



## Model Number

NJ1,5-10GM-N-Y07451

## Features

- Comfort series
- 1.5 mm flush

## Technical Data

### General specifications

Switching element function		NAMUR, NC
Rated operating distance	$s_n$	1.5 mm
Installation		flush
Output polarity		NAMUR
Assured operating distance	$s_a$	0 ... 1.215 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 ... 2400 Hz
Hysteresis	$H$	typ. %
Current consumption		
Measuring plate not detected		$\geq 3$ mA
Measuring plate detected		$\leq 1$ mA

### Ambient conditions

Ambient temperature		-10 ... 60 °C (14 ... 140 °F)
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### Mechanical specifications

Connection type		flexible leads PVC, 500 mm
Core cross-section		0.14 mm <sup>2</sup>
Housing material		brass, nickel-plated
Sensing face		PBT
Degree of protection		IP67

### General information

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

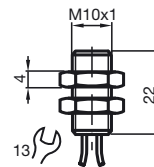
### Compliance with standards and directives

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

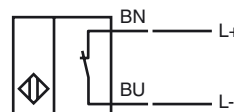
### Approvals and certificates

FM approval		
Control drawing		116-0165F
UL approval		cULus Listed, General Purpose
CSA approval		cCSAus Listed, General Purpose

## Dimensions



## Electrical Connection



**ATEX 1G**

## Instruction

## Device category 1G

## EC-Type Examination Certificate

## CE marking

## ATEX marking

## Directive conformity

## Standards

## Appropriate type

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

## Cable length

## Explosion group IIA

## Explosion group IIB

## Explosion group IIC

## General

## 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

PTB 00 ATEX 2048 X

CE 0102

⊕ II 1G Ex ia IIC T6 Ga

The Ex-significant identification is on the enclosed adhesive label

94/9/EG

EN 60079-0:2009, EN 60079-11:2012, EN 60079-26:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

NJ1,5-10GM-N-Y...

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

≤ 50 μH ; a cable length of 10 m is considered.

Dangerous electrostatic charges on the fixed connection cable must be taken into account for lengths equal to and exceeding the following values:

384 cm

192 cm

30 cm

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. Note: Use the temperature table for category 1 !!! The 20 % reduction in accordance with EN 1127-1:1997 has already been accounted for in the temperature table for category 1.

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.

Due to the possible danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation of the power supply and signal circuit is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.

The adhesive label provided must be affixed in the immediate vicinity of the sensor!

The surface to which the label is applied must be clean, flat and free from grease!

The affixed adhesive label must be readable and durable, taking account 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.

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 2G**

Instruction

**Device category 2G**

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

Standards

Appropriate type

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

General

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

PTB 00 ATEX 2048 X

CE 0102

Ex II 1G Ex ia IIC T6 Ga

The Ex-significant identification is on the enclosed adhesive label

94/9/EG

EN 60079-0:2009, EN 60079-11:2012

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

NJ1,5-10GM-N-Y...

≤ 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!

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.

The adhesive label provided must be affixed in the immediate vicinity of the sensor!

The surface to which the label is applied must be clean, flat and free from grease!

The affixed adhesive label must be readable and durable, taking account 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.

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 3G (nL)**

Note	This instruction is only valid for products according to EN 60079-15:2003, valid until 31-May-2008
<b>Instruction</b>	<b>Manual electrical apparatus for hazardous areas</b>
<b>Device category 3G (nL)</b>	for use in hazardous areas with gas, vapour and mist
CE marking	CE 0102
ATEX marking	⊕ II 3G EEx nL IIC T6 X The Ex-significant identification is on the enclosed adhesive label
Directive conformity	94/9/EG
Standard conformity	EN 60079-15:2003 Ignition protection category "n"
Effective internal capacitance $C_i$	Use is restricted to the following stated conditions ≤ 20 nF ; A cable length of 10 m is considered.
Effective internal inductance $L_i$	The value is applicable for one sensor circuit. ≤ 50 μH ; A cable length of 10 m is considered.
<b>General</b>	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. The adhesive label provided must be affixed in the immediate vicinity of the sensor! The surface to which the label is applied must be clean, flat and free from grease! The affixed adhesive label must be readable and durable, taking account 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.
<b>Specific conditions</b>	
Maximum permissible ambient temperature $T_{Umax}$ at $U_i = 20$ V	
for $P_i=34$ 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)**

Certificate of Compliance

CE marking

ATEX marking

Directive conformity

Standards

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

PF 13 CERT 2895 X

CE 0102

II 3G Ex ic IIC T6 Gc

The Ex-significant identification is on the enclosed adhesive label

94/9/EG

EN 60079-0:2009, EN 60079-11:2012 Ignition protection category "ic"

Use is restricted to the following stated conditions

 $\leq 20 nF$  ; A cable length of 10 m is considered.

The value is applicable for one sensor circuit.

 $\leq 50 \mu H$  ; 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.

The adhesive label provided must be affixed in the immediate vicinity of the sensor! The surface to which the label is applied must be clean, flat and free from grease! The affixed adhesive label must be readable and durable, taking account 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 °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.