



**Model Number**

**CBN5-F46-N1**

**Features**

- 5 mm non-flush
- Flat housing
- Mounting slots for cable ties

**Technical Data**

**General specifications**

Switching function	Normally open (NO)
Output type	NAMUR
Rated operating distance	$s_n$ 5 mm
Installation	non-flush
Assured operating distance	$s_a$ 0 ... 3.5 mm

**Nominal ratings**

<b>Installation conditions</b>	
B	0 mm
C	10 mm
F	40 mm / 60 mm
Nominal voltage	$U_o$ 8.2 V ( $R_i$ approx. 1 k $\Omega$ )
Switching frequency	$f$ 0 ... 10 Hz
Hysteresis	H 1 ... 10 typ. 5 %
<b>Current consumption</b>	
Measuring plate not detected	$\leq$ 1 mA
Measuring plate detected	$\geq$ 2.2 mA
Time delay before availability	$t_v$ $\leq$ 50 ms

**Ambient conditions**

Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)

**Mechanical specifications**

Connection type	cable PUR , 2 m
Core cross-section	0,14 mm <sup>2</sup>
Housing material	PBT
Sensing face	PBT
Degree of protection	IP67
<b>Cable</b>	
Bending radius	$>$ 10 x cable diameter

**General information**

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

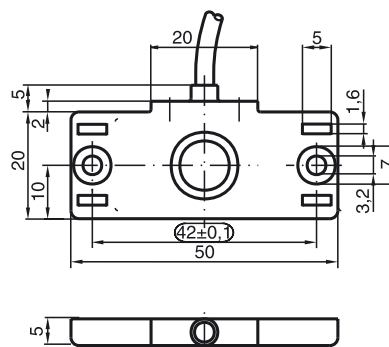
**Compliance with standards and directives**

<b>Standard conformity</b>	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

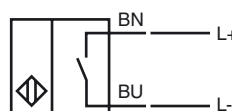
**Approvals and certificates**

<b>FM approval</b>	
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 $\leq$ 36 V

**Dimensions**

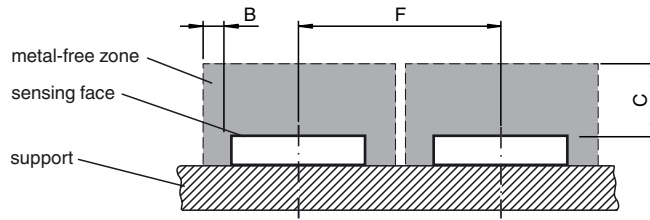


**Electrical Connection**



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Installation Conditions



Release date: 2016-11-08 17:27 Date of issue: 2016-11-08 106252\_eng.xml

**Equipment protection level Ga**

Instruction

Device category 1G

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

Standards

Appropriate type

Effective internal inductivity

C<sub>i</sub>

Effective internal inductance

L<sub>i</sub>

Cable length

Explosion group IIA

Explosion group IIB

Explosion group IIC

General

Ambient temperature

Installation, commissioning

Maintenance

**Special conditions**

Protection from mechanical danger

Electrostatic charge

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with gas, vapour and mist

TÜV 03 ATEX 2003 X

CE 0102

Ex II 1G Ex ia IIC T6 Ga

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

CBN5-F46-N...

≤ 45 nF ; a cable length of 10 m is considered.

negligibly small

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:

128 cm

64 cm

11 cm

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The EU-type examination certificate has to be observed. The special conditions must be adhered to! The ATEX directive and therefore the EU-type examination certificates are in general only applicable to the use of electrical apparatus operating at atmospheric conditions.

The use in ambient temperatures of &gt; 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 1127-1:2007 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.

**Equipment protection level Gb**

Instruction

**Device category 2G**

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

Standards

Appropriate type

Effective internal inductivity  $C_i$ Effective internal inductance  $L_i$ 

General

Maximum permissible ambient temperature  $T_{amb}$ 

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

TÜV 03 ATEX 2003 X

CE 0102

II 1G Ex ia IIC T6 Ga

94/9/EG

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

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

CBN5-F46-N...

 $\leq 45$  nF ; a cable length of 10 m is considered.

negligibly small

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 EU-type examination certificate has to be observed. The special conditions must be adhered to! The ATEX directive and therefore the EU-type examination certificates are in general only applicable to the use of electrical apparatus operating at 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 sensor must be mounted in such a way, that the sealing compound cannot become mechanically damaged.

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.

**Equipment protection level Da**

Instruction

**Device category 1D**

EC-Type Examination Certificate

CE marking

ATEX marking

Directive conformity

Standards

Appropriate type

Effective internal inductivity  $C_i$ Effective internal inductance  $L_i$ 

General

Maximum housing surface temperature

Installation, commissioning

Maintenance

**Special conditions**

Electrostatic charge

**Manual electrical apparatus for hazardous areas**

for use in hazardous areas with combustible dust

ZELM 03 ATEX 0128 X

CE 0102

II 1D Ex iaD 20 T 85 °C (185 °F)

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

CBN5-F46-N...

≤ 45 nF ; a cable length of 10 m is considered.

negligibly small

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 EU-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.

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.