



Model Number

SJ2-N

ATEX version

Features

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

Technical Data

General specifications

| | |
|------------------------------|------------------------|
| Switching function | Normally closed (NC) |
| Output type | NAMUR |
| Slot width | 2 mm |
| Depth of immersion (lateral) | 5 ... 7 mm , typ. 6 mm |
| Output type | 2-wire |

Nominal ratings

| | | |
|------------------------------|-------|------------------------------------------------------|
| Nominal voltage | U_o | 8.2 V (R_i approx. 1 k Ω) |
| Operating voltage | U_B | 5 ... 25 V |
| Switching frequency | f | 0 ... 5000 Hz |
| Hysteresis | H | 0.005 ... 0.2 |
| Suitable for 2:1 technology | | yes , Reverse polarity protection diode not required |
| Current consumption | | |
| Measuring plate not detected | | ≥ 3 mA |
| Measuring plate detected | | ≤ 1 mA |

Functional safety related parameters

| | |
|--------------------------|--------|
| MTTF _d | 9320 a |
| Mission Time (T_M) | 20 a |
| Diagnostic Coverage (DC) | 0 % |

Ambient conditions

| | |
|---------------------|---------------------------------|
| Ambient temperature | -25 ... 100 °C (-13 ... 212 °F) |
|---------------------|---------------------------------|

Mechanical specifications

| | |
|----------------------|-------------------------------|
| Connection type | flexible leads LIFYW , 500 mm |
| Core cross-section | 0.06 mm ² |
| Housing material | PBT |
| Degree of protection | IP67 |

General information

| | |
|---------------------------|-------------------------|
| Use in the hazardous area | see instruction manuals |
| Category | 1G; 2G; 1D |

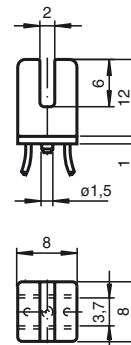
Compliance with standards and directives

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

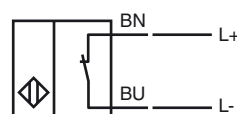
Approvals and certificates

| | |
|-----------------|--------------------------------------------------------------------|
| FM approval | |
| Control drawing | 116-0165 |
| UL approval | cULus Listed, General Purpose |
| CSA approval | cCSAus Listed, General Purpose |
| CCC approval | CCC approval / marking not required for products rated ≤ 36 V |

Dimensions



Electrical Connection



Equipment protection level Ga

| | |
|-----------------------------------------|----------------|
| Instruction | |
| Device category 1G | |
| EC-Type Examination Certificate | |
| CE marking | |
| ATEX marking | |
| Standards | |
| Appropriate type | |
| Effective internal inductivity | C _i |
| Effective internal inductance | L _i |
| General | |
| Highest permissible ambient temperature | |
| Installation, commissioning | |
| Maintenance | |
| Special conditions | |
| Protection from mechanical danger | |

Manual electrical apparatus for hazardous areas

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| for use in hazardous areas with gas, vapour and mist |
| PTB 99 ATEX 2219 X |
| CE 0102 |
| <div> <div> <div>Ex</div> <div>II 1G Ex ia IIC T6...T1 Ga</div> </div> <div> <div>The Ex-related marking can also be printed on the enclosed label.</div> <div>EN 60079-0:2012+A11:2013, EN 60079-11:2012</div> <div>Ignition protection "Intrinsic safety"</div> <div>Use is restricted to the following stated conditions</div> <div>SJ2-N...</div> <div>≤ 30 nF ; a cable length of 10 m is considered.</div> <div>≤ 100 μH ; a cable length of 10 m is considered.</div> <div>The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EU-type examination certificate has to be observed. The special conditions must be adhered to! The ATEX directive and therefore the EU-type examination certificates are in general only applicable to the use of electrical apparatus operating at atmospheric conditions. The device has been checked for suitability for use at ambient temperatures of > 60 °C by the named certification authority. The surface temperature of the device remains within the required limits. If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.</div> <div>Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EU-type examination certificate. Note: Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1 has already been applied to the temperature table for category 1.</div> <div>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. The associated apparatus must satisfy the requirements of category ia. Because of the risk of ignition, which can occur due to faults and/or transient currents in the equipotential bonding system, galvanic isolation is preferable in the supply and signal circuits. Associated apparatus without electrical isolation can only be used if the corresponding requirements of IEC 60079-14 are satisfied. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion.</div> <div>No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.</div> <div>The connecting parts of the sensor must be set up in such a way that degree of protection IP20, in accordance with IEC 60529, is achieved as a minimum.</div> <div>When using the device in a temperature range of -60 °C to -20 °C, protect the sensor against the effects of impact by installing an additional enclosure. The information regarding the minimum ambient temperature for the sensor as provided in the datasheet must also be observed.</div> </div> </div> |

Equipment protection level Gb

Instruction

Device category 2G

EC-Type Examination Certificate

CE marking

ATEX marking

Standards

Appropriate type

Effective internal inductivity C_i Effective internal inductance L_i

General

Maximum permissible ambient temperature T_{amb}

Installation, commissioning

Maintenance

Special conditions

Protection from mechanical danger

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

PTB 99 ATEX 2219 X

CE 0102

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

The Ex-related marking can also be printed on the enclosed label.

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

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

SJ2-N...

 $\leq 30 \text{ nF}$; a cable length of 10 m is considered. $\leq 100 \mu\text{H}$; 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 EU-type examination certificate has to be observed. The special conditions must be adhered to!

Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EU-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. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion.

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

The connecting parts of the sensor must be set up in such a way that degree of protection IP20, in accordance with IEC 60529, is achieved as a minimum.

When using the device in a temperature range of -60°C to -20°C , protect the sensor against the effects of impact by installing an additional enclosure. The information regarding the minimum ambient temperature for the sensor as provided in the datasheet must also be observed.

Equipment protection level Da

Instruction

Device category 1D

EC-Type Examination Certificate

CE marking

ATEX marking

Standards

Appropriate type

Effective internal inductivity C_i

Effective internal inductance L_i

General

Highest permissible ambient temperature T_{amb}

Installation, commissioning

Maintenance

Special conditions

Protection from mechanical danger

Electrostatic charge

Manual electrical apparatus for hazardous areas

for use in hazardous areas with combustible dust

PTB 99 ATEX 2219 X

CE 0102

Ex II 1D Ex ia IIC T135°C Da

The Ex-related marking can also be printed on the enclosed label.

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

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

SJ2-N...

$\leq 30\text{ nF}$; a cable length of 10 m is considered.

$\leq 100\text{ }\mu\text{H}$; 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 EU-type examination certificate has to be observed. The ATEX Directive and therefore the EU-type-examination certificates generally apply only to the use of electrical apparatus under atmospheric conditions. The device has been checked for suitability for use at ambient temperatures of $\geq 60\text{ }^{\circ}\text{C}$ by the named certification authority. For the use of apparatus outside of atmospheric conditions, a reduction of the permissible minimum ignition energies may need to be considered.

Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the surface temperature, and the effective internal reactance values can be found on the EU-type-examination certificate. **The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.**

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. If the Ex-related marking is printed only on the supplied label, then this must be attached in the immediate vicinity of the sensor. The sticking surface for the label must be clean and free from grease. The attached label must be legible and indelible, including in the event of possible chemical corrosion.

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

The connecting parts of the sensor must be set up in such a way that degree of protection IP20, in accordance with IEC 60529, is achieved as a minimum.

When using the device in a temperature range of $-60\text{ }^{\circ}\text{C}$ to $-20\text{ }^{\circ}\text{C}$, protect the sensor against the effects of impact by installing an additional enclosure. The information regarding the minimum ambient temperature for the sensor as provided in the datasheet must also be observed.

Do not attach the nameplate provided in areas where electrostatic charge can build up.