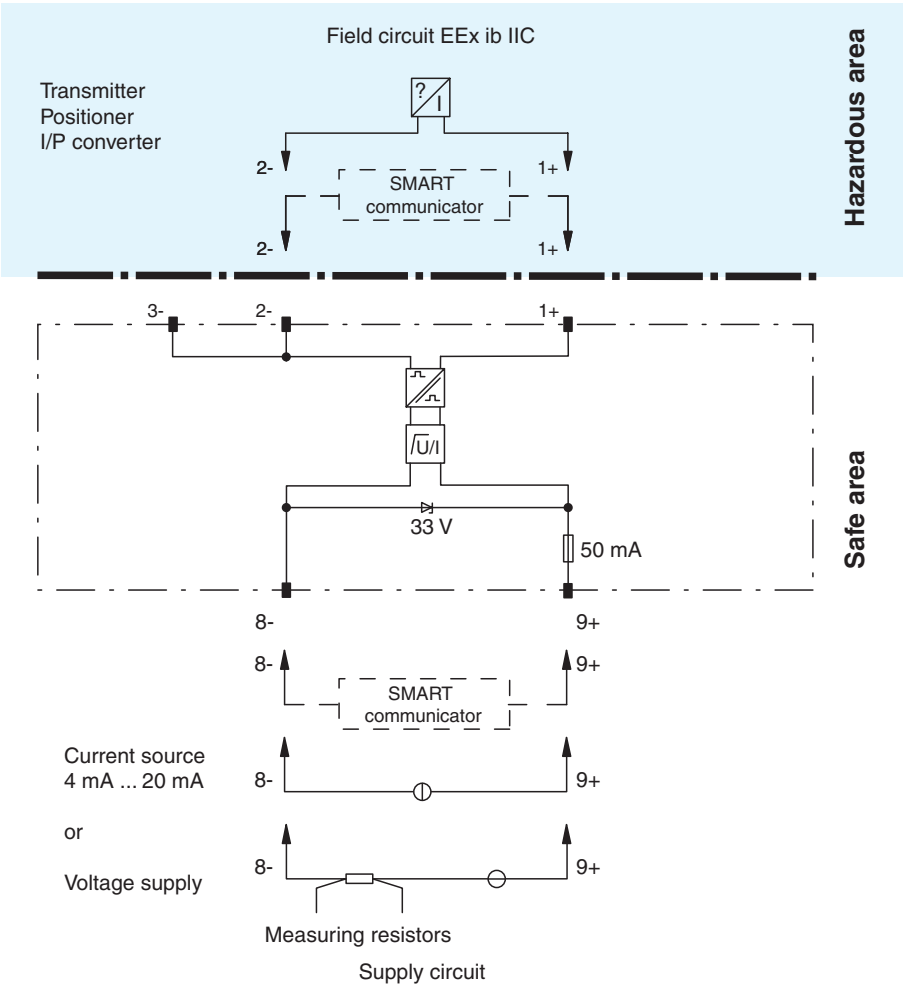
Transmission range 4 mA ... 20 mA

- 1-channel
- Field circuit EEx ib IIC
- Loop powered
- Lead monitoring
- Conductive for HART communication (galvanically isolated)
- Universal application for transmitters, position controllers and I/P converters
- Only 5 V voltage drop
- Test sockets for HART
- EMC acc. to NAMUR NE 21

Function

The universal module KFD0-SCS-Ex1.55 does not require auxiliary power for the isolation of 4 mA ... 20 mA current loops. It is therefore, low in cost and has a noticeably low power loss as compared to active isolator modules. The module isolates 4 mA ... 20 mA signals from transmitters and positioners and is therefore, bidirectionally HART compatible. The HART transmitters and HART positioners may thus, be configured in the safe area as well as the hazardous area. The low 5 V voltage drop also allows for transmitter-applications with unstable power sources in the range of 20 V DC ... 30 V DC.
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 safe area, which means the control system must monitor whether the 4 mA ... 20 mA range was exceeded or fallen short of.
The module may also be used for controlling Ex-i valves, light signals, etc. based on the internal voltage limits (safe area). Terminals 8- and 9+ in this case are driven with a 24 V binary signal.



Composition

Front view

Housing type C
(see system description)

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Supply	
Power loss	0,2 W
Field circuit	
Connection	terminals 1+, 2 / 3-
Available voltage	≥ 16 V for supply voltage > 21 V
Current	4 ... 20 mA (linear transmission 1 ... 22 mA)
Load	≤ 800 Ohm (at 20 mA)
Supply circuit	
Connection	terminals 8-, 9+
Safety maximum voltage U_m	253 V
Voltage	max. 30 V DC
Current	4 ... 20 mA (quiescent current < 0.5 mA)
Power loss	150 mW at 20 mA and U_E < 24 V
Transfer characteristics	
Voltage drop	see note
Deviation	
After calibration	≤ ± 80 µA linearity, load and voltage dependence at 20 °C (293 K)
Temperature	< 0.5 µA/K
Damping	approx. 3 dB
Rise time	≤ 20 µs at 0 Ohm, ≤ 600 µs with 800 Ohm load
Electrical isolation	
Input/Output	safe electrical isolation acc. to EN 50020
Standard conformity	
Coordination of insulation	acc. to DIN EN 50178
Electrical isolation	acc. to DIN EN 50178
Electromagnetic compatibility	acc. to EN 50081-2 / EN 50082-2, NAMUR NE 21
Climatic conditions	acc. to DIN IEC 721
Directive conformity	
Electromagnetic compatibility	standards
Directive 89/336/EG	on request
Ambient conditions	
Ambient temperature	-20 ... 60 °C (253 ... 333 K)
Mechanical specifications	
Protection degree	IP20
Mass	approx. 120 g
Data for application in conjunction with hazardous areas	
EC-Type Examination Certificate	PTB 02 ATEX 2064 ; for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection	⟨Ex⟩ II (2) G [EEx ib] IIC
Voltage U_0	23,1 V DC
Current I_0	28 mA
Power P_0	0,647 W
Type of protection [EEx ib]	
Explosion group	IIC
External capacitance	0,096 µF
External inductance	0,5 mH
Electrical isolation	
Input/Output	safe electrical isolation acc. to EN 50020
Directive conformity	standards
Directive 94/9 EU	on request

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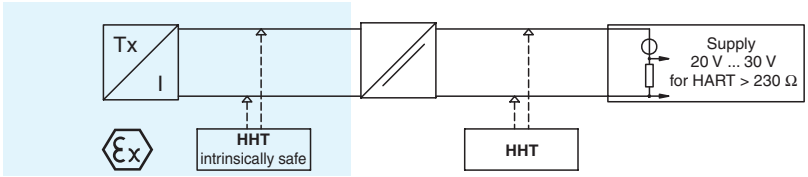
Notes

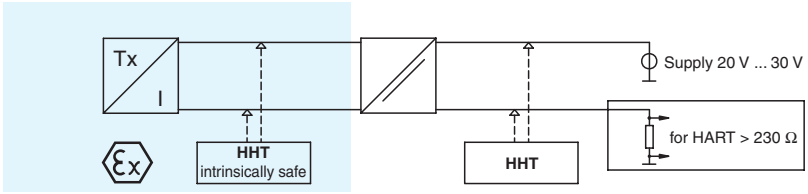
Transmitter supply isolator for **active** interfaces
Transmitters with or without HART

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



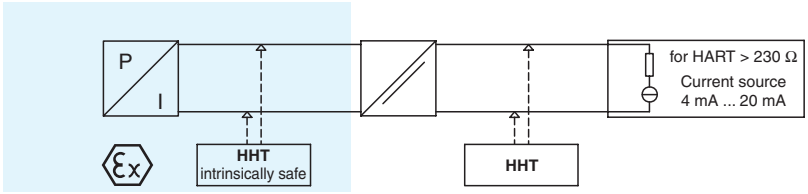
Transmitter supply isolator for **passive** interfaces
Transmitters with or without HART

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



Voltage repeater for
positioners, I/P converters
Positioners with or without HART

Voltage drop in case of 20 mA:
5 V 500 Ohm ... 800 Ohm load
6 V 250 Ohm load
8 V 50 Ohm load



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