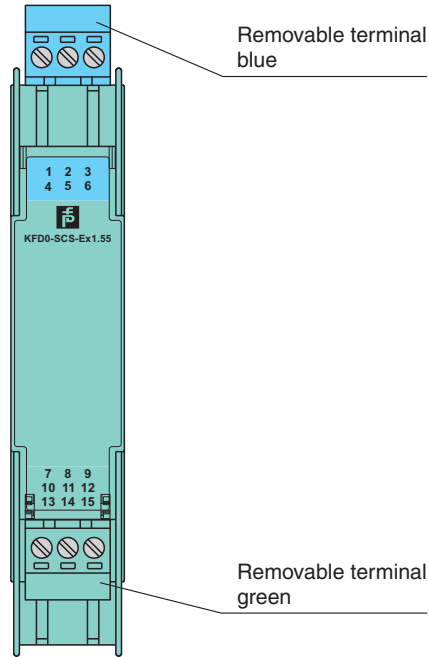
## Technical Data

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	
<b>Field circuit</b>		
Connection	terminals 1+, 2 / 3-	
Voltage	$\geq 16$ V for supply voltage > 21 V	
Current	4 ... 20 mA (linear transmission 1 ... 22 mA)	
Load	$\leq 800 \Omega$ (at 20 mA)	
<b>Transfer characteristics</b>		
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 $\Omega$ , $\leq 600 \mu\text{s}$ with 800 $\Omega$ load	
<b>Galvanic isolation</b>		
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
<b>Indicators/settings</b>		
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 21:2007	
Degree of protection	IEC 60529:2001	
<b>Ambient conditions</b>		
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)	
<b>Mechanical specifications</b>		
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) , housing type B2	
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	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
<b>Supply</b>		
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	
<b>Galvanic isolation</b>		
Input/Output	safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
<b>Directive conformity</b>		
Directive 2014/34/EU	EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010	
<b>International approvals</b>		
FM approval	device with FM approval on request	
<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> .	

Release date: 2020-09-23 Date of issue: 2020-09-23 Filename: 240495\_eng.pdf

Assembly

Front view



Release date: 2020-09-23 Date of issue: 2020-09-23 Filename: 240495\_eng.pdf

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

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

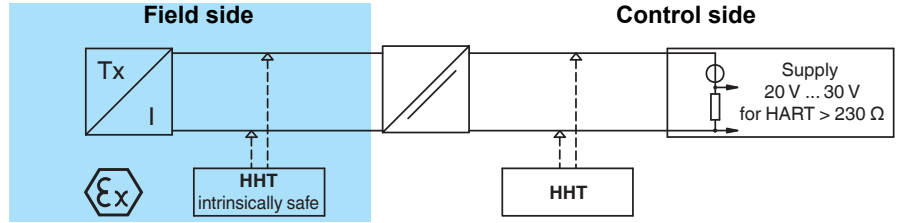
 **PEPPERL+FUCHS**

**Connection**

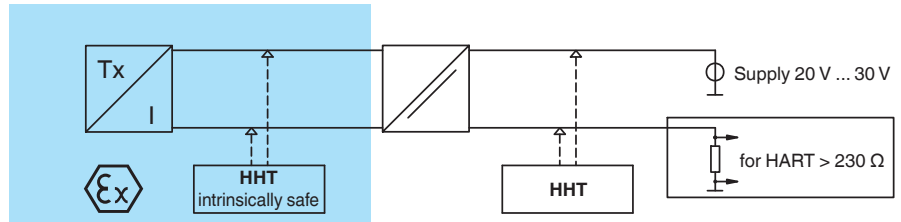
In addition, the voltage drop across the resistance (load) of the active measurement input must be considered when calculating the field voltage (terminals 1+ and 2-).

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.

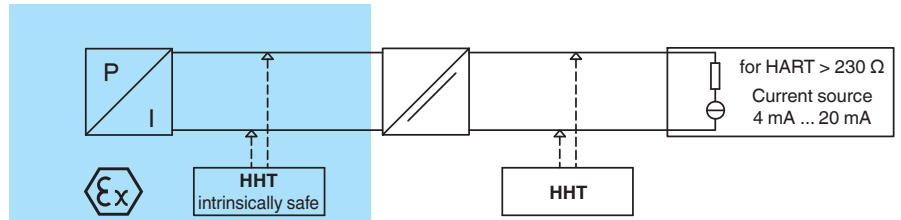
SMART repeater supply isolator for **active** interfaces  
 Transmitters with or without HART  
 Voltage drop in case of 20 mA:  
 max. 5 V



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



Release date: 2020-09-23 Date of issue: 2020-09-23 Filename: 240495\_eng.pdf

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