- 1-channel
- Input EEx ia IIC
- Device installation permissible in zone 2
- 24 V DC supply voltage
- Lead breakage (LB) monitoring and short-circuit (SC) monitoring
- 4 limit values
- Transfer of HART signals
- Power Rail bus
- EMC acc. to NAMUR NE 21

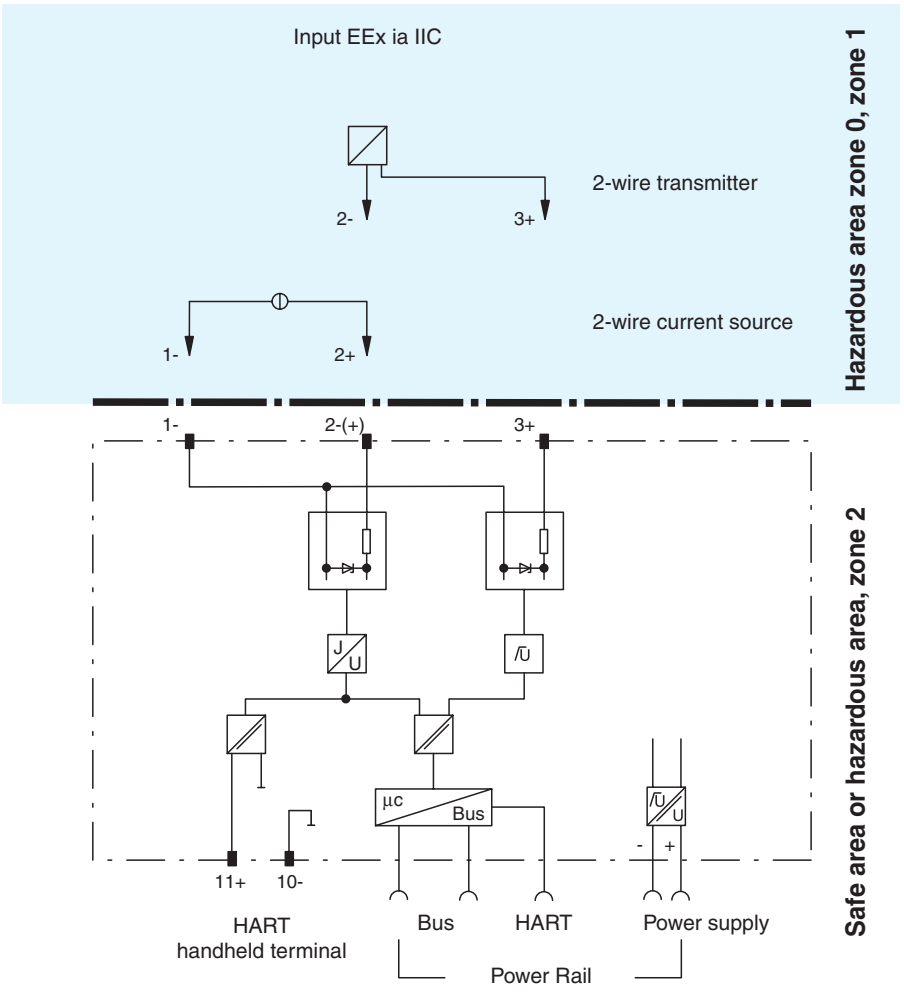
Function

The KSD2-CI-S-Ex.H is designed for the connection of 2-wire transmitters. It may also be used as a repeater for 0/4 mA ... 20 mA signals (current source).

With a supply voltage > 20 V DC it is guaranteed that at least 14.7 V at 20 mA are available in the hazardous area. The circuit (terminals 3+, 1-) is monitored for lead faults.

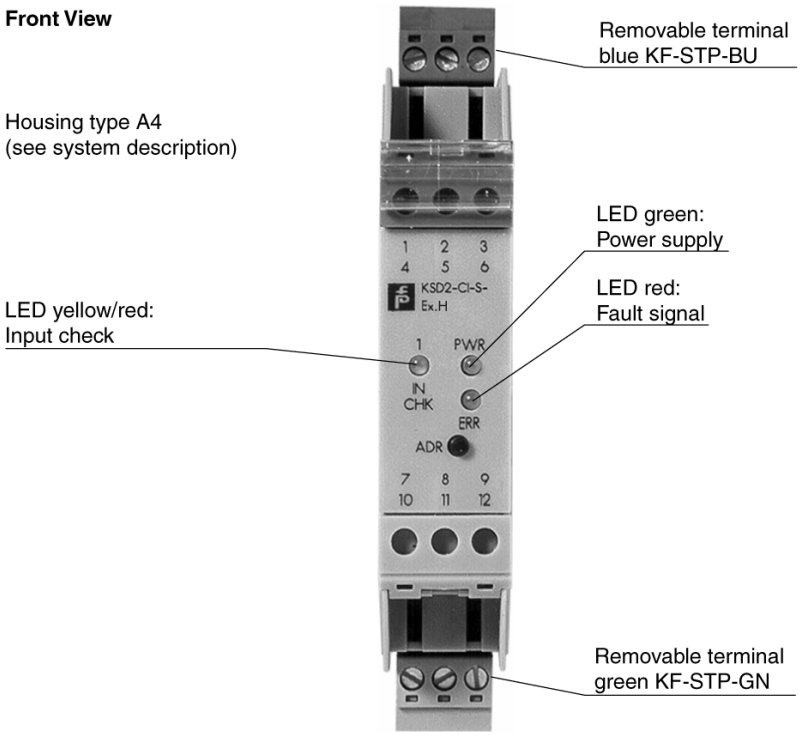
The input is galvanically isolated from the bus and the power supply.

Connection



Composition

Front View



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Supply	
Connection	Power Rail
Rated voltage	20 ... 30 V DC
Ripple	< 10 %
Power loss	1.1 W , increase up to 2.2 W in the case of short-circuit between terminals 1 and 3 or 2 and 3
Power consumption	1.4 W , increase up to 2.2 W in the case of short-circuit between terminals 1 and 3 or 2 and 3
Input	
Connection	terminals 1, 2, 3
Input signal	0 ... 20 mA or 4 ... 20 mA
Input resistance	approx. 325 Ω , terminals 1, 2
Transmitter supply voltage	> 14.7 V at 20 mA
Lead monitoring	breakage I ≤ 50 µA , short-circuit I > 25 mA
Output	
Connection	Power Rail
Interface	CAN protocol via Power Rail bus
Transfer characteristics	
Deviation	0.1 % of the input signal range at 20 °C (293 K)
Influence of ambient temperature	0.01 %/K of the input signal range
Electrical isolation	
Input/power supply, internal bus	safe electrical isolation acc. to EN 50020, voltage peak value 375 V
Directive conformity	
Electromagnetic compatibility	
Directive 89/336/EC	EN 61326
Explosion protection	
Directive 94/9 EC	EN 50014, EN 50020
Standard conformity	
Insulation coordination	EN 50178
Electrical isolation	EN 50020
Electromagnetic compatibility	NE 21
Protection degree	IEC 60529
Climatic conditions	IEC 60721
Ambient conditions	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Damaging gas	acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications	
Protection degree	IP20
Connection	terminal connection ≤ 2.5 mm^2
Mass	approx. 100 g
Dimensions	20 x 107 x 115 mm (0.8 x 4.2 x 4.5 in)
Mounting	DIN rail mounting
Data for application in conjunction with hazardous areas	
EC-Type Examination Certificate	BAS 99 ATEX 7182 , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	⟨Ex⟩ II (1)GD [EEx ia] IIC
Supply	Power Rail
Safety maximum voltage U_m	250 V (Attention! U_m is no rated voltage.)
Signal	CAN bus and HART (Power Rail)
Safety maximum voltage U_m	250 V (Attention! U_m is no rated voltage.)
Type of protection [EEx ia]	
Explosion group	IIB IIC
External capacitance	770 nF 99 nF
External inductance	16 mH 4 mH
HART connection	terminals 10, 11, 12
Safety maximum voltage U_m	250 V (Attention! U_m is no rated voltage.)
Input	terminals 3, 2, 1 and 3, 2
Voltage U_o	25.4 V
Current I_o	93 mA
Output	terminals 2, 3
Voltage U_o	3.6 V
Current I_o	0 mA
Power P_o	0 mW
Statement of conformity	TÜV 00 ATEX 1617 X , observe statement of conformity
Group, category, type of protection, temperature classification	⟨Ex⟩ II 3G EEx nA II T4
Electrical isolation	

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Input/power supply, internal bus		safe electrical isolation acc. to EN 50020, voltage peak value 375 V		
Entity parameter				
Certification number		J.I.2D0A6.AX		
FM control drawing		No. 116-0150		
Suitable for installation in division 2		yes		
Input I		terminals 2, 3		
Voltage	V_{OC}	26.1 V		
Current	I_{SC}	92 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		0.17 µF	0.5 µF	1.35 µF
Max. external inductance L_a		4.33 mH	17.3 mH	35.4 mH
Input II		terminals 1, 2		
Voltage	V_{OC}	3.5 V		
Current	I_{SC}	0 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		1000 µF	3000 µF	8000 µF
Max. external inductance L_a		1000 mH	1000 mH	1000 mH
Input III		terminals 1, 2, 3		
Voltage	V_t	26.1 V		
Current	I_t	96 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		0.17 µF	0.5 µF	1.35 µF
Max. external inductance L_a		3.97 mH	16 mH	35.2 mH
Safety parameter				
Control drawing		No. 116-0149		
Connection		terminals 1, 2, 3		
Input I				
Voltage	V_{OC}	25.4 V		
Current	I_{SC}	93 mA		
Explosion group		A&B	C&E	D, F&G
Max. external capacitance C_a		0.18 µF	0.54 µF	1.44 µF
Max. external inductance L_a		4 mH	16.2 mH	32 mH

Supplementary information

EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity and instructions have to be observed. For information see www.pepperl-fuchs.com.

Function

2-wire transmitters are connected to terminals 2- and 3+. The input for the signal current is terminal 2. 2-wire transmitters with HART communication are connected to terminals 3+ and 2-. The KSD2-CI-S-Ex.H is delivered standard with the KF-STP-** device connectors, which are equipped with 2.3 mm jacks which may be used for connecting a HART communicator. A handheld terminal can be connected to terminals 11+ und 10-. The device supports also the HART communication via the Power Rail bus.

Current sources which produce a signal in the range of 0/4 mA ... 20 mA are connected to terminals 2+ and 1-. Therefore, the current flows in the signal input and can be transmitted in the safe area.

Application

- The supply of power to 2-wire transmitters and the transfer of the measurement current
- Current signal repeater
- Supply of HART transmitters in the hazardous areas and transfer of the analogue measurement current into the safe area. The interface allows a bidirectional communication between the transmitter and the handheld terminal. The device can be connected in the safe area. The bus transfers the digital value of the signal current to the HART communication.

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Notes

Software functions

Adjustable by the **PACT***ware***™** human machine interface:

- TAG numbers, 28 alphanumeric characters, can be programmed into device
- Commentary, may be saved in PC memory
- Information on devices may be saved in PC memory
- Physical units are adjustable
  – list see system description RPI
- Lead monitoring selectable
- Separate detection and indication of lead breakage and lead short circuit
- 4 limiting values
  – upper alarm level limit
  – upper warn level limit
  – lower alarm level limit
  – lower warn level limit
- Hysteresis adjustable
- Lower scale value and upper scale value of the measurement range
  – for the determination of the overflow and underflow range
  – for the configuration of the analogue monitor of the human machine interface
- Overrange and underrange alarm
- Malfunction output status
  – user defined
  – min.
  – max.
  – hold last value
- Simulation
  – of the input value
  – of the device diagnosis
  – of the process channel diagnosis

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