



- 16-channel
- Inputs EEx ia IIC
- Device installation in Zone 1, Zone 2, or Zone 22
- Module can be exchanged under voltage in Zone 1 (hot swap)
- Inputs according to NAMUR in acc. with EN 60947-5-6
- Lead breakage (LB) and short-circuit (SC) monitoring of the inputs
- EMC acc. to NAMUR NE 21

Function

The RSD-BI-Ex16 transfers up to 16 digital input signals from the hazardous area into the safe area.

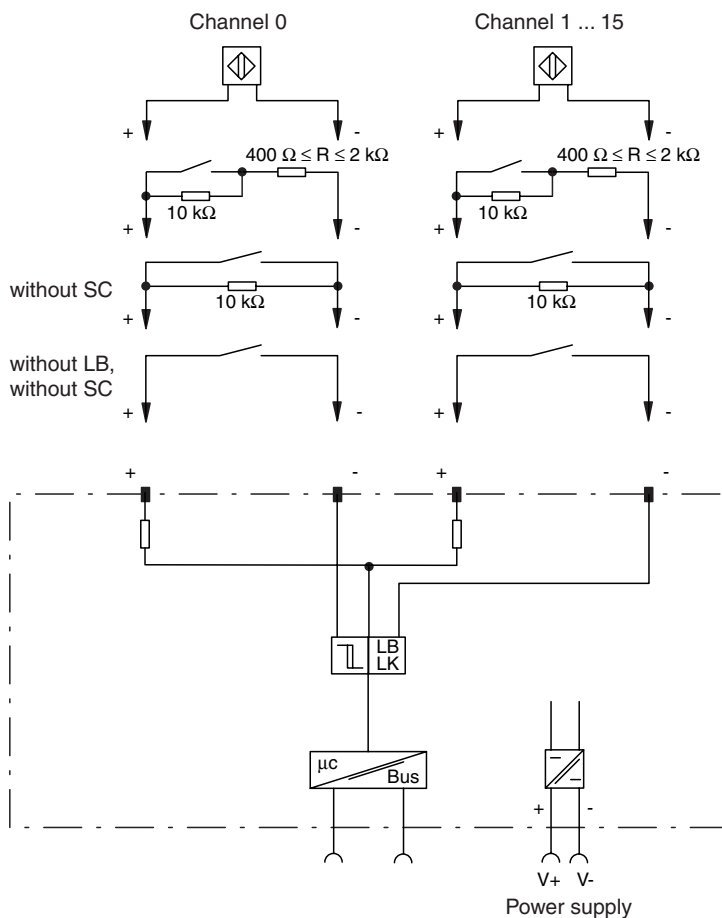
Signallers may be proximity sensors based on DIN EN 60947-5-6 (NAMUR) or correspondingly wired mechanical contacts. Messages concerning lead breakage or short circuiting of field circuits are transferred via the bus.

The inputs are galvanically isolated from the bus and the power supply.

Application

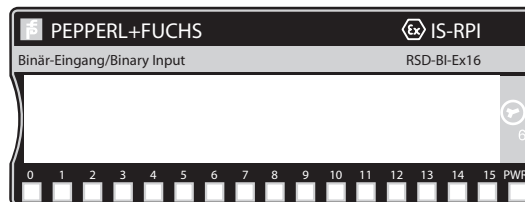
Transfer of digital input signals of proximity sensors or mechanical contacts from the hazardous area

Connection






Composition

Front View



- LED PWR green: Power-ON
module is operating
- LED 0 ... 15 channels 0 ... 15
yellow: switching state of input
flashing red: lead breakage
- LED 0 red: internal fault (module) or Power-ON test

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Supply		
Connection		terminals 34, 50 V+; 35, 51 V-
Rated voltage		8.88 ... 9.5 V
Power loss		2.8 W
Power consumption		2.8 W
Internal bus		
Connection		backplane bus
Interface		manufacturer specific bus
Cycle time		1.6 ms
Input		
Connection		terminals 0+, 1-, 2+, 3-, 4+, 5-, 6+, 7-, 8+, 9-, 10+, 11-, 12+, 13-, 14+, 15-, 17+, 18-, 19+, 20-, 21+, 22-, 23+, 24-, 25+, 26-, 27+, 28-, 29+, 30-, 31+, 32-
Rated values		acc. to EN 60947-5-6 (NAMUR)
Switching point/switching hysteresis		1.2 ... 2.1 mA / approx. 0.2 mA
Pulse/Pause ratio		≥ 25 μs / ≥ 25 μs
Line monitoring		breakage I ≤ 0,15 mA; short-circuit I > 6 mA
Transfer characteristics		
Switching frequency		≤ 1 kHz
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2006
Explosion protection		
Directive 94/9/EC		EN 60079-0: 2006, EN 60079-11: 2007, EN 60079-26: 2007, EN 61241-0: 2006, EN 61241-11: 2006
Standard conformity		
Insulation coordination		EN 50178
Electrical isolation		EN 60079-11:2007
Electromagnetic compatibility		NE 21:2006
Protection degree		IEC 60529
Climatic conditions		IEC 60721
Ambient conditions		
Classification		3K3
Ambient temperature		-20 ... 70 °C (253 ... 343 K)
Storage temperature		-20 ... 100 °C (253 ... 373 K)
Relative humidity		95 % non-condensing
Shock resistance		15 g peak, 11 ms period
Vibration resistance		2 g , 10 ... 500 Hz according to IEC 60068-2-6
Damaging gas		acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Connection type		terminals
Core cross-section		≤ 2.5 mm ²
Protection degree		IP20, for in-situ installation a separate housing is required with a minimum of IP54
Mass		approx. 235 g
Mounting		DIN rail mounting
Data for application in connection with Ex-areas		
EC-Type Examination Certificate		DMT 98 ATEX 003 X , for additional certificates see www.pepperl-fuchs.com
Group, category, type of protection		 II (1)2G Ex ib[ia] IIC T4  II (1)D [Ex iaD]
Supply		only in connection with the power units RSD2-PSD2-Ex4.34, RSA6-PSD-Ex4.34
Input		
Voltage	U _o	14.5 V
Current	I _o	15 mA
Power	P _o	40 mW
External capacitance	C _o	300 nF
External inductance	L _o	2 mH
L/R-ratio		0.65 mH/Ω
Internal bus		customer specific
Statement of conformity		
Group, category, type of protection, temperature classification		 II 3D IP54 T 90°C
Electrical isolation		
Input/input		no electrical isolation
Input/power supply		safe electrical isolation acc. to EN 60079-11: 2007, voltage peak value 60 V
Input/Internal Bus		safe electrical isolation acc. to EN 60079-11: 2007, voltage peak value 60 V
Internal bus/power supply		safe electrical isolation acc. to EN 60079-11: 2007, voltage peak value 60 V

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Electrical connection

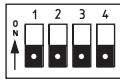
Circuit fault detection/terminal base assignment

Circuit fault detection:

- can be switched off by means of data bit in the module data table
- can be switched off in groups of 4 channels via DIP-switch on the bottom side of the module

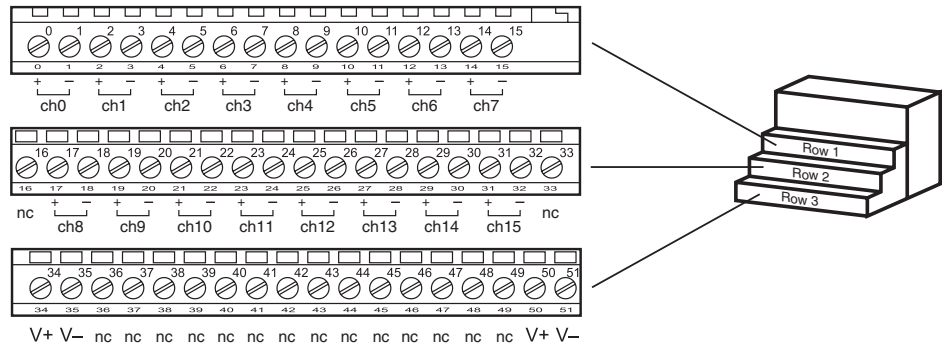
Switch:

- 0 = channels 0 ... 3
- 1 = channels 4 ... 7
- 2 = channels 8 ... 11
- 3 = channels 12 ... 15



ON = Circuit fault detection active

OFF = Circuit fault detection not active



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.

Notes

- Input filter for suppressing interference or debouncing contacts; the time constant of input filters can be adjusted
- Channel 15 can be configured as an upward counter
- Signalling of lead break/short-circuit via the internal bus to the control system and red flashing fault-LEDs for each channel
- Deactivation of lead break/short-circuit monitoring for each of the four channels by group via DIP switch on the module
- Lead break/short circuit monitoring via the bus is disabled module by module
- Indication of the switching state via yellow LED
- Connecting the "+" terminals of different channels is not permitted
- 1 power supply channel for 3 modules
- The module has to be powered via the intrinsically safe power supplies RSD2-PSD2-Ex4.34 or RSA6-PSD-Ex4.34

In order to reach the EMC protection class, screened power lines must be used. The electric strength of the wire insulation must be > 500 V.