

Model Number

SJ2-SN-Y89620

Features

- 2 mm slot width
- Usable up to SIL 3 acc. to IEC 61508

Application



Danger!

In security applications, the sensor must be operated on a qualified safety switch amplifier from Pepperl+Fuchs (e.g., KFD2-SH-Ex1). Observe the "exida Functional Safety Assessment" document, which belongs to this sensor and is available as part of the product documentation from www.pepperl-fuchs.com.

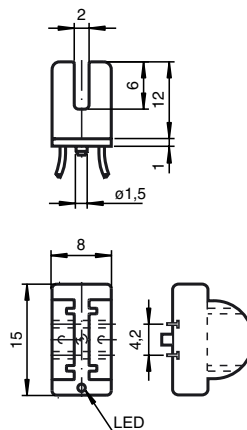
Attention!

NAMUR-compliant switch amplifiers can, due to a low current consumption at the recorded measuring plate (0.2 mA ... 1 mA), incorrectly report cable breaks (required in accordance with EN 60947-5-6:2000: 0.4 mA ... 1 mA).

Technical Data

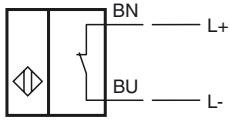
General specifications	
Switching function	Normally closed (NC)
Output type	NAMUR with safety function
Slot width	2 mm
Depth of immersion (lateral)	5 ... 7 typ. 6 mm
Reference target	5 x 8 x 0.5 mm ³ , Al
Safety Integrity Level (SIL)	up to SIL3 acc. to IEC 61508 Danger! In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1. Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.
Output type	2-wire
Nominal ratings	
Nominal voltage	U _o 8.2 V
Switching frequency	f 0 ... 5000 Hz
Hysteresis	H with NAMUR switch amplifier: 0.02 mm (e. g. Pepperl+Fuchs KCD2-SR-Ex1.LB) with safety switch amplifier 0.01 mm (e. g. Pepperl+Fuchs KFD2-SH-Ex1)
Rate of current rise	-11 mA / mm
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	0.2 ... 1 mA
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
MTTF _d	11800 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %
Ambient conditions	
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Mechanical specifications	
Connection type	flexible leads LiY , 20 mm
Core cross-section	0.06 mm ²
Housing material	PBT
Degree of protection	IP67
Mass	2.5 g
Note	adjustable stop
General information	
Use in the hazardous area	see instruction manuals
Compliance with standards and directives	
Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Standards	EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012
Approvals and certificates	
UL approval	cULus Listed, General Purpose
Ordinary Location	E87056
Hazardous Location	E501628
Control drawing	116-0454

Dimensions



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Electrical Connection



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Data for application in connection with hazardous areas

Equipment protection level Ga , Gb , Da , Mb

Equipment protection level Ga

Type of protection intrinsic safety

CE marking  0102**Certificates**

Appropriate type SJ2-N...

ATEX certificate PTB 00 ATEX 2049 X

ATEX marking  II 1G Ex ia IIC T6...T1 Ga

Standards EN 60079-0:2012+A11:2013 , EN 60079-11:2012

IECEX certificate IECEX PTB 11.0092X

IECEX marking Ex ia IIC T6...T1 Ga

Standards IEC 60079-0:2011 , IEC 60079-11:2011

Effective internal capacitance C_i ≤ 30 nF
A cable length of 10 m is considered.Effective internal inductance L_i ≤ 100 μ H
A cable length of 10 m is considered.Maximum permissible ambient temperature T_{amb} Also observe the maximum permissible ambient temperature stated in the general technical data.
Keep to the lower of the two values.

for ATEX

at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 34$ mW ,
 T6 : 56 °C (132.8 °F)
 T5 : 68 °C (154.4 °F)
 T4 : 96 °C (204.8 °F)
 T3 : 96 °C (204.8 °F)
 T2 : 96 °C (204.8 °F)
 T1 : 96 °C (204.8 °F)

at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW ,
 T6 : 49 °C (120.2 °F)
 T5 : 61 °C (141.8 °F)
 T4 : 89 °C (192.2 °F)
 T3 : 89 °C (192.2 °F)
 T2 : 89 °C (192.2 °F)
 T1 : 89 °C (192.2 °F)

at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW ,
 T6 : 28 °C (82.4 °F)
 T5 : 40 °C (104 °F)
 T4 : 68 °C (154.4 °F)
 T3 : 68 °C (154.4 °F)
 T2 : 68 °C (154.4 °F)
 T1 : 68 °C (154.4 °F)

at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW ,
 T6 : 13 °C (55.4 °F)
 T5 : 25 °C (77 °F)
 T4 : 53 °C (127.4 °F)
 T3 : 53 °C (127.4 °F)
 T2 : 53 °C (127.4 °F)
 T1 : 53 °C (127.4 °F)

for IECEX

at $U_i = 16$ V , $I_i = 25$ mA 34 mW ,
 T6 : 73 °C (163.4 °F)
 T5 : 88 °C (190.4 °F)
 T4 : 100 °C (212 °F)
 T3 : 100 °C (212 °F)
 T2 : 100 °C (212 °F)
 T1 : 100 °C (212 °F)

at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW ,
 T6 : 66 °C (150.8 °F)
 T5 : 81 °C (177.8 °F)
 T4 : 100 °C (212 °F)
 T3 : 100 °C (212 °F)
 T2 : 100 °C (212 °F)
 T1 : 100 °C (212 °F)

at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW ,
 T6 : 45 °C (113 °F)
 T5 : 60 °C (140 °F)
 T4 : 78 °C (172.4 °F)
 T3 : 78 °C (172.4 °F)
 T2 : 78 °C (172.4 °F)
 T1 : 78 °C (172.4 °F)

at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW ,
 T6 : 30 °C (86 °F)
 T5 : 45 °C (113 °F)
 T4 : 57 °C (134.6 °F)
 T3 : 57 °C (134.6 °F)
 T2 : 57 °C (134.6 °F)
 T1 : 57 °C (134.6 °F)

Equipment protection level Gb

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	SJ2-SN...	
ATEX certificate	PTB 00 ATEX 2049 X	
ATEX marking	Ex II 1G Ex ia IIC T6...T1 Ga	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
IECEX certificate	IECEX PTB 11.0092X	
IECEX marking	Ex ia IIC T6...T1 Ga	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	C_i	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μ H A cable length of 10 m is considered.
Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 34$ mW , T6 : 73 °C (163.4 °F) T5 : 88 °C (190.4 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW , T6 : 66 °C (150.8 °F) T5 : 81 °C (177.8 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW , T6 : 45 °C (113 °F) T5 : 60 °C (140 °F) T4 : 78 °C (172.4 °F) T3 : 78 °C (172.4 °F) T2 : 78 °C (172.4 °F) T1 : 78 °C (172.4 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW , T6 : 30 °C (86 °F) T5 : 45 °C (113 °F) T4 : 57 °C (134.6 °F) T3 : 57 °C (134.6 °F) T2 : 57 °C (134.6 °F) T1 : 57 °C (134.6 °F)	

Equipment protection level Da

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	SJ2-SN...	
ATEX certificate	PTB 00 ATEX 2049 X	
ATEX marking	Ex II 1D Ex ia IIIC T135°C Da	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
IECEX certificate	IECEX PTB 11.0092X	
IECEX marking	Ex ia IIIC T135°C Da	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	C_i	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μ H A cable length of 10 m is considered.
Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data. Keep to the lower of the two values. at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 34$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 25$ mA , $P_i = 64$ mW : 100 °C (212 °F) at $U_i = 16$ V , $I_i = 52$ mA , $P_i = 169$ mW : 78 °C (172.4 °F) at $U_i = 16$ V , $I_i = 76$ mA , $P_i = 242$ mW : 57 °C (134.6 °F)	

Equipment protection level Mb

Type of protection	intrinsic safety	
Certificates		
Appropriate type	SJ2-SN...	
IECEX certificate	IECEX PTB 11.0092X	
IECEX marking	Ex ia I Mb	
Standards	IEC 60079-0:2011 , IEC 60079-11:2011	
Effective internal capacitance	C_i	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μ H A cable length of 10 m is considered.

Maximum permissible ambient temperature T_{amb}

Also observe the maximum permissible ambient temperature stated in the general technical data.
Keep to the lower of the two values.

at $U_i = 16\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 34\text{ mW}$: 100 °C (212 °F)

at $U_i = 16\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 64\text{ mW}$: 100 °C (212 °F)

at $U_i = 16\text{ V}$, $I_i = 52\text{ mA}$, $P_i = 169\text{ mW}$: 78 °C (172.4 °F)

at $U_i = 16\text{ V}$, $I_i = 76\text{ mA}$, $P_i = 242\text{ mW}$: 57 °C (134.6 °F)

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

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