



Model Number

NCB8-18GM40-N0-V1

Features

- 8 mm flush
- Usable up to SIL2 acc. to IEC 61508

Accessories

V1-W-N-2M-PUR

Female cordset, M12, 2-pin, NAMUR, PUR cable

V1-G

Female connector, M12, 4-pin, field attachable

V1-W

Female connector, M12, 4-pin, field attachable

EXG-18

Quick mounting bracket with dead stop

V1-G-N-2M-PUR

Female cordset, M12, 2-pin, NAMUR, PUR cable

BF 18

Mounting flange, 18 mm

Technical Data

General specifications

Switching element function	NAMUR, NC
Rated operating distance	s_n 8 mm
Installation	flush
Output polarity	NAMUR
Assured operating distance	s_a 0 ... 6.48 mm
Reduction factor r_{AI}	0.39
Reduction factor r_{Cu}	0.36
Reduction factor r_{304}	0.71

Nominal ratings

Nominal voltage	U_o 8.2 V (R_i approx. 1 k Ω)
Switching frequency	f 0 ... 1500 Hz
Hysteresis	H 1 ... 15 typ. 5 %
Reverse polarity protection	reverse polarity protected
Short-circuit protection	yes
Suitable for 2:1 technology	yes, Reverse polarity protection diode not required
Current consumption	
Measuring plate not detected	≥ 2.2 mA
Measuring plate detected	≤ 1 mA
Switching state indication	Multihole-LED, yellow

Functional safety related parameters

MTTF _d	2660 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Ambient conditions

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

Mechanical specifications

Connection type	Connector M12 x 1, 4-pin
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	PBT
Protection degree	IP67

General information

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

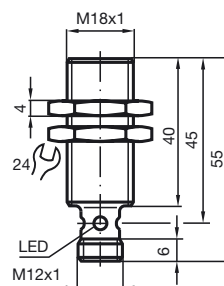
Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000 IEC 60947-5-6:1999
Electromagnetic compatibility	NE 21:2007
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

Approvals and certificates

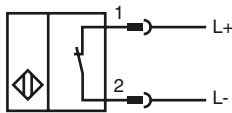
FM approval	
Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for products rated ≤ 36 V

Dimensions

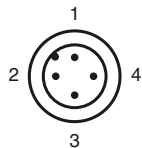




Electrical Connection



Pinout



Wire colors in accordance with EN 60947-5-6

1		BN	(brown)
2		BU	(blue)

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

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

94/9/EG

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

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

NCB8-18GM...-N0...

 $\leq 120 \text{ nF}$; a cable length of 10 m is considered. $\leq 50 \text{ }\mu\text{H}$; 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 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 $> 60 \text{ }^\circ\text{C}$ 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 $-20 \text{ }^\circ\text{C}$ 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

94/9/EG

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

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

NCB8-18GM...-N0...

≤ 120 nF ; a cable length of 10 m is considered.

≤ 50 μ 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 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.

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

Instruction**Device category 3G (nL)**

CE marking

ATEX marking

Directive conformity

Standard conformity

Effective internal capacitance C_i Effective internal inductance L_i

General

Installation, Commissioning

Maintenance

Specific conditionsMaximum 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

This instruction is only valid for products according to EN 60079-15:2003, valid until 31-May-2008

Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

CE 0102

Ⓔ II 3G EEx nL IIC T6 X The Ex-significant identification is on the enclosed adhesive label

94/9/EG

EN 60079-15:2003 Ignition protection category "n"

Use is restricted to the following stated conditions

 $\leq 120 nF$; a cable length of 10 m is considered. $\leq 50 \mu H$; 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 an energy-limited circuit, which satisfies the requirements of IEC 60079-15. The explosion group complies with the connected, supplying, power limiting 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.

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)

74 °C (165.2 °F)

39 °C (102.2 °F)

52 °C (125.6 °F)

52 °C (125.6 °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.

ATEX 3G (ic)

Instruction

Device category 3G (ic)

CE marking

ATEX marking

Directive conformity

Standards

Effective internal capacitance C_i Effective internal inductance L_i

General

Installation, Commissioning

Maintenance

Specific conditionsMaximum 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-T1for $P_i=242\text{ mW}$, $I_i=76\text{ mA}$, T6for $P_i=242\text{ mW}$, $I_i=76\text{ mA}$, T5for $P_i=242\text{ mW}$, $I_i=76\text{ mA}$, 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

CE 0102

Ex II 3G Ex ic IIC T6 Gc X

The Ex-significant identification is on the enclosed adhesive label

94/9/EG

EN 60079-0:2009, EN 60079-11:2007 Ignition protection category "ic"

Use is restricted to the following stated conditions

 $\leq 120\text{ nF}$; a cable length of 10 m is considered. $\leq 50\text{ }\mu\text{H}$; 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 complies with the connected, supplying, power limiting 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!

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