

Model Number

SJ3,5-SN-Y89604

Features

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

Application



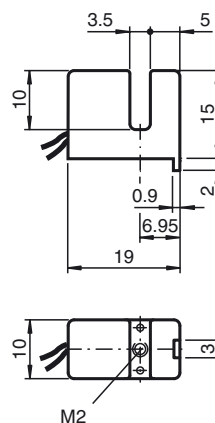
Danger!

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.

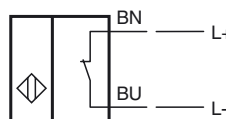
Technical Data

General specifications	
Switching function	Normally closed (NC)
Output type	NAMUR with safety function
Slot width	3.5 mm
Depth of immersion (lateral)	5 ... 7 typ. 6 mm
Reference target	10 x 7 x 0.3 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 ... 3000 Hz
Hysteresis	H with NAMUR switch amplifier: 0.045 mm (e. g. Pepperl+Fuchs KCD2-SR-Ex1.LB) with safety switch amplifier 0.025 mm (e. g. Pepperl+Fuchs KFD2-SH-Ex1)
Rate of current rise	-4.5 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 %
Standard conformity	
EMC in accordance with	EN 60947-5-2:2007 + A1:2012 IEC 60947-5-2:2007 + A1:2012
Ambient conditions	
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Mechanical specifications	
Connection type	flexible leads LiY, 150 mm
Core cross-section	0.14 mm ²
Housing material	PBT
Degree of protection	IP67
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
Approvals and certificates	
UL approval	cULus Listed, General Purpose

Dimensions



Electrical Connection



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Data for application in connection with hazardous areas

Equipment protection level	Gb , Gc (ic) , Da , Mb
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Equipment protection level Gb

Type of protection	intrinsic safety
CE marking	 0102

Certificates

Appropriate type	SJ3,5-SN...
ATEX certificate	PTB 00 ATEX 2049 X
ATEX marking	 II 2G Ex ia IIC T6...T1 Gb
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012
IECEX certificate	IECEX PTB 11.0092X
IECEX marking	Ex ia IIC T6...T1 Gb
Standards	IEC 60079-0:2011 , IEC 60079-11:2011

Effective internal capacitance	C_i	≤ 30 nF A cable length of 10 m is considered.
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Effective internal inductance	L_i	≤ 100 μ H A cable length of 10 m is considered.
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Maximum permissible ambient temperature T_{amb}	Also observe the maximum permissible ambient temperature stated in the general technical data.
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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 : 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 , $I_i = 76$ mA , $P_i = 242$ mW ,

T6 : 30 °C (86 °F)

T5 : 45 °C (113 °F)

T4 : 74 °C (165.2 °F)

T3 : 74 °C (165.2 °F)

T2 : 74 °C (165.2 °F)

T1 : 74 °C (165.2 °F)

Equipment protection level Gc (ic)

Type of protection	intrinsic safety	
CE marking	CE	
Certificates		
ATEX certificate	PF 13 CERT 2895 X	
ATEX marking	Ⓔ II 3G Ex ic IIC T6...T1 Gc	
Standards	EN 60079-0:2012+A11:2013 , EN 60079-11:2012	
Effective internal capacitance	C_i	≤ 30 nF A cable length of 10 m is considered.
Effective internal inductance	L_i	≤ 100 μH 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 $U_i = 20\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 34\text{ mW}$, T6 : 70 °C (158 °F) T5 : 85 °C (185 °F) T4 : 100 °C (212 °F) T3 : 100 °C (212 °F) T2 : 100 °C (212 °F) T1 : 100 °C (212 °F) at $U_i = 20\text{ V}$, $I_i = 25\text{ mA}$, $P_i = 64\text{ mW}$, 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 $U_i = 20\text{ V}$, $I_i = 52\text{ mA}$, $P_i = 169\text{ mW}$, T6 : 45 °C (113 °F) T5 : 60 °C (140 °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 $U_i = 20\text{ V}$, $I_i = 76\text{ mA}$, $P_i = 242\text{ mW}$, T6 : 30 °C (86 °F) T5 : 45 °C (113 °F) T4 : 74 °C (165.2 °F) T3 : 74 °C (165.2 °F) T2 : 74 °C (165.2 °F) T1 : 74 °C (165.2 °F)	

Equipment protection level Da

Type of protection	intrinsic safety	
CE marking	CE 0102	
Certificates		
Appropriate type	SJ3,5-SN...	
ATEX certificate	PTB 00 ATEX 2049 X	
ATEX marking	Ⓔ 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 μH 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 $U_i = 16\text{ V}$, $I_i = 52\text{ mA}$, $P_i = 169\text{ mW}$: 89 °C (192.2 °F) at $U_i = 16\text{ V}$, $I_i = 76\text{ mA}$, $P_i = 242\text{ mW}$: 74 °C (165.2 °F)	

Equipment protection level Mb

Type of protection	intrinsic safety	
Certificates		
Appropriate type	SJ3,5-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 μH 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 $U_i = 16\text{ V}$, $I_i = 52\text{ mA}$, $P_i = 169\text{ mW}$: 89 °C (192.2 °F) at $U_i = 16\text{ V}$, $I_i = 76\text{ mA}$, $P_i = 242\text{ mW}$: 74 °C (165.2 °F)	

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