



### Model Number

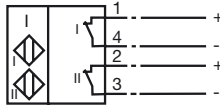
NCN3-F25-N4-V1-Y205258

### Features

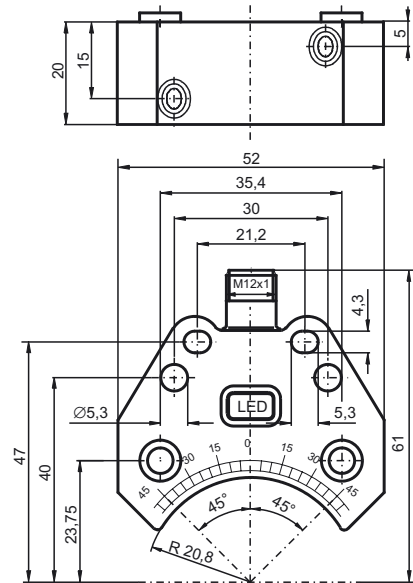
- For installation in housing
- Direct mounting on standard actuators
- Satisfies machinery directive
- EC-Type Examination Certificate TÜV99 ATEX 1479X

### Connection

N4-Y205258



### Dimensions



### Technical Data

#### General specifications

Switching element function	DC	Dual NC
Rated operating distance	$s_n$	3 mm
Installation		flush mountable
Output polarity		NAMUR
Assured operating distance	$s_a$	0 ... 2.43 mm
Reduction factor $r_{Al}$		0.5
Reduction factor $r_{Cu}$		0.45
Reduction factor $r_{303}$		1
Reduction factor $r_{St37}$		1.1
Reduction factor $r_{Brass}$		0.63

#### Nominal ratings

Nominal voltage	$U_o$	8 V
Switching frequency	$f$	0 ... 1500 Hz
Hysteresis	H	typ. 5 %
Reverse polarity protected		reverse polarity protected
Short-circuit protection		pulsing
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
Indication of the switching state		LED, yellow

#### Ambient conditions

Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Storage temperature	-40 ... 100 °C (-40 ... 212 °F)

#### Mechanical specifications

Connection type	Device connector M12 x 1, 4-pin
Housing material	PBT
Sensing face	PBT
Protection degree	IP67
Tightening torque, fastening screws	M5 x 25 : 2.7 Nm
Note	Mounted on mechanical drive

#### General information

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

#### Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility	NE 21:2007
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

**ATEX 1G**

Instruction

**Manual electrical apparatus for hazardous areas**

Device category 1G

for use in hazardous areas with gas, vapour and mist  
94/9/EG

Directive conformity

Standard conformity

EN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007  
Ignition protection "Intrinsic safety"  
Use is restricted to the following stated conditions

CE symbol

 0102

Ex-identification

 II 1G Ex ia IIC T6

EC-Type Examination Certificate

TÜV 99 ATEX 1479 X

Appropriate type

NCN3-F25.-N4...

Effective internal capacitance  $C_i$ ≤ 100 nF A cable length of 10 m is considered.  
The value is applicable for the sensor circuit.Effective internal inductance  $L_i$ ≤ 100 μH A cable length of 10 m is considered.  
The value is applicable for the sensor circuit.

General

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.

Highest permissible ambient temperature

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 1127-1:2007 has already been accounted for in the temperature table for category 1.

Installation, Commissioning

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.

Maintenance

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

**Special conditions**

Protection from mechanical danger

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

When used in group IIC non-permissible electrostatic charges should be avoided on the plastic housing parts.

**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 1G Ex ia IIC T6

TÜV 99 ATEX 1479 X

NCN3-F25.-N4...

$\leq 100$  nF ; a cable length of 10 m is considered. The value is applicable for the sensor circuit.

$\leq 100$   $\mu$ H ; a cable length of 10 m is considered. The value is applicable for the sensor circuit.

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 3D

Note	<b>This instruction is only valid for products according to EN 50281-1-1, valid until 30-September-2008</b> Note the ex-marking on the sensor or on the enclosed adhesive label
<b>Instruction</b>	<b>Manual electrical apparatus for hazardous areas</b>
<b>Device category 3D</b>	for use in hazardous areas with non-conducting combustible dust
Directive conformity	94/9/EG
Standard conformity	EN 50281-1-1 Protection via housing
CE symbol	Use is restricted to the following stated conditions  
Ex-identification	 II 3D IP67 T 111 °C (231.8 °F) X
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 adhered to!
Installation, Commissioning	Laws and/or regulations and standards governing the use or intended usage goal must be observed. Each sensor circuit van be operated with the stated maximum values.
Maintenance	No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.
<b>Special conditions</b>	
Minimum series resistance $R_V$	A minimum series resistance $R_V$ is to be provided between the power supply voltage and the proximity switch in accordance with the following list. This can also be assured by using a switch amplifier.
Maximum operating voltage $U_{Bmax}$	The maximum permissible operating voltage $U_{Bmax}$ must be restricted to the values given in the following list. Tolerances are not permitted.
Maximum heating (Temperature rise)	Values can be obtained from the following list, depending on the max. operating voltage $U_b$ max and the minimum series resistance $R_v$ .
at $U_{Bmax}=9$ V, $R_V=562 \Omega$	11 K
using an amplifier in accordance with EN 60947-5-6	11 K
Plug connector	The plug connector must not be disconnected under voltage. The proximity switch is marked as follows: "DO NOT DISCONNECT UNDER VOLTAGE!" When the plug connector is disconnected the ingress of dirt into the inner areas (i.e. the areas, which are not accessible in the plugged-in condition) must be prevented. The plug connection can only be separated using a tool. This is achieved by using the locking protection V1-Clip (Mounting accessory from Pepperl + Fuchs).
Protection from mechanical danger	The sensor must not be mechanically damaged.

**ATEX 3D (tD)**

Note

**This instruction is only valid for products according to EN 61241-0:2006 and EN 61241-1:2004**  
Note the ex-marking on the sensor or on the enclosed adhesive label

Instruction

**Manual electrical apparatus for hazardous areas****Device category 3D**

for use in hazardous areas with non-conducting combustible dust

Directive conformity

94/9/EG

Standard conformity

EN 61241-0:2006, EN 61241-1:2004


Protection via housing "tD"

Use is restricted to the following stated conditions

CE symbol



Ex-identification

 II 3D Ex tD A22 IP67 T80°C X

General

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.  
The maximum surface temperature has been determined in accordance with method A without a dust layer on the equipment.

The data stated in the data sheet are restricted by this operating instruction!

The special conditions must be adhered to!

Installation, Commissioning

Laws and/or regulations and standards governing the use or intended usage goal must be observed. Each sensor circuit van be operated with the stated maximum values.

Maintenance

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

Repairs to these apparatus are not possible.

**Special conditions**Minimum series resistance  $R_V$ A minimum series resistance  $R_V$  is to be provided between the power supply voltage and the proximity switch in accordance with the following list. This can also be assured by using a switch amplifier.Maximum operating voltage  $U_{Bmax}$ The maximum permissible operating voltage  $U_{Bmax}$  must be restricted to the values given in the following list. Tolerances are not permitted.Maximum permissible ambient temperature  $T_{Umax}$ Values can be obtained from the following list, depending on the max. operating voltage  $U_b$  max and the minimum series resistance  $R_V$ .at  $U_{Bmax}=9\text{ V}$ ,  $R_V=562\ \Omega$ 

59 °C (138.2 °F)

using an amplifier in accordance with

59 °C (138.2 °F)

EN 60947-5-6

Plug connector

The plug connector must not be withdrawn under voltage. The proximity switch is identified as follows: "WARNING - DO NOT SEPARATE WHEN ENERGIZED". With the plug connector disconnected, soiling of the internal area must be prevented. (i.e. the area that is inaccessible when the connector is inserted)

The plug connection can only be separated using a tool. This is achieved by using the locking protection V1-Clip (Mounting accessory from Pepperl + Fuchs).

Protection from mechanical danger

The sensor must not be exposed to **ANY FORM** of mechanical danger.

Protection from UV light

The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas.

**ATEX 3G (nL)**

Instruction

**Device category 3G (nL)**

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  $U_i = 20\text{ V}$ for  $P_i=34\text{ mW}$ ,  $I_i=25\text{ mA}$ , T6for  $P_i=34\text{ mW}$ ,  $I_i=25\text{ mA}$ , T5for  $P_i=34\text{ mW}$ ,  $I_i=25\text{ mA}$ , T4-T1for  $P_i=64\text{ mW}$ ,  $I_i=25\text{ mA}$ , T6for  $P_i=64\text{ mW}$ ,  $I_i=25\text{ mA}$ , T5for  $P_i=64\text{ mW}$ ,  $I_i=25\text{ mA}$ , T4-T1for  $P_i=169\text{ mW}$ ,  $I_i=52\text{ mA}$ , T6for  $P_i=169\text{ mW}$ ,  $I_i=52\text{ mA}$ , T5for  $P_i=169\text{ mW}$ ,  $I_i=52\text{ mA}$ , T4-T1

Protection from mechanical danger

Protection from UV light

Connection parts

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 60079-15:2005 Ignition protection category "n"

Use is restricted to the following stated conditions


 II 3G Ex nL IIC T6 X

 $\leq 100\text{ nF}$  ; A cable length of 10 m is considered.  
The value is applicable for the sensor circuit.

 $\leq 100\text{ }\mu\text{H}$  ; A cable length of 10 m is considered.  
The value is applicable for the sensor circuit.

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 94/9/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 an energy-limited circuit, which satisfies the requirements of IEC 60079-15. 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.

Each sensor circuit can be operated with the stated maximum values.

64 °C (147.2 °F)

64 °C (147.2 °F)

64 °C (147.2 °F)

59 °C (138.2 °F)

59 °C (138.2 °F)

59 °C (138.2 °F)

41 °C (105.8 °F)

41 °C (105.8 °F)

41 °C (105.8 °F)

The sensor must not be exposed to **ANY FORM** of mechanical danger. When used in the temperature range below  $-20\text{ }^\circ\text{C}$  the sensor should be protected from knocks by the provision of an additional housing.

The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas.

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  $U_i = 20\text{ V}$ for  $P_i=34\text{ mW}$ ,  $I_i=25\text{ mA}$ , T6for  $P_i=34\text{ mW}$ ,  $I_i=25\text{ mA}$ , T5for  $P_i=34\text{ mW}$ ,  $I_i=25\text{ mA}$ , T4-T1for  $P_i=64\text{ mW}$ ,  $I_i=25\text{ mA}$ , T6for  $P_i=64\text{ mW}$ ,  $I_i=25\text{ mA}$ , T5for  $P_i=64\text{ mW}$ ,  $I_i=25\text{ mA}$ , T4-T1for  $P_i=169\text{ mW}$ ,  $I_i=52\text{ mA}$ , T6for  $P_i=169\text{ mW}$ ,  $I_i=52\text{ mA}$ , T5for  $P_i=169\text{ mW}$ ,  $I_i=52\text{ mA}$ , 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/EGEN 60079-11:2007 Ignition protection category "ic"  
Use is restricted to the following stated conditions

CE I

Ex II 3G Ex ic IIC T6 X

 $\leq 100\text{ nF}$  ; A cable length of 10 m is considered.

The value is applicable for the sensor circuit.

 $\leq 100\text{ }\mu\text{H}$  ; A cable length of 10 m is considered.

The value is applicable for the sensor circuit.

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.

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.

Each sensor circuit can be operated with the stated maximum values.

64 °C (147.2 °F)

64 °C (147.2 °F)

64 °C (147.2 °F)

59 °C (138.2 °F)

59 °C (138.2 °F)

59 °C (138.2 °F)

41 °C (105.8 °F)

41 °C (105.8 °F)

41 °C (105.8 °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.

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