**Technical Data**

**General specifications**
- Switching function: 2 x normally closed (NC)
- Output type: NAMUR
- Rated operating distance $s_{n}$: 3 mm
- Installation: flush mountable
- Assured operating distance $s_{a}$: 0.3 to 2.43 mm
- Actual operating distance $s_{r}$: 2.7 to 3.3 mm typ.
- Reduction factor $r_{Al}$: 0.5
- Reduction factor $r_{Cu}$: 0.4
- Reduction factor $r_{304}$: 1
- Reduction factor $r_{Brass}$: 0.63
- Reduction factor $r_{St37}$: 1.1
- Reduction factor $f_{brass}$: 0.63
- Output type: 2-wire

**Nominal ratings**
- Nominal voltage $U_{0}$: 8.2 V ($R_{i}$ approx. 1 kΩ)
- Switching frequency $f$: 0 to 1500 Hz
- Hysteresis $H$: typ. 5 %
- Reverse polarity protection: reverse polarity protected
- Short-circuit protection: yes
- Suitable for 2:1 technology: yes, Reverse polarity protection diode not required

**Design data**
- Current consumption: 3 mA
- Time delay before availability $t_{v}$: ≤ 1 ms
- Switching state indicator: LED, yellow

**Functional safety related parameters**
- MTTFd: 2070 a
- Mission Time ($T_{M}$): 20 a
- Diagnostic Coverage (DC): 0 %

**Ambient conditions**
- Ambient temperature: -25 to 100 °C (-13 to 212 °F)
- Storage temperature: -40 to 100 °C (-40 to 212 °F)

**Mechanical specifications**
- Connection type: Connector plug M12 x 1, 4-pin
- Housing material: PBT
- Sensing face: PBT
- Degree of protection: IP67
- Tightening torque, fastening screws: $M_{5} \times 25 \cdot 2.7$ 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:
  - 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 ≤36 V

**Accessories**
- BT32: Activator for F25 series
- BT32XS: Activator for F25 series
- BT32XAS: Activator for F25 series
- BT33: Activator for F25 series
- BT34: Activator for F25 series
- V1-G-N4-5M-PUR: Female cordset, M12, 4-pin, NAMUR, PUR cable

**Model Number**
NCN3-F25-N4-V1

**Features**
- Direct mounting on standard actuators
- EC-Type Examination Certificate TÜV99 ATEX 1479X

Refer to “General Notes Relating to Pepperl+Fuchs Product Information”.

Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776 4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com fa-info@us.pepperl-fuchs.com fa-info@de.pepperl-fuchs.com fa-info@sg.pepperl-fuchs.com
Inductive sensor

NCN3-F25-N4-V1

Dimensions

Electrical Connection

Equipment protection level Ga

<table>
<thead>
<tr>
<th>CE marking</th>
<th>C E 0102</th>
</tr>
</thead>
</table>

ATEX marking

II 1G Ex ia IIC T6...T1 Ga

The Ex-related marking can also be printed on the enclosed label.

Standards


Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

Appropriate type

NCN3-F25.-N4...

Effective internal inductivity $C_i$ ≤ 100 nF A cable length of 10 m is considered.

The value is applicable for one sensor circuit.

Effective internal inductance $L_i$ ≤ 100 µH A cable length of 10 m is considered.

The value is applicable for one sensor circuit.

Highest permissible ambient temperature

Depending on the temperature class, the temperature ranges can be taken from the EU-type examination certificate.

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

Special conditions

Equipment protection level Gb

<table>
<thead>
<tr>
<th>CE marking</th>
<th>C E 0102</th>
</tr>
</thead>
</table>

ATEX marking

II 1G Ex ia IIC T6...T1 Ga

The Ex-related marking can also be printed on the enclosed label.

Standards


Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

Appropriate type

NCN3-F25.-N4...

Effective internal inductivity $C_i$ ≤ 100 nF ; a cable length of 10 m is considered. The value is applicable for one sensor circuit.

Effective internal inductance $L_i$ ≤ 100 µH ; a cable length of 10 m is considered. The value is applicable for one sensor circuit.

Maximum permissible ambient temperature $T_{amb}$

Depending on the temperature class, the temperature ranges can be taken from the EU-type examination certificate.

Special conditions
Inductive sensor NCN3-F25-N4-V1

Equipment protection level Gc (ic)

Certificate PF 13 CERT 2895 X

CE marking E

ATEX marking Ex ic ic II 3G Ex ic IIC T6...T1 Gc


Ignition protection category "ic"

Use is restricted to the following stated conditions

Effective internal inductivity \( C_i \) \( \leq 100 \text{nF} \)

A cable length of 10 m is considered. The value applies to a sensor circuit.

Effective internal inductance \( L_i \) \( \leq 100 \text{µH} \)

A cable length of 10 m is considered. The value applies to a sensor circuit.

Special conditions

Maximum permissible ambient temperature \( T_{\text{Umax}} \)

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

at \( U_{\text{i}} = 20 \text{V} \)

for \( P_i=34 \text{ mW}, I_i=25 \text{ mA}, T_6 \)

64 °C (147.2 °F)

for \( P_i=34 \text{ mW}, I_i=25 \text{ mA}, T_5 \)

64 °C (147.2 °F)

for \( P_i=34 \text{ mW}, I_i=25 \text{ mA}, T_4-T_1 \)

64 °C (147.2 °F)

for \( P_i=64 \text{ mW}, I_i=25 \text{ mA}, T_6 \)

59 °C (138.2 °F)

for \( P_i=64 \text{ mW}, I_i=25 \text{ mA}, T_5 \)

59 °C (138.2 °F)

for \( P_i=64 \text{ mW}, I_i=25 \text{ mA}, T_4-T_1 \)

59 °C (138.2 °F)

for \( P_i=169 \text{ mW}, I_i=52 \text{ mA}, T_6 \)

41 °C (105.8 °F)

for \( P_i=169 \text{ mW}, I_i=52 \text{ mA}, T_5 \)

41 °C (105.8 °F)

for \( P_i=169 \text{ mW}, I_i=52 \text{ mA}, T_4-T_1 \)

41 °C (105.8 °F)

Equipment protection level Gc (nL)

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

Use is restricted to the following stated conditions

Effective internal capacitance \( C_i \)

\( \leq 100 \text{nF} \)

A cable length of 10 m is considered.

The value is applicable for one sensor circuit.

Effective internal inductance \( L_i \)

\( \leq 100 \text{µH} \)

A cable length of 10 m is considered.

The value is applicable for one sensor circuit.

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!

The ATEX Directive applies only to the use of apparatus under atmospheric conditions.

If you use the device outside atmospheric conditions, consider that the permissible safety parameters should be reduced.

Special conditions

Maximum permissible ambient temperature \( T_{\text{Umax}} \)

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

at \( U_{\text{i}} = 20 \text{V} \)

for \( P_i=34 \text{ mW}, I_i=25 \text{ mA}, T_6 \)

64 °C (147.2 °F)

for \( P_i=34 \text{ mW}, I_i=25 \text{ mA}, T_5 \)

64 °C (147.2 °F)

for \( P_i=34 \text{ mW}, I_i=25 \text{ mA}, T_4-T_1 \)

64 °C (147.2 °F)

for \( P_i=64 \text{ mW}, I_i=25 \text{ mA}, T_6 \)

59 °C (138.2 °F)

for \( P_i=64 \text{ mW}, I_i=25 \text{ mA}, T_5 \)

59 °C (138.2 °F)

for \( P_i=64 \text{ mW}, I_i=25 \text{ mA}, T_4-T_1 \)

59 °C (138.2 °F)

for \( P_i=169 \text{ mW}, I_i=52 \text{ mA}, T_6 \)

41 °C (105.8 °F)

for \( P_i=169 \text{ mW}, I_i=52 \text{ mA}, T_5 \)

41 °C (105.8 °F)

for \( P_i=169 \text{ mW}, I_i=52 \text{ mA}, T_4-T_1 \)

41 °C (105.8 °F)

Equipment protection level Dc

CE marking 0102

ATEX marking Ex d IIC T111 °C (231.8 °F) X

Standards EN 50281-1-1

Protection via housing

Use is restricted to the following stated conditions

Special conditions

Maximum heating (Temperature rise)

Values can be obtained from the following list, depending on the max. operating voltage \( U_{\text{b max}} \) and the minimum series resistance \( R_v \).

at \( U_{\text{b max}}=9 \text{ V}, R_v=562 \text{Ω} \)

11 K

using an amplifier in accordance with EN 60947- 11 K

5-6

Equipment protection level Dc (ID)

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!

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 permissible ambient temperature \( T_{\text{Umax}} \)

Values can be obtained from the following list, depending on the max. operating voltage \( U_{\text{b max}} \) and the minimum series resistance \( R_v \).

at \( U_{\text{b max}}=9 \text{ V}, R_v=562 \text{Ω} \)

59 °C (138.2 °F)

using an amplifier in accordance with EN 60947- 59 °C (138.2 °F)

5-6