





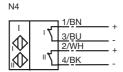
### **Model Number**

NCN3-F25-SN4-0,14

### **Features**

- For installation in housing
- Usable up to SIL 3 acc. to IEC 61508
- **EC-Type Examination Certificate** TÜV99 ATEX 1479X

# Connection



### **Accessories**

BT32

Activator for F25 series

BT32XS

Activator for F25 series

BT32XAS

Activator for F25 series

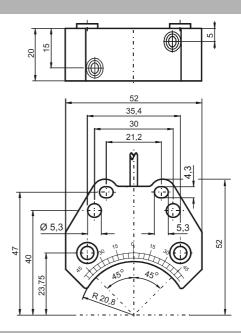
**BT33** 

Activator for F25 series

**BT34** 

Activator for F25 series

### **Dimensions**



# **Technical Data**

General	specifications
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Switching element function		DC	Dual NC
Rated operating distance	s <sub>n</sub>	3 mm	
Installation		flush m	ountable
Output polarity		Safety F	unction
Assured operating distance	sa	0 2.4	3 mm
Reduction factor r <sub>Al</sub>		0.38	
Reduction factor r <sub>Cu</sub>		0.43	
Reduction factor r <sub>304</sub>		1	
Reduction factor r <sub>St37</sub>		1.4	
Reduction factor r <sub>Brass</sub>		0.58	

Nominarratings							
Nominal voltage	Uo	8.2 V (R <sub>i</sub> approx. 1 kΩ)					
Operating voltage	$U_{B}$	5 25 V					
Switching frequency	f	0 1500 Hz					
Hysteresis	Н	typ. 5 %					
Reverse polarity protected		no					
Short-circuit protection		no					
Current consumption							

 $\geq$  3 mA Measuring plate not detected ≤ 1 mA

Measuring plate detected
Functional safety related parameters

MTTF<sub>d</sub> Mission Time (T<sub>M</sub>) 4180 a 20 a Diagnostic Coverage (DC)

**Ambient conditions** 

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

Mechanical specifications

cable PVC , 180 mm 0.14 mm<sup>2</sup> Connection type Core cross-section Housing material PRT Sensing face PBT Protection degree IP67

Tightening torque, fastening screws M5 x 25 : 2.7 Nm Note Installation in housing

General information

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

Category

Compliance with standards and directives Standard conformity

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

Approvals and certificates

FM approval 116-0165F Control drawing

UL approval cULus Listed, General Purpose CSA approval cCSAus Listed, General Purpose

CCC approval Products with a maximum operating voltage of ≤36 V do not bear a CCC marking because they do not require approval.

IEC 60947-5-2:2007

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#### ATEX 1G

Instruction

Device category 1G

Directive conformity

Standard conformity

CE symbol

Ex-identification

**EC-Type Examination Certificate** 

Appropriate type

Effective internal capacitance Ci

Effective internal inductance La

Cable length

Explosion group IIC

General

Highest permissible ambient temperature

Installation, Comissioning

Maintenance

### Special 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 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007

Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions

**C**€0102

⟨ы⟩ II 1G Ex ia IIC T6

TÜV 99 ATEX 1479 X

NCN3-F25.-SN4...

 $\leq$  100 nF A cable length of 10 m is considered.

The value is applicable for the sensor circuit.

 $\leq$  150  $\mu H$  A cable length of 10 m is considered. The value is applicable for the sensor circuit.

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

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  $^{\circ}$ 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 1127-1:2007 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.

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.

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 Ci

Effective internal inductance Li

General

Highest permissible ambient temperature

Installation, Comissioning

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

C € 0102

⟨ II 1G Ex ia IIC T6

TÜV 99 ATEX 1479 X

NCN3-F25.-SN4...

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

 $\leq$  150  $\mu H$  ; 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!

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.

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### ATEX 3G (nL)

Note

#### Instruction

### Device category 3G (nL)

Directive conformity Standard conformity

CE symbol

Ex-identification

Effective internal capacitance C

Effective internal inductance L

General

Installation, Comissioning

### Maintenance

#### Special conditions

Maximum permissible ambient temperature  $T_{Umax}$  at Ui = 20 V

for Pi=34 mW, Ii=25 mA, T6 for Pi=34 mW, Ii=25 mA, T5 for Pi=34 mW, Ii=25 mA, T4-T1 for Pi=64 mW, Ii=25 mA, T6 for Pi=64 mW, Ii=25 mA, T5 for Pi=64 mW li=25 mA T4-T1 for Pi=169 mW, Ii=52 mA, T6 for Pi=169 mW, Ii=52 mA, T5 for Pi=169 mW, Ii=52 mA, T4-T1

Protection from mechanical danger

This instruction is only valid for products according to EN 60079-15:2003, valid until

### Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

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

**C**€0102

### II 3G EEx nL IIC T6 X

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

 $\leq$  150  $\mu H$  ; 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 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 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 van be operated with the stated maximum values.

74 °C (165.2 °F) 89 °C (192.2 °F) 100 °C (212 °F) 69 °C (156.2 °F) 84 °C (183.2 °F) 100 °C (212 °F) 51 °C (123.8 °F) 66 °C (150.8 °F) 87 °C (188.6 °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.

### ATEX 3G (ic)

Instruction

### Device category 3G (ic)

Directive conformity Standard conformity

CE symbol

Ex-identification

Effective internal capacitance Ci

Effective internal inductance Li

General

Installation, Comissioning

Maintenance

#### Special conditions

Maximum permissible ambient temperature  $T_{Umax}$  at Ui = 20 V

for Pi=34 mW. Ii=25 mA. T6 for Pi=34 mW, Ii=25 mA, T5 for Pi=34 mW, Ii=25 mA, T4-T1 for Pi=64 mW, Ii=25 mA, T6 for Pi=64 mW, Ii=25 mA, T5 for Pi=64 mW, Ii=25 mA, T4-T1 for Pi=169 mW, Ii=52 mA, T6 for Pi=169 mW, Ii=52 mA, T5 for Pi=169 mW, Ii=52 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

EN 60079-11:2007 Ignition protection category "ic" Use is restricted to the following stated conditions **C**€0102

II 3G Ex ic IIC T6 X

≤ 100 nF; A cable length of 10 m is considered. The value is applicable for the sensor circuit.

 $\leq$  150  $\mu H$  ; 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 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 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 van be operated with the stated maximum values.

74 °C (165.2 °F) 89 °C (192.2 °F) 100 °C (212 °F) 69 °C (156.2 °F) 84 °C (183.2 °F) 100 °C (212 °F) 51 °C (123.8 °F) 66 °C (150.8 °F) 87 °C (188.6 °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.

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

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