



## Model Number

**NCB1,5-8GM25-N0-V1**

## Features

- 1.5 mm flush

## Accessories

### V1-G

Female connector, M12, 4-pin, field attachable

### V1-G-N-2M-PUR

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

### V1-W-N-2M-PUR

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

### BF 8

Mounting flange, 8 mm

### V1-W

Female connector, M12, 4-pin, field attachable

## Technical Data

### General specifications

|                            |                             |
|----------------------------|-----------------------------|
| Switching function         | Normally closed (NC)        |
| Output type                | NAMUR                       |
| Rated operating distance   | $s_n$ 1.5 mm                |
| Installation               | flush                       |
| Assured operating distance | $s_a$ 0 ... 1.215 mm        |
| Actual operating distance  | $s_r$ 1.35 ... 1.65 mm typ. |
| Reduction factor $r_{AI}$  | 0.22                        |
| Reduction factor $r_{CU}$  | 0.19                        |
| Reduction factor $r_{304}$ | 0.65                        |
| Output type                | 2-wire                      |

### Nominal ratings

|                              |                                                     |
|------------------------------|-----------------------------------------------------|
| Nominal voltage              | $U_o$ 8.2 V ( $R_i$ approx. 1 k $\Omega$ )          |
| Switching frequency          | $f$ 0 ... 2000 Hz                                   |
| Hysteresis                   | $H$ 1 ... 10 typ. 3 %                               |
| 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 | $\geq 3$ mA                                         |
| Measuring plate detected     | $\leq 1$ mA                                         |
| Switching state indicator    | Multihole-LED, yellow                               |

### Functional safety related parameters

|                          |        |
|--------------------------|--------|
| MTTF <sub>d</sub>        | 3430 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 plug M12 x 1, 4-pin     |
| Housing material     | Stainless steel 1.4305 / AISI 303 |
| Sensing face         | LCP                               |
| Degree of protection | IP67                              |

### General information

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

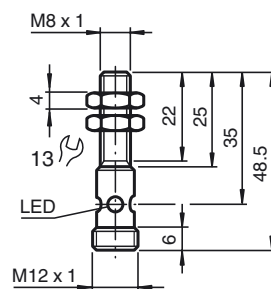
### Compliance with standards and directives

|                     |                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------|
| Standard conformity |                                                                                             |
| NAMUR               | EN 60947-5-6:2000<br>IEC 60947-5-6:1999                                                     |
| 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 |

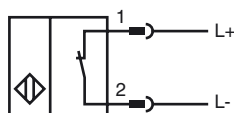
### Approvals and certificates

|                 |                                                                    |
|-----------------|--------------------------------------------------------------------|
| EAC conformity  | TR CU 012/2011                                                     |
| FM approval     |                                                                    |
| Control drawing | 116-0165                                                           |
| UL approval     | cULus Listed, General Purpose                                      |
| CSA approval    | cCSAus Listed, General Purpose                                     |
| CCC approval    | CCC approval / marking not required for products rated $\leq 36$ V |

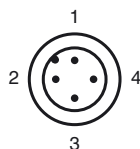
## Dimensions



## Electrical Connection



## Pinout



Wire colors in accordance with EN 60947-5-6

|   |    |         |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | BU | (blue)  |

### Equipment protection level Ga

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| CE marking                     | CE 0102                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                |
| ATEX marking                   | 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               | NCB1,5...M...N0...                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                |
| Effective internal capacitance | $C_i$                                                                                                                                                                                                                                                                                                                                                                                                                 | $\leq 90 \text{ nF}$ ; a cable length of 10 m is considered.   |
| Effective internal inductance  | $L_i$                                                                                                                                                                                                                                                                                                                                                                                                                 | $\leq 100 \mu\text{H}$ ; 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.<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                                      | 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                                  | NCB1,5...M...N0...                                                                                                                                                                                                                     |                                                                |
| Effective internal capacitance                    | $C_i$                                                                                                                                                                                                                                  | $\leq 90 \text{ nF}$ ; a cable length of 10 m is considered.   |
| Effective internal inductance                     | $L_i$                                                                                                                                                                                                                                  | $\leq 100 \mu\text{H}$ ; 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. |                                                                |

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**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 | $C_i$                                                                                                                            | $\leq 90 \text{ nF}$ ; a cable length of 10 m is considered.           |
| Effective internal inductance  | $L_i$                                                                                                                            | $\leq 100 \text{ }\mu\text{H}$ ; 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)  |

**Equipment protection level Da**

|                                                   |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                        |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| CE marking                                        | CE 0102                                                                                                                                                                                                                                                                                                                                                                                      |                                                                        |
| ATEX marking                                      | Ex II 1D Ex ia IIC 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                                  | NCB1,5...M...N0...                                                                                                                                                                                                                                                                                                                                                                           |                                                                        |
| Effective internal capacitance                    | $C_i$                                                                                                                                                                                                                                                                                                                                                                                        | $\leq 90 \text{ nF}$ ; a cable length of 10 m is considered.           |
| Effective internal inductance                     | $L_i$                                                                                                                                                                                                                                                                                                                                                                                        | $\leq 100 \text{ }\mu\text{H}$ ; 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 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> |                                                                        |