



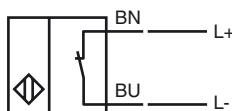
## Model Number

NJ6-22-N

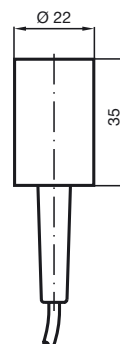
## Features

- Comfort series
- 6 mm embeddable
- Usable up to SIL2 acc. to IEC 61508

## Connection



## Dimensions



## Technical Data

### General specifications

Switching element function		NAMUR, NC
Rated operating distance	$s_n$	6 mm
Installation		embeddable
Output polarity		NAMUR
Assured operating distance	$s_a$	0 ... 4.86 mm
Reduction factor $r_{A1}$		0.4
Reduction factor $r_{Cu}$		0.3
Reduction factor $r_{303}$		0.85

### Nominal ratings

Nominal voltage	$U_o$	8.2 V ( $R_i$ approx. 1 k $\Omega$ )
Switching frequency	$f$	0 ... 2000 Hz
Hysteresis	$H$	1 ... 7 typ. 4 %
Current consumption		
Measuring plate not detected		$\geq 3$ mA
Measuring plate detected		$\leq 1$ mA

### Ambient conditions

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

Connection type	cable PVC , 2 m
Core cross-section	0.75 mm <sup>2</sup>
Housing material	PBT
Sensing face	PBT
Protection degree	IP68

### 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

FM approval	
Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Products with a maximum operating voltage of $\leq 36$ V do not bear a CCC marking because they do not require approval.

**ATEX 2G**

Instruction

**Device category 2G**

Directive conformity

Standard conformity

CE symbol

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

**Special 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 60079-0:2006, EN 60079-11:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions


 0102

 II 2G Ex ia IIC T6

PTB 00 ATEX 2048 X

NJ 6-22-N...

 $\leq 130$  nF ; a cable length of 10 m is considered. $\leq 100$   $\mu$ 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  $> 60$  °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.

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  
94/9/EG

Directive conformity

EN 60079-15:2003 Ignition protection category "n"  
Use is restricted to the following stated conditions

Standard conformity

**CE** 0102

CE symbol

Ex-identification

**Ex** II 3G EEx nL IIC T6 XEffective internal capacitance  $C_i$  $\leq 130 \text{ nF}$  ; 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!

Directive 94/9EG is generally applicable only to the use of electrical apparatus operating at atmospheric conditions.

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

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 an energy-limited circuit, which satisfies the requirements of IEC 60079-15. The explosion group complies with the connected, supplying, power limiting circuit.

Maintenance

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

**Special conditions**Maximum 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

69 °C (156.2 °F)

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

84 °C (183.2 °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

51 °C (123.8 °F)

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

66 °C (150.8 °F)

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

80 °C (176 °F)

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

39 °C (102.2 °F)

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

54 °C (129.2 °F)

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

61 °C (141.8 °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 symbol

Ex-identification

Effective internal capacitance  $C_i$ Effective internal inductance  $L_i$ 

General

Installation, Commissioning

Maintenance

**Special conditions**Maximum 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

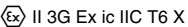
**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 60079-11:2007 Ignition protection category "ic"

Use is restricted to the following stated conditions



 $\leq 130$  nF ; a cable length of 10 m is considered. $\leq 100$   $\mu$ H ; A cable length of 10 m is considered.

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The special conditions must be observed!

Directive 94/9/EG is generally applicable only to the use of electrical apparatus operating at atmospheric conditions.

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

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 complies with the connected, supplying, power limiting 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)

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