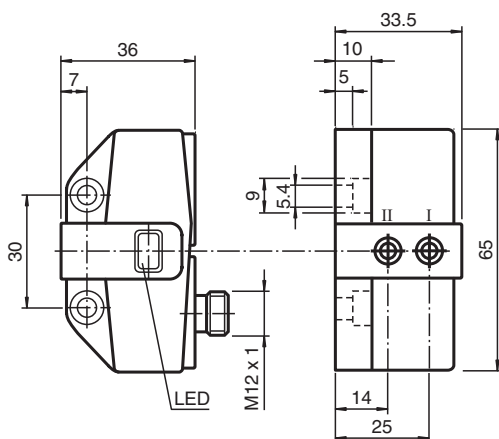


## Inductive sensor NBN3-F31-E8-V1

- Direct mounting on standard actuators
- Fixed setting



### Dimensions



### Technical Data

#### General specifications

|                             |       |                        |
|-----------------------------|-------|------------------------|
| Switching function          |       | 2 x normally open (NO) |
| Output type                 |       | PNP                    |
| Rated operating distance    | $s_n$ | 3 mm                   |
| Installation                |       | flush mountable        |
| Output polarity             |       | DC                     |
| Assured operating distance  | $s_a$ | 0 ... 2.43 mm          |
| Actual operating distance   | $s_r$ | 2.7 ... 3.3 mm typ.    |
| Reduction factor $r_{AI}$   |       | 0.5                    |
| Reduction factor $r_{Cu}$   |       | 0.4                    |
| Reduction factor $r_{304}$  |       | 1                      |
| Reduction factor $r_{St37}$ |       | 1.2                    |
| Output type                 |       | 3-wire                 |

#### Nominal ratings

|                     |       |                |
|---------------------|-------|----------------|
| Operating voltage   | $U_B$ | 10 ... 30 V DC |
| Switching frequency | $f$   | 0 ... 500 Hz   |
| Hysteresis          | $H$   | typ. 5 %       |

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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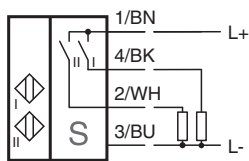
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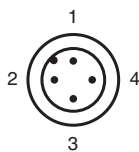
## Technical Data

|                                                 |       |                                                                                             |
|-------------------------------------------------|-------|---------------------------------------------------------------------------------------------|
| Reverse polarity protection                     |       | all connections                                                                             |
| Short-circuit protection                        |       | pulsing                                                                                     |
| Voltage drop                                    | $U_d$ | $\leq 3\text{ V}$                                                                           |
| Operating current                               | $I_L$ | 0 ... 100 mA                                                                                |
| Off-state current                               | $I_r$ | 0 ... 0.5 mA typ. 0.1 $\mu\text{A}$ at 25 °C                                                |
| No-load supply current                          | $I_0$ | $\leq 25\text{ mA}$                                                                         |
| Operating voltage indicator                     |       | LED, green                                                                                  |
| Switching state indicator                       |       | LED, yellow                                                                                 |
| <b>Functional safety related parameters</b>     |       |                                                                                             |
| MTTF <sub>d</sub>                               |       | 780 a                                                                                       |
| Mission Time (T <sub>M</sub> )                  |       | 20 a                                                                                        |
| Diagnostic Coverage (DC)                        |       | 0 %                                                                                         |
| <b>Compliance with standards and directives</b> |       |                                                                                             |
| Standard conformity                             |       |                                                                                             |
| 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 |
| <b>Approvals and certificates</b>               |       |                                                                                             |
| UL approval                                     |       | cULus Listed, General Purpose                                                               |
| CCC approval                                    |       | CCC approval / marking not required for products rated $\leq 36\text{ V}$                   |
| <b>Ambient conditions</b>                       |       |                                                                                             |
| Ambient temperature                             |       | -25 ... 70 °C (-13 ... 158 °F)                                                              |
| <b>Mechanical specifications</b>                |       |                                                                                             |
| Connection (system side)                        |       | 4-pin, M12 x 1 connector                                                                    |
| Connector housing                               |       | metal                                                                                       |
| Housing material                                |       | PBT                                                                                         |
| Sensing face                                    |       | PBT                                                                                         |
| Degree of protection                            |       | IP67                                                                                        |
| Tightening torque, fastening screws             |       | 4 Nm ... 5 Nm                                                                               |

## Connection



## Connection Assignment



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## Connection Assignment

Wire colors in accordance with EN 60947-5-2

|   |  |    |         |
|---|--|----|---------|
| 1 |  | BN | (brown) |
| 2 |  | WH | (white) |
| 3 |  | BU | (blue)  |
| 4 |  | BK | (black) |