

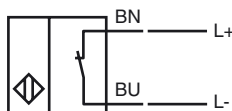
Model Number

SJ3,5-SN-Y89604

Features

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

Connection



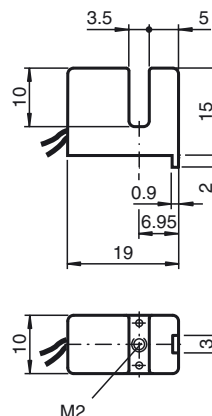
Application



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.

Dimensions



Technical Data

General specifications

Switching element function	NAMUR, NC
Slot width	3.5 mm
Depth of immersion (lateral)	5 ... 7 typ. 6 mm
Installation	
Output polarity	Safety Function

Nominal ratings

Nominal voltage	U_o	8 V
Operating voltage	U_B	5 ... 25 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	≤ 1 mA

Functional safety related parameters

MTTF _d	7970 a
Mission Time (T _M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
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Mechanical specifications

Connection type	flexible leads LIY , 150 mm
Core cross-section	0.14 mm ²
Housing material	PBT
Protection degree	IP67

General information

Use in the hazardous area	see instruction manuals
Category	2G; 3G

Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

ATEX 2G

Instruction

Device category 2G

Directive conformity

Standard conformity

CE marking

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance C_i Effective internal inductance L_i

General

Highest permissible ambient temperature

Installation, Commissioning

Maintenance

Specific conditions

Protection from mechanical danger

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 60079-0:2009, EN 60079-11:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

CE 0102

II 2G Ex ia IIC T6 Gb

PTB 00 ATEX 2049 X

SJ3,5-SN...

 ≤ 30 nF ; a cable length of 10 m is considered. ≤ 100 μ H ; a cable length of 10 m is considered.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

When used in the temperature range below -20 °C the sensor should be protected from knocks by the provision of an additional housing.

ATEX 3G (nL)

Note

This instruction is only valid for products according to EN 60079-15:2003, valid until 31-May-2008

Instruction**Manual electrical apparatus for hazardous areas****Device category 3G (nL)**

for use in hazardous areas with gas, vapour and mist

Directive conformity

94/9/EG

Standard conformity

EN 60079-15:2003 Ignition protection category "n"

Use is restricted to the following stated conditions

CE marking

 0102

Ex-identification

 II 3G EEx nL IIC T6 XEffective internal capacitance C_i $\leq 30 \text{ nF}$; A cable length of 10 m is considered.Effective internal inductance L_i $\leq 100 \text{ }\mu\text{H}$; A cable length of 10 m is considered.

General

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The data stated in the data sheet are restricted by this operating instruction! The special conditions must be observed!

Installation, Commissioning

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The sensor must only be operated with energy-limited circuits, which satisfy the requirements of IEC 60079-15. The explosion group depends on the connected and energy-limited supply circuit.

Maintenance

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

Specific conditionsMaximum permissible ambient temperature T_{Umax} at $U_i = 20 \text{ V}$ for $P_i=34 \text{ mW}$, $I_i=25 \text{ mA}$, T6

70 °C (158 °F)

for $P_i=34 \text{ mW}$, $I_i=25 \text{ mA}$, T5

85 °C (185 °F)

for $P_i=34 \text{ mW}$, $I_i=25 \text{ mA}$, T4-T1

100 °C (212 °F)

for $P_i=64 \text{ mW}$, $I_i=25 \text{ mA}$, T6

66 °C (150.8 °F)

for $P_i=64 \text{ mW}$, $I_i=25 \text{ mA}$, T5

81 °C (177.8 °F)

for $P_i=64 \text{ mW}$, $I_i=25 \text{ mA}$, T4-T1

100 °C (212 °F)

for $P_i=169 \text{ mW}$, $I_i=52 \text{ mA}$, T6

45 °C (113 °F)

for $P_i=169 \text{ mW}$, $I_i=52 \text{ mA}$, T5

60 °C (140 °F)

for $P_i=169 \text{ mW}$, $I_i=52 \text{ mA}$, T4-T1

89 °C (192.2 °F)

for $P_i=242 \text{ mW}$, $I_i=76 \text{ mA}$, T6

30 °C (86 °F)

for $P_i=242 \text{ mW}$, $I_i=76 \text{ mA}$, T5

45 °C (113 °F)

for $P_i=242 \text{ mW}$, $I_i=76 \text{ mA}$, T4-T1

74 °C (165.2 °F)

Protection from mechanical danger

The sensor must not be mechanically damaged.

When used in the temperature range below -20 °C the sensor should be protected from knocks by the provision of an additional housing.

Connection parts

The connection parts are to be installed, such that a minimum protection class of IP20 is achieved, in accordance with IEC 60529.

ATEX 3G (ic)

Instruction

Device category 3G (ic)

Directive conformity

Standard conformity

CE marking

Ex-identification

Effective internal capacitance C_i Effective internal inductance L_i

General

Installation, Commissioning

Maintenance

Specific conditionsMaximum permissible ambient temperature T_{Umax} at $U_i = 20$ Vfor $P_i=34$ mW, $I_i=25$ mA, T6for $P_i=34$ mW, $I_i=25$ mA, T5for $P_i=34$ mW, $I_i=25$ mA, T4-T1for $P_i=64$ mW, $I_i=25$ mA, T6for $P_i=64$ mW, $I_i=25$ mA, T5for $P_i=64$ mW, $I_i=25$ mA, T4-T1for $P_i=169$ mW, $I_i=52$ mA, T6for $P_i=169$ mW, $I_i=52$ mA, T5for $P_i=169$ mW, $I_i=52$ mA, T4-T1for $P_i=242$ mW, $I_i=76$ mA, T6for $P_i=242$ mW, $I_i=76$ mA, T5for $P_i=242$ mW, $I_i=76$ mA, T4-T1

Protection from mechanical danger

Connection parts


Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 60079-0:2009, EN 60079-11:2007 Ignition protection category "ic"

Use is restricted to the following stated conditions

 0102 II 3G Ex ic IIC T6 Gc X ≤ 30 nF ; A cable length of 10 m is considered. ≤ 100 μ H ; A cable length of 10 m is considered.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The data stated in the data sheet are restricted by this operating instruction!
The special conditions must be observed!

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The sensor must only be operated with energy-limited circuits, which satisfy the requirements of IEC 60079-11. The explosion group depends on the connected and energy-limited supply circuit.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

70 °C (158 °F)

85 °C (185 °F)

100 °C (212 °F)

66 °C (150.8 °F)

81 °C (177.8 °F)

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