

# SMART Current Driver/Repeater

## KFD0-SCS-1.55

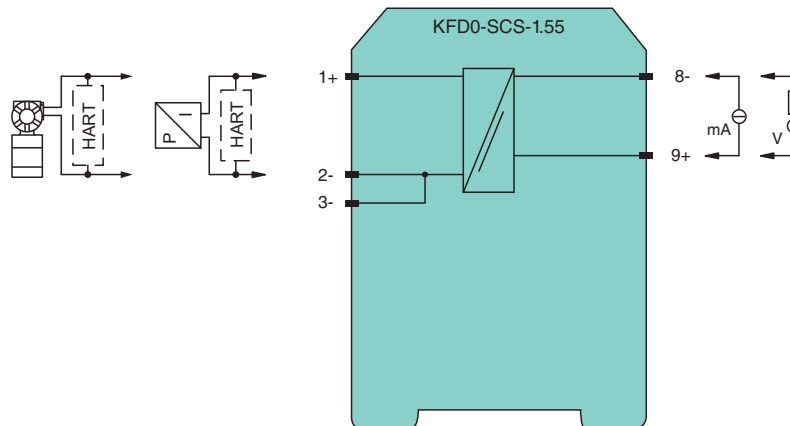
- 1-channel signal conditioner
- 24 V DC supply (loop powered)
- Current input/output 4 mA ... 20 mA
- HART I/P or transmitter power supply
- Low voltage drop
- Line fault detection (LFD)
- Up to SIL 2 acc. to IEC/EN 61508

# CE SIL2

## Function

This signal conditioner is loop powered and isolates a 4 mA ... 20mA signal for transmitters and positioners and is HART compatible. The low voltage drop of 5 V in comparison to active signal conditioners also allows 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 ... 20 mA 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+

Voltage max. 30 V DC

Release date: 2021-12-17 Date of issue: 2021-12-17 Filename: 240494\_eng.pdf

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

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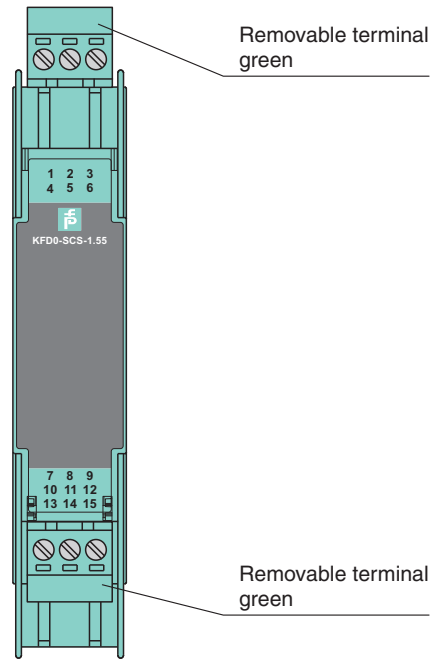
## Technical Data

Current	4 ... 20 mA (quiescent current < 0.5 mA)
Power dissipation	150 mW at 20 mA and $U_{in} < 24$ 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	basic insulation according to IEC 62103, rated insulation voltage 300 $V_{eff}$
<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>	
Galvanic isolation	IEC 62103:2003
Electromagnetic compatibility	NE 21:2007
Degree of protection	IEC 60529:2001
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F) extended ambient temperature range up to 70 °C (158 °F), refer to manual for necessary mounting conditions
<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) (W x H x D) , housing type B2
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
<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> .


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## Assembly




Front view



## Matching System Components

	<b>K-DUCT-GY</b>	Profile rail, wiring comb field side, gray
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## Accessories

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

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**Application**

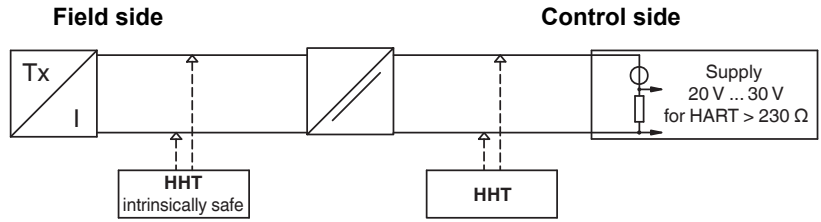
In addition, the voltage drop across the resistance (load) of the active measurement input must be considered when calculating the field voltage (terminals 1+ and 2-).

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

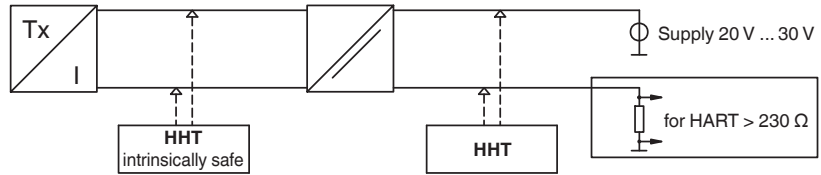
Voltage drop in case of 20 mA:  
max. 5 V



SMART repeater for **passive** interfaces

Transmitters with or without HART

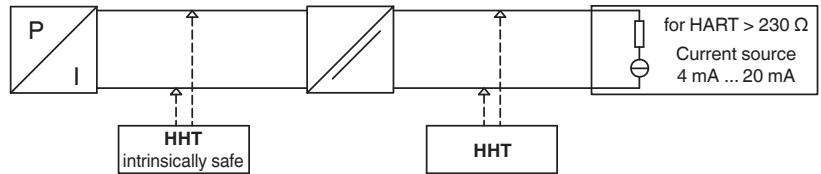
Voltage drop in case of 20 mA:  
max. 5 V



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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