



**Model Number**

NJ40-FP-SN-P4

**Features**

- 40 mm non-flush

**Technical Data**

**General specifications**

|                            |                            |
|----------------------------|----------------------------|
| Switching function         | Normally closed (NC)       |
| Output type                | NAMUR with safety function |
| Rated operating distance   | $s_n$ 40 mm                |
| Installation               | non-flush                  |
| Assured operating distance | $s_a$ 0 ... 32.4 mm        |
| Reduction factor $r_{AI}$  | 0.4                        |
| Reduction factor $r_{Cu}$  | 0.3                        |
| Reduction factor $r_{304}$ | 0.85                       |
| Output type                | 2-wire                     |

**Nominal ratings**

|                              |       |                                      |
|------------------------------|-------|--------------------------------------|
| Nominal voltage              | $U_o$ | 8.2 V ( $R_i$ approx. 1 k $\Omega$ ) |
| Switching frequency          | $f$   | 0 ... 100 Hz                         |
| <b>Current consumption</b>   |       |                                      |
| Measuring plate not detected |       | $\geq 3$ mA                          |
| Measuring plate detected     |       | $\leq 1$ mA                          |

**Functional safety related parameters**

|                          |        |
|--------------------------|--------|
| MTTF <sub>d</sub>        | 7560 a |
| Mission Time ( $T_M$ )   | 20 a   |
| Diagnostic Coverage (DC) | 0 %    |

**Ambient conditions**

|                     |                                 |
|---------------------|---------------------------------|
| Ambient temperature | -40 ... 100 °C (-40 ... 212 °F) |
|---------------------|---------------------------------|

**Mechanical specifications**

|                      |   |
|----------------------|---|
| Connection type      | 1/2 NPT terminal compartment, wire cross-section $\leq 2.5$ mm <sup>2</sup> |
| Core cross-section   | up to 2.5 mm <sup>2</sup>   |
| Housing material     | PBT/metal   |
| Sensing face         | PBT   |
| Degree of protection | IP68  |

**General information**

|                           |                         |
|---------------------------|-------------------------|
| Use in the hazardous area | see instruction manuals |
|---------------------------|-------------------------|

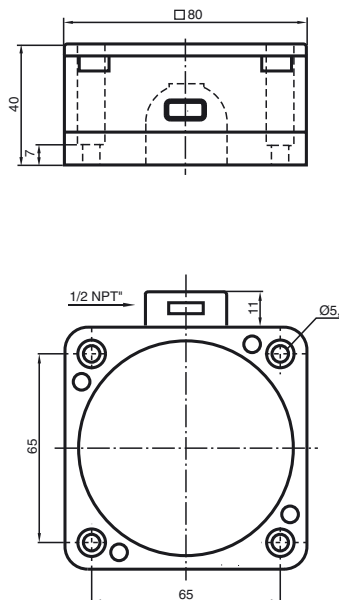
**Compliance with standards and directives**

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

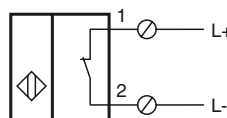
**Approvals and certificates**

|                 |  |
|-----------------|--|
| 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**



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**Data for application in connection with hazardous areas**

|  |   |   |
|--|---|---|
| Equipment protection level                               | Gb , Da , Mb  |   |
| <b>Equipment protection level Gb</b>                     |   |   |
| Type of protection                                       | intrinsic safety  |   |
| CE marking   | CE 0102   |   |
| <b>Certificates</b>                                      |   |   |
| Appropriate type   | NJ 40-FP-SN...  |   |
| ATEX certificate   | PTB 00 ATEX 2049 X  |   |
| ATEX marking   | Ex II 2G Ex ia IIC T6...T1 Gb   |   |
| Standards  | EN 60079-0:2012+A11:2013 , EN 60079-11:2012   |   |
| IECEX certificate  | IECEX PTB 11.0092X  |   |
| IECEX marking  | Ex ia IIC T6...T1 Gb  |   |
| Standards  | IEC 60079-0:2011 , IEC 60079-11:2011  |   |
| Effective internal capacitance                           | $C_i$   | $\leq 370 \text{ nF}$<br>A cable length of 10 m is considered.          |
| Effective internal inductance                            | $L_i$   | $\leq 300 \text{ }\mu\text{H}$<br>A cable length of 10 m is considered. |
| Maximum permissible ambient temperature $T_{\text{amb}}$ | Also observe the maximum permissible ambient temperature stated in the general technical data.<br>Keep to the lower of the two values.<br>at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 34 \text{ mW}$ ,<br>T6 : 73 °C (163.4 °F)<br>T5 : 88 °C (190.4 °F)<br>T4 : 100 °C (212 °F)<br>T3 : 100 °C (212 °F)<br>T2 : 100 °C (212 °F)<br>T1 : 100 °C (212 °F)<br>at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 64 \text{ mW}$ ,<br>T6 : 66 °C (150.8 °F)<br>T5 : 81 °C (177.8 °F)<br>T4 : 100 °C (212 °F)<br>T3 : 100 °C (212 °F)<br>T2 : 100 °C (212 °F)<br>T1 : 100 °C (212 °F)<br>at $U_i = 16 \text{ V}$ , $I_i = 52 \text{ mA}$ , $P_i = 169 \text{ mW}$ ,<br>T6 : 45 °C (113 °F)<br>T5 : 60 °C (140 °F)<br>T4 : 89 °C (192.2 °F)<br>T3 : 89 °C (192.2 °F)<br>T2 : 89 °C (192.2 °F)<br>T1 : 89 °C (192.2 °F)<br>at $U_i = 16 \text{ V}$ , $I_i = 76 \text{ mA}$ , $P_i = 242 \text{ mW}$ ,<br>T6 : 30 °C (86 °F)<br>T5 : 45 °C (113 °F)<br>T4 : 74 °C (165.2 °F)<br>T3 : 74 °C (165.2 °F)<br>T2 : 74 °C (165.2 °F)<br>T1 : 74 °C (165.2 °F) |   |

**Equipment protection level Da**

|  |  |   |
|--|--|---|
| Type of protection                                       | intrinsic safety   |   |
| CE marking   | CE 0102  |   |
| <b>Certificates</b>                                      |  |   |
| Appropriate type   | NJ 40-FP-SN...   |   |
| ATEX certificate   | PTB 00 ATEX 2049 X   |   |
| ATEX marking   | Ex II 1D Ex ia IIIC T135°C Da  |   |
| Standards  | EN 60079-0:2012+A11:2013 , EN 60079-11:2012  |   |
| IECEX certificate  | IECEX PTB 11.0092X   |   |
| IECEX marking  | Ex ia IIIC T135°C Da   |   |
| Standards  | IEC 60079-0:2011 , IEC 60079-11:2011   |   |
| Effective internal capacitance                           | $C_i$  | $\leq 370 \text{ nF}$<br>A cable length of 10 m is considered.          |
| Effective internal inductance                            | $L_i$  | $\leq 300 \text{ }\mu\text{H}$<br>A cable length of 10 m is considered. |
| Maximum permissible ambient temperature $T_{\text{amb}}$ | Also observe the maximum permissible ambient temperature stated in the general technical data.<br>Keep to the lower of the two values.<br>at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 34 \text{ mW}$ : 100 °C (212 °F)<br>at $U_i = 16 \text{ V}$ , $I_i = 25 \text{ mA}$ , $P_i = 64 \text{ mW}$ : 100 °C (212 °F)<br>at $U_i = 16 \text{ V}$ , $I_i = 52 \text{ mA}$ , $P_i = 169 \text{ mW}$ : 89 °C (192.2 °F)<br>at $U_i = 16 \text{ V}$ , $I_i = 76 \text{ mA}$ , $P_i = 242 \text{ mW}$ : 74 °C (165.2 °F) |   |

**Equipment protection level Mb**

|                                |                                      |   |
|--------------------------------|--------------------------------------|---|
| Type of protection             | intrinsic safety                     |   |
| <b>Certificates</b>            |                                      |   |
| Appropriate type               | NJ 40-FP-SN...                       |   |
| IECEX certificate              | IECEX PTB 11.0092X                   |   |
| IECEX marking                  | Ex ia I Mb                           |   |
| Standards                      | IEC 60079-0:2011 , IEC 60079-11:2011 |   |
| Effective internal capacitance | $C_i$                                | $\leq 370 \text{ nF}$<br>A cable length of 10 m is considered.          |
| Effective internal inductance  | $L_i$                                | $\leq 300 \text{ }\mu\text{H}$<br>A cable length of 10 m is considered. |

Maximum permissible ambient temperature  $T_{amb}$

Also observe the maximum permissible ambient temperature stated in the general technical data.  
Keep to the lower of the two values.

at  $U_i = 16\text{ V}$ ,  $I_i = 25\text{ mA}$ ,  $P_i = 34\text{ mW}$  :  $100\text{ °C}$  ( $212\text{ °F}$ )

at  $U_i = 16\text{ V}$ ,  $I_i = 25\text{ mA}$ ,  $P_i = 64\text{ mW}$  :  $100\text{ °C}$  ( $212\text{ °F}$ )

at  $U_i = 16\text{ V}$ ,  $I_i = 52\text{ mA}$ ,  $P_i = 169\text{ mW}$  :  $89\text{ °C}$  ( $192.2\text{ °F}$ )

at  $U_i = 16\text{ V}$ ,  $I_i = 76\text{ mA}$ ,  $P_i = 242\text{ mW}$  :  $74\text{ °C}$  ( $165.2\text{ °F}$ )