



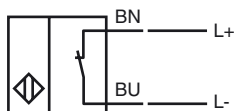
### Model Number

NJ1,5-8-N-Y18812

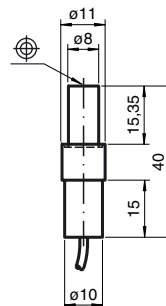
### Features

- With special adjustment

### Connection



### Dimensions



### Technical Data

#### General specifications

Switching element function		NAMUR, NC
Rated operating distance	$s_n$	1.5 mm
Installation		flush
Assured operating distance	$s_a$	0 ... 0.97 mm
Reduction factor $r_{AI}$		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
Hysteresis	$H$	0.1 mm
Current consumption		
Measuring plate not detected		$\geq 2.5$ mA
Measuring plate detected		$\leq 1.2$ mA

#### Ambient conditions

Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)
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#### Mechanical specifications

Connection type		cable PUR, 6 m
Core cross-section		0.14 mm <sup>2</sup>
Housing material		brass
Sensing face		PBT
Protection degree		IP67

#### General information

Use in the hazardous area		see instruction manuals
Category		2G; 3G; 1D

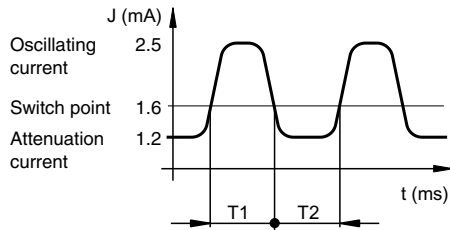
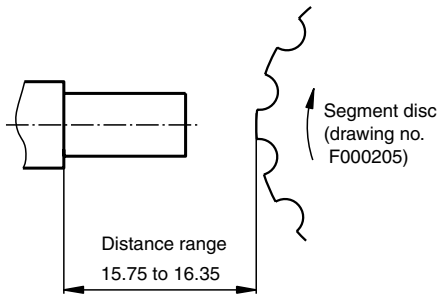
#### Compliance with standards and directives

Standard conformity		
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

Installation hint



T1 : T2 = 1 : 5 to 5 : 1

**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

Electrostatic charging

**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

 0102

 II 2G Ex ia IIC T6 Gb

PTB 00 ATEX 2048 X

NJ1,5-8-N..

 $\leq 20$  nF ; a cable length of 10 m is considered. $\leq 50$   $\mu$ 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.

Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

**ATEX 1D**

Instruction

**Device category 1D**

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

Maximum housing surface temperature

Installation, Commissioning

Maintenance

**Specific conditions**

Electrostatic charging

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with combustible dust

94/9/EG

IEC 61241-11:2002: draft; prEN61241-0:2002

type of protection intrinsic safety "ID"

Use is restricted to the following stated conditions

**CE** 0102**Ex** II 1D Ex iaD 20 T 108 °C (226.4 °F)

The Ex-relevant identification may also be printed on the accompanying adhesive label.

ZELM 03 ATEX 0128 X

NJ1,5-8-N..

≤ 20 nF ; a cable length of 10 m is considered.

≤ 50 μH ; 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 maximum surface temperature of the housing is 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.

The associated apparatus must satisfy at least the requirements of category ia IIB or iaD. Because of the possibility of the danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation in the power supply and signal circuits is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.

The intrinsically safe circuit has to be protected against influences due to lightning. When used in the isolating wall between Zone 20 and Zone 21 or Zone 21 und Zone 22 the sensor must not be exposed to any mechanical danger and must be sealed in such a way, that the protective function of the isolating wall is not impaired. The applicable directives and standards must be observed.

If the Ex-relevant identification is exclusively printed on the included adhesive label, this must be applied in the direct vicinity of the sensor! The surface to which the label is to be applied must be clean and free from grease! The applied adhesive label must be durable and legible to protect it against the possibility of chemical corrosion!

No changes can be made to apparatus, which are operated in hazardous areas.

Repairs to these apparatus are not possible.

The connection cables are to be laid in accordance with EN 50281-1-2 and must not normally be subjected to chaffing during use.

Electrostatic charges must be avoided on the mechanical housing components.

Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

**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"

CE marking

Use is restricted to the following stated conditions

CE 0102

Ex-identification

II 3G EEx nL IIC T6 X

The Ex-relevant identification may also be printed on the accompanying adhesive label.

Effective internal capacitance  $C_i$  $\leq 20$  nF ; a cable length of 10 m is considered.Effective internal inductance  $L_i$  $\leq 50$   $\mu$ 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 an energy-limited circuit, which satisfies the requirements of IEC 60079-15. The explosion group depends on the connected and energy-limited supply circuit.

If the Ex-relevant identification is printed exclusively on the adhesive label provided, this label must be affixed in the immediate vicinity of the sensor! The background surface to which the adhesive label is to be applied must be clean and free from grease! The applied label must be durable and remain legible, with due consideration of the possibility of chemical corrosion!

Maintenance

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

**Specific conditions**Maximum permissible ambient temperature  $T_{Umax}$  at  $U_i = 20$  Vfor  $P_i=34$  mW,  $I_i=25$  mA, T6

70 °C (158 °F)

for  $P_i=34$  mW,  $I_i=25$  mA, T5

85 °C (185 °F)

for  $P_i=34$  mW,  $I_i=25$  mA, T4-T1

100 °C (212 °F)

for  $P_i=64$  mW,  $I_i=25$  mA, T6

68 °C (154.4 °F)

for  $P_i=64$  mW,  $I_i=25$  mA, T5

83 °C (181.4 °F)

for  $P_i=64$  mW,  $I_i=25$  mA, T4-T1

100 °C (212 °F)

for  $P_i=169$  mW,  $I_i=52$  mA, T6

49 °C (120.2 °F)

for  $P_i=169$  mW,  $I_i=52$  mA, T5

64 °C (147.2 °F)

for  $P_i=169$  mW,  $I_i=52$  mA, T4-T1

67 °C (152.6 °F)

for  $P_i=242$  mW,  $I_i=76$  mA, T6

36 °C (96.8 °F)

for  $P_i=242$  mW,  $I_i=76$  mA, T5

42 °C (107.6 °F)

for  $P_i=242$  mW,  $I_i=76$  mA, T4-T1

42 °C (107.6 °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.

Electrostatic charging

Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

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 conditions**Maximum permissible ambient temperature  $T_{Umax}$  at  $U_i = 20 V$ for  $P_i=34 mW$ ,  $I_i=25 mA$ , 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

Electrostatic charging

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

The Ex-relevant identification may also be printed on the accompanying adhesive label.

 $\leq 20 nF$  ; a cable length of 10 m is considered. $\leq 50 \mu H$  ; 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 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.  
If the Ex-relevant identification is printed exclusively on the adhesive label provided, this label must be affixed in the immediate vicinity of the sensor! The background surface to which the adhesive label is to be applied must be clean and free from grease! The applied label must be durable and remain legible, with due consideration of the possibility of chemical corrosion!

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)

68 °C (154.4 °F)

83 °C (181.4 °F)

100 °C (212 °F)

49 °C (120.2 °F)

64 °C (147.2 °F)

67 °C (152.6 °F)

36 °C (96.8 °F)

42 °C (107.6 °F)

42 °C (107.6 °F)

The sensor must not be mechanically damaged.

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

Electrostatic charges must be avoided on the mechanical housing components. Dangerous electrostatic charges on the mechanical housing components can be avoided by incorporating these in the equipotential bonding.

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