



## Model Number

**NCB8-18GM40-N0-10M**

## Features

- **Comfort series**

## 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 V                        |
| Switching frequency          | $f$   | 0 ... 1500 Hz              |
| Hysteresis                   | $H$   | 1 ... 15 typ. 5 %          |
| Reverse polarity protection  |       | reverse polarity protected |
| Short-circuit protection     |       | yes                        |
| Current consumption          |       |                            |
| Measuring plate not detected |       | $\geq 2.2$ mA              |
| Measuring plate detected     |       | $\leq 1$ mA                |
| Switching state indicator    |       | all direction LED, yellow  |

### Functional safety related parameters

|                                |        |
|--------------------------------|--------|
| MTTF <sub>d</sub>              | 2660 a |
| Mission Time (T <sub>M</sub> ) | 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 , 10 m                  |
| Core cross-section   | 0.75 mm <sup>2</sup>              |
| Housing material     | Stainless steel 1.4305 / AISI 303 |
| Sensing face         | PBT                               |
| Degree of protection | 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      |

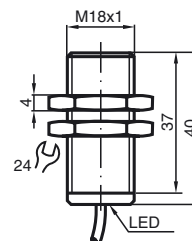
### Compliance with standards and directives

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

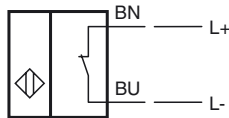
### Approvals and certificates

|                    |  |
|--------------------|--|
| 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 $\leq 36$ 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"<br>Use is restricted to the following stated conditions  |  |
| Appropriate type                     | NCB8-18GM...-N0...  |  |
| Effective internal capacitance $C_i$ | $\leq 120$ nF ; a cable length of 10 m is considered.   |  |
| Effective internal inductance $L_i$  | $\leq 50$ $\mu$ 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.<br><b>Note:</b> 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<br>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"<br>Use is restricted to the following stated conditions   |  |
| Appropriate type                                  | NCB8-18GM...-N0...   |  |
| Effective internal capacitance $C_i$              | $\leq 120$ nF ; a cable length of 10 m is considered.  |  |
| Effective internal inductance $L_i$               | $\leq 50$ $\mu$ 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<br>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 $C_i$ | $\leq 120$ nF ; a cable length of 10 m is considered.  |  |
| Effective internal inductance $L_i$  | $\leq 50$ $\mu$ H ; A cable length of 10 m is considered.  |  |

## 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)  |

Release date: 2019-12-03 13:27 Date of issue: 2019-12-03 204725\_eng.xml

**Equipment protection level Gc (nL)**

|                                      |  |
|--------------------------------------|--|
| Standard conformity                  | EN 60079-15:2005 Ignition protection category "n"<br>Use is restricted to the following stated conditions  |
| Effective internal capacitance $C_i$ | $\leq 120$ nF ; a cable length of 10 m is considered.  |
| Effective internal inductance $L_i$  | $\leq 50$ $\mu$ 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.<br>The data stated in the data sheet are restricted by this operating instruction!<br>The special conditions must be observed!<br>The ATEX Directive applies only to the use of apparatus under atmospheric conditions.<br>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"<br>Use is restricted to the following stated conditions   |
| Appropriate type                                  | NCB8-18GM...-N0...   |
| Effective internal capacitance $C_i$              | $\leq 120$ nF A cable length of 10 m is considered.  |
| Effective internal inductance $L_i$               | $\leq 50$ $\mu$ 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.<br><b>The maximum permissible ambient temperature of the data sheet must be noted, in addition, the lower of the two values must be maintained.</b> |

**Equipment protection level Dc**

|  |   |
|--|---|
| CE marking   | CE 0102   |
| ATEX marking   | Ex II 3D IP67 T 111 °C (231.8 °F) X<br>The Ex-relevant identification may also be printed on the accompanying adhesive label.               |
| Standards  | EN 50281-1-1<br>Protection via housing<br>Use is restricted to the following stated conditions  |
| <b>Special conditions</b>                            |   |
| 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, $R_v=562$ $\Omega$                | 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<br>The Ex-related marking can also be printed on the enclosed label.  |
| Standards  | EN 60079-0:2012+A11:2013, EN 60079-31:2014<br>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 <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> . 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. |
| <b>Special conditions</b>  |  |
| 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, $R_v=562$ $\Omega$                            | 61 °C (141.8 °F)   |
| using an amplifier in accordance with EN 60947- 61 °C (141.8 °F) |  |
| 5-6  |  |

Release date: 2019-12-03 13:27 Date of issue: 2019-12-03 204725\_eng.xml



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