



## Model Number

NJ2-12GK-N-5M

## Features

- Comfort series
- 2 mm flush
- Usable up to SIL 2 acc. to IEC 61508

## Accessories

### BF 12

Mounting flange, 12 mm

## Technical Data

### General specifications

Switching element function		NAMUR, NC
Rated operating distance	$s_n$	2 mm
Installation		flush
Output polarity		NAMUR
Assured operating distance	$s_a$	0 ... 1.62 mm
Reduction factor $r_{Al}$		0.4
Reduction factor $r_{Cu}$		0.3
Reduction factor $r_{304}$		0.85

### Nominal ratings

Nominal voltage	$U_o$	8 V
Switching frequency	$f$	0 ... 2000 Hz
Suitable for 2:1 technology		yes, Reverse polarity protection diode not required
Current consumption		
Measuring plate not detected		$\geq 3$ mA
Measuring plate detected		$\leq 1$ mA

### Functional safety related parameters

MTTF <sub>d</sub>	5887 a
Mission Time ( $T_M$ )	20 a
Diagnostic Coverage (DC)	0 %

### Ambient conditions

Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
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### Mechanical specifications

Connection type	cable PVC, 5 m
Core cross-section	0.34 mm <sup>2</sup>
Housing material	PBT
Sensing face	PBT
Degree of protection	IP68
Cable	
Bending radius	> 10 x cable diameter

### General information

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

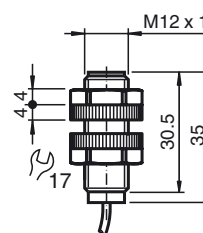
### Compliance with standards and directives

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

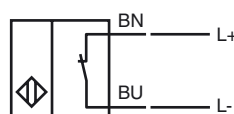
### Approvals and certificates

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 $\leq 36$ V

## Dimensions



## Electrical Connection



## Equipment protection level Gb

Instruction

### Device category 2G

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

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 00 ATEX 2048 X

CE 0102

II 2G Ex ia IIC T6...T1 Gb The Ex-related marking can also be printed on the enclosed label.

94/9/EG

EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions

NJ 2-12GK-N...

$\leq 45 \text{ nF}$  ; a cable length of 10 m is considered.

$\leq 50 \text{ }\mu\text{H}$  ; 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 EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

Directive 94/9/EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions.

The use in ambient temperatures of  $> 60 \text{ }^\circ\text{C}$  was tested with regard to hot surfaces by the mentioned certification authority.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

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 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.

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.

**Equipment protection level Da**

Instruction

**Device category 1D**

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

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


Electrostatic charge

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with combustible dust

PTB 00 ATEX 2048 X

CE 0102

 II 1D Ex ia IIIC T135°C Da The Ex-related marking can also be printed on the enclosed label.

94/9/EG

EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety"  
Use is restricted to the following stated conditions

NJ 2-12GK-N...

 $\leq 45 \text{ nF}$  ; a cable length of 10 m is considered. $\leq 50 \mu\text{H}$  ; 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 EC-Type Examination Certificate has to be observed.

Directive 94/9/EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions.

The use in ambient temperatures of  $> 60^\circ\text{C}$  was tested with regard to hot surfaces by the mentioned certification authority.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

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 EC-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  $-60^\circ\text{C}$  to  $-20^\circ\text{C}$ , 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.