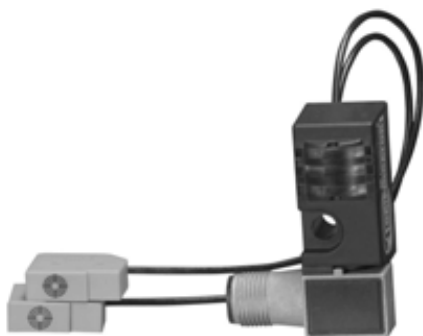




## Model Number

NBN2-F581-160S6-E10-V1

## Features

- Basic series
- Extremely bright triple luminous band indication
- M12 plug with safety screw assembly adjustable in 45° grid
- For use in direct- and alternating-field welding systems
- Completely halogen and silicon free

## Technical Data

### General specifications

|                            |       |                        |
|----------------------------|-------|------------------------|
| Switching function         |       | 2 x normally open (NO) |
| Output type                |       | NPN                    |
| Rated operating distance   | $s_n$ | 2 mm                   |
| Installation               |       | non-flush              |
| Output polarity            |       | DC                     |
| Assured operating distance | $s_a$ | 0 ... 1.62 mm          |
| Reduction factor $r_{AI}$  |       | 0.35                   |
| Reduction factor $r_{CU}$  |       | 0.3                    |
| Reduction factor $r_{304}$ |       | 0.7                    |
| Output type                |       | 4-wire                 |

### Nominal ratings

|                             |       |                                                                                    |
|-----------------------------|-------|------------------------------------------------------------------------------------|
| Operating voltage           | $U_B$ | 10 ... 30 V DC                                                                     |
| Switching frequency         | $f$   | 0 ... 25 Hz                                                                        |
| Hysteresis                  | $H$   | 3 ... 20 % 5 typ.                                                                  |
| Reverse polarity protection |       | yes                                                                                |
| Short-circuit protection    |       | pulsing                                                                            |
| Voltage drop                | $U_d$ | $\leq 3$ V DC                                                                      |
| Operating current           | $I_L$ | 0 ... 100 mA                                                                       |
| Off-state current           | $I_r$ | $\leq 10$ $\mu$ A                                                                  |
| No-load supply current      | $I_0$ | $\leq 35$ mA                                                                       |
| Constant magnetic field     | $B$   | 100 mT                                                                             |
| Alternating magnetic field  | $B$   | 100 mT                                                                             |
| Operating voltage indicator |       | LED green                                                                          |
| Switching state indicator   |       | switching state "close" = LED red (S2)<br>switching state "open" = LED yellow (S1) |

### Functional safety related parameters

|                                |        |
|--------------------------------|--------|
| MTTF <sub>d</sub>              | 1445 a |
| Mission Time (T <sub>M</sub> ) | 20 a   |
| Diagnostic Coverage (DC)       | 0 %    |

### Ambient conditions

|                     |                                |
|---------------------|--------------------------------|
| Ambient temperature | -25 ... 70 °C (-13 ... 158 °F) |
| Storage temperature | -40 ... 85 °C (-40 ... 185 °F) |

### Mechanical specifications

|                               |                                                     |
|-------------------------------|-----------------------------------------------------|
| Connection type               | Connector plug M12 x 1, 4-pin                       |
| Flexible lead, housing-sensor | 160 mm $\pm$ 5 mm, PUR (halogen-free)               |
| Housing material              | amplifier; PBT, PA6 + GD-ZN AL4<br>oscillators; PBT |
| Degree of protection          | IP67                                                |

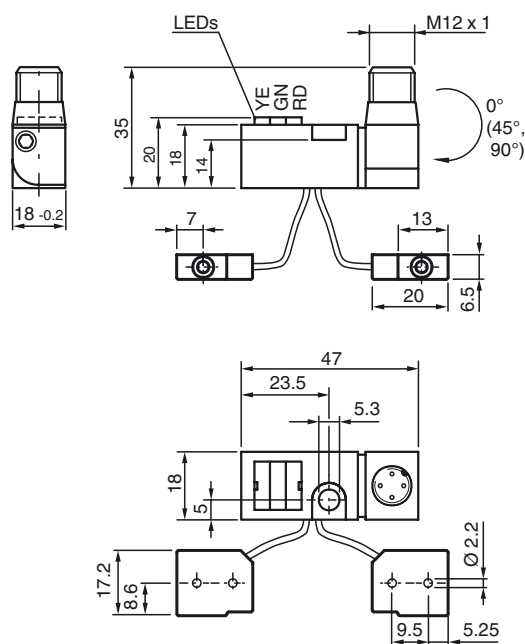
### Compliance with standards and directives

|                     |                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------|
| 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 |

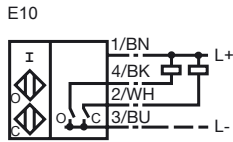
### Approvals and certificates

|              |                                                                    |
|--------------|--------------------------------------------------------------------|
| UL approval  | cULus Listed, General Purpose                                      |
| CCC approval | CCC approval / marking not required for products rated $\leq 36$ V |

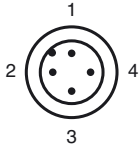
## Dimensions



### Electrical Connection



### Pinout



Wire colors in accordance with EN 60947-5-2

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