



## Inductive sensor

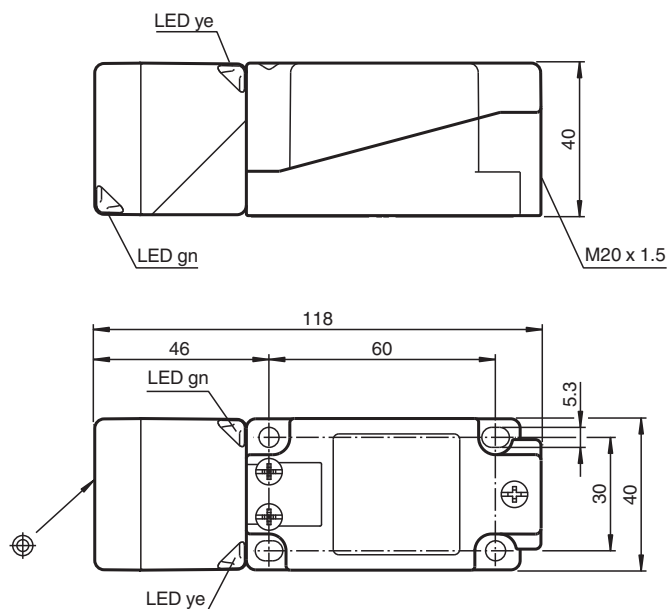
### NRN40-U1-A2

- Sensor head bidirectional and rotatable
- 40 mm non-flush
- Reduction factor = 1
- Magnetic field resistant
- 4 LEDs indicator for 360° visibility

## Inductive sensor



## Dimensions



## Technical Data

### General specifications

|                             |       |               |
|-----------------------------|-------|---------------|
| Switching function          |       | complementary |
| Output type                 |       | PNP           |
| Rated operating distance    | $s_n$ | 40 mm         |
| Installation                |       | non-flush     |
| Output polarity             |       | DC            |
| Assured operating distance  | $s_a$ | 0 ... 32.4 mm |
| Actual operating distance   | $s_r$ | 36 ... 44 mm  |
| Reduction factor $r_{Al}$   |       | 1             |
| Reduction factor $r_{Cu}$   |       | 1             |
| Reduction factor $r_{304}$  |       | 1             |
| Reduction factor $r_{S137}$ |       | 1             |
| Output type                 |       | 4-wire        |

## Technical Data

### Nominal ratings

|                                |       |                            |
|--------------------------------|-------|----------------------------|
| Operating voltage              | $U_B$ | 10 ... 30 V DC             |
| Switching frequency            | $f$   | 0 ... 180 Hz               |
| Hysteresis                     | $H$   | 2 ... 15 %                 |
| Reverse polarity protection    |       | reverse polarity protected |
| Short-circuit protection       |       | pulsing                    |
| Voltage drop                   | $U_d$ | $\leq 2.5$ V               |
| Operating current              | $I_L$ | 0 ... 200 mA               |
| Off-state current              | $I_r$ | 0 ... 0.5 mA typ. 0.01 mA  |
| No-load supply current         | $I_0$ | $\leq 25$ mA               |
| Time delay before availability | $t_v$ | 15 ms                      |
| Constant magnetic field        | $B$   | 200 mT                     |
| Alternating magnetic field     | $B$   | 200 mT                     |
| Operating voltage indicator    |       | LED, green                 |
| Switching state indicator      |       | LED, yellow                |

### Functional safety related parameters

|                          |  |        |
|--------------------------|--|--------|
| MTTF <sub>d</sub>        |  | 1123 a |
| Mission Time ( $T_M$ )   |  | 20 a   |
| Diagnostic Coverage (DC) |  | 0 %    |

### Compliance with standards and directives

|                     |  |                  |
|---------------------|--|------------------|
| Standard conformity |  |                  |
| Standards           |  | EN IEC 60947-5-2 |

### Approvals and certificates

|                                 |           |                                                                                                                                                                                         |
|---------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protection class                |           | II                                                                                                                                                                                      |
| Rated insulation voltage        | $U_i$     | 60 V                                                                                                                                                                                    |
| Rated impulse withstand voltage | $U_{imp}$ | 800 V                                                                                                                                                                                   |
| UL approval                     |           | cULus Listed<br>Load Type: General Purpose<br>Circuitry: Class 2 Power Source<br>Enclosure Type Rating: Type 1<br>Supply/Switching Voltage: 30 V DC<br>Output Switching Current: 200 mA |
| CCC approval                    |           | CCC approval / marking not required for products rated $\leq 36$ V                                                                                                                      |

### Ambient conditions

|                     |  |                                |
|---------------------|--|--------------------------------|
| Ambient temperature |  | -40 ... 85 °C (-40 ... 185 °F) |
| Storage temperature |  | -40 ... 85 °C (-40 ... 185 °F) |

### Mechanical specifications

|                            |  |                                                                                                                                            |
|----------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------|
| Connection type            |  | screw terminals                                                                                                                            |
| Information for connection |  | A maximum of two conductors with the same core cross section may be mounted on one terminal connection!<br>tightening torque 1.2 Nm + 10 % |
| Core cross section         |  | up to 2.5 mm <sup>2</sup>                                                                                                                  |
| Minimum core cross-section |  | without wire end ferrules 0.5 mm <sup>2</sup> , with connector sleeves 0.34 mm <sup>2</sup>                                                |
| Maximum core cross-section |  | without wire end ferrules 2.5 mm <sup>2</sup> , with connector sleeves 1.5 mm <sup>2</sup>                                                 |
| Housing material           |  | PA/metal with epoxy powder coating                                                                                                         |
| Sensing face               |  | PA 6 Grivory GVN-35H                                                                                                                       |
| Housing base               |  | plastic                                                                                                                                    |
| Degree of protection       |  | IP67                                                                                                                                       |
| Mass                       |  | 225 g                                                                                                                                      |
| Dimensions                 |  |                                                                                                                                            |
| Height                     |  | 40 mm                                                                                                                                      |
| Width                      |  | 40 mm                                                                                                                                      |
| Length                     |  | 118 mm                                                                                                                                     |
| Note                       |  | Tightening torque: 1.8 Nm (housing)                                                                                                        |

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## Connection Assignment

