



Model Number

NCB8-18GM40-N0

Features

- 8 mm flush
- Usable up to SIL 2 acc. to IEC 61508

Accessories

EXG-18

Quick mounting bracket with dead stop

BF 18

Mounting flange, 18 mm

Technical Data

General specifications

| | | |
|----------------------------|-------|--------------------------|
| Switching function | | Normally closed (NC) |
| Output type | | NAMUR |
| Rated operating distance | s_n | 8 mm |
| Installation | | flush |
| Assured operating distance | s_a | 0 ... 6.48 mm |
| Actual operating distance | s_r | 7.2 ... 8.8 mm typ. 8 mm |
| Reduction factor r_{AI} | | 0.39 |
| Reduction factor r_{CU} | | 0.36 |
| Reduction factor r_{304} | | 0.71 |
| Output type | | 2-wire |

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 indicator | | all direction 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 | cable PVC, 2 m |
| Core cross-section | 0.75 mm ² |
| Housing material | Stainless steel 1.4305 / AISI 303 |
| Sensing face | PBT |
| Degree of protection | IP66 / IP67 |
| Cable | |
| Cable diameter | 6 mm \pm 0.2 mm |
| Bending radius | > 10 x cable diameter |

General information

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

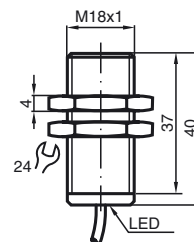
Compliance with standards and directives

| | |
|-------------------------------|---|
| Standard conformity | |
| NAMUR | EN 60947-5-6:2000 IEC 60947-5-6:1999 |
| Electromagnetic compatibility | NE 21:2007 |
| Standards | EN 60947-5-2:2007 EN 60947-5-2/A1:2012 IEC 60947-5-2:2007 IEC 60947-5-2 AMD 1:2012 |

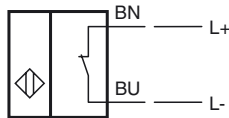
Approvals and certificates

| | |
|--------------------|--|
| EAC conformity | TR CU 012/2011 |
| FM approval | |
| Control drawing | 116-0165 |
| UL approval | |
| Ordinary Location | E87056 |
| Hazardous Location | E501628 |
| Control drawing | 116-0452 |
| CSA approval | cCSAus Listed, General Purpose |
| CCC approval | CCC approval / marking not required for products rated ≤ 36 V |

Dimensions



Electrical Connection



Equipment protection level Ga

| | | |
|--------------------------------|---|---|
| CE marking | CE 0102 | |
| ATEX marking | Ex II 1G Ex ia IIC T6...T1 Ga The Ex-related marking can also be printed on the enclosed label. | |
| Standards | EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions | |
| Appropriate type | NCB8-18GM...-N0... | |
| Effective internal capacitance | C_i | $\leq 120 \text{ nF}$; a cable length of 10 m is considered. |
| Effective internal inductance | L_i | $\leq 50 \text{ }\mu\text{H}$; a cable length of 10 m is considered. |
| Ambient temperature | Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EC-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. | |

Equipment protection level Gb

| | | |
|---|--|---|
| CE marking | CE 0102 | |
| ATEX marking | Ex II 1G Ex ia IIC T6...T1 Ga The Ex-significant identification is on the enclosed adhesive label | |
| Standards | EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions | |
| Appropriate type | NCB8-18GM...-N0... | |
| Effective internal capacitance | C_i | $\leq 120 \text{ nF}$; a cable length of 10 m is considered. |
| Effective internal inductance | L_i | $\leq 50 \text{ }\mu\text{H}$; a cable length of 10 m is considered. |
| Maximum permissible ambient temperature T_{amb} | Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the temperature class, and the effective internal reactance values can be found on the EC-type examination certificate. | |

Equipment protection level Gc (ic)

| | | |
|--------------------------------|--|---|
| Certificate | PF 13 CERT 2895 X | |
| CE marking | CE | |
| ATEX marking | Ex II 3G Ex ic IIC T6...T1 Gc The Ex-significant identification is on the enclosed adhesive label | |
| Standards | EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection category "ic" Use is restricted to the following stated conditions | |
| Effective internal capacitance | C_i | $\leq 120 \text{ nF}$; a cable length of 10 m is considered. |
| Effective internal inductance | L_i | $\leq 50 \text{ }\mu\text{H}$; A cable length of 10 m is considered. |

Special conditions

| | |
|--|------------------|
| for $P_i=34 \text{ mW}$, $I_i=25 \text{ mA}$, T6 | 55 °C (131 °F) |
| for $P_i=34 \text{ mW}$, $I_i=25 \text{ mA}$, T5 | 55 °C (131 °F) |
| for $P_i=34 \text{ mW}$, $I_i=25 \text{ mA}$, T4-T1 | 55 °C (131 °F) |
| for $P_i=64 \text{ mW}$, $I_i=25 \text{ mA}$, T6 | 55 °C (131 °F) |
| for $P_i=64 \text{ mW}$, $I_i=25 \text{ mA}$, T5 | 55 °C (131 °F) |
| for $P_i=64 \text{ mW}$, $I_i=25 \text{ mA}$, T4-T1 | 55 °C (131 °F) |
| for $P_i=169 \text{ mW}$, $I_i=52 \text{ mA}$, T6 | 41 °C (105.8 °F) |
| for $P_i=169 \text{ mW}$, $I_i=52 \text{ mA}$, T5 | 41 °C (105.8 °F) |
| for $P_i=169 \text{ mW}$, $I_i=52 \text{ mA}$, T4-T1 | 41 °C (105.8 °F) |
| for $P_i=242 \text{ mW}$, $I_i=76 \text{ mA}$, T6 | 29 °C (84.2 °F) |
| for $P_i=242 \text{ mW}$, $I_i=76 \text{ mA}$, T5 | 29 °C (84.2 °F) |
| for $P_i=242 \text{ mW}$, $I_i=76 \text{ mA}$, T4-T1 | 29 °C (84.2 °F) |

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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 | ≤ 120 nF ; a cable length of 10 m is considered. |
| Effective internal inductance L_i | ≤ 50 μ H ; A cable length of 10 m is considered. |
| 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

| | |
|--------------------------------------|------------------|
| for $P_i=34$ mW, $I_i=25$ mA, T6 | 55 °C (131 °F) |
| for $P_i=34$ mW, $I_i=25$ mA, T5 | 55 °C (131 °F) |
| for $P_i=34$ mW, $I_i=25$ mA, T4-T1 | 55 °C (131 °F) |
| for $P_i=64$ mW, $I_i=25$ mA, T6 | 55 °C (131 °F) |
| for $P_i=64$ mW, $I_i=25$ mA, T5 | 55 °C (131 °F) |
| for $P_i=64$ mW, $I_i=25$ mA, T4-T1 | 55 °C (131 °F) |
| for $P_i=169$ mW, $I_i=52$ mA, T6 | 41 °C (105.8 °F) |
| for $P_i=169$ mW, $I_i=52$ mA, T5 | 41 °C (105.8 °F) |
| for $P_i=169$ mW, $I_i=52$ mA, T4-T1 | 41 °C (105.8 °F) |
| for $P_i=242$ mW, $I_i=76$ mA, T6 | 29 °C (84.2 °F) |
| for $P_i=242$ mW, $I_i=76$ mA, T5 | 29 °C (84.2 °F) |
| for $P_i=242$ mW, $I_i=76$ mA, T4-T1 | 29 °C (84.2 °F) |

Equipment protection level Da

| | |
|---|--|
| CE marking | CE 0102 |
| ATEX marking | Ex II 1D Ex ia IIIC T135°C Da The Ex-related marking can also be printed on the enclosed label. |
| Standards | EN 60079-0:2012+A11:2013 EN 60079-11:2012 Ignition protection "Intrinsic safety" Use is restricted to the following stated conditions |
| Appropriate type | NCB8-18GM...-N0... |
| Effective internal capacitance C_i | ≤ 120 nF A cable length of 10 m is considered. |
| Effective internal inductance L_i | ≤ 50 μ H ; a cable length of 10 m is considered. |
| Maximum permissible ambient temperature T_{amb} | Details of the correlation between the type of circuit connected, the maximum permissible ambient temperature, the surface temperature, and the effective internal reactance values can be found on the EC-type-examination certificate. The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained. |

Equipment protection level Dc

| | |
|---|---|
| CE marking | CE 0102 |
| ATEX marking | Ex II 3D IP67 T 111 °C (231.8 °F) X The Ex-relevant identification may also be printed on the accompanying adhesive label. |
| 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_b max and the minimum series resistance R_v . |
| at $U_{Bmax}=9$ V, $R_v=562$ Ω | 11 K |
| using an amplifier in accordance with EN 60947- 11 K 5-6 | |

Equipment protection level Dc (tc)

| | |
|---|--|
| CE marking | CE 0102 |
| ATEX marking | Ex II 3D Ex tc IIIC T80°C Dc The Ex-related marking can also be printed on the enclosed label. |
| Standards | EN 60079-0:2012+A11:2013, EN 60079-31:2014 Protection by enclosure "tc" Some of the information in this instruction manual is more specific than the information provided in the datasheet. |
| General | The corresponding datasheets, declarations of conformity, EC-type examination certificates, certifications, and control drawings, where applicable (see datasheets), form an integral part of this document. These documents can be found at www.pepperl-fuchs.com . The maximum surface temperature of the device was determined without a layer of dust on the apparatus. Some of the information in this instruction manual is more specific than the information provided in the datasheet. |
| Special conditions | |
| 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 $U_{Bmax}=9$ V, $R_v=562$ Ω | 58 °C (136.4 °F) |
| using an amplifier in accordance with EN 60947- 58 °C (136.4 °F) 5-6 | |

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