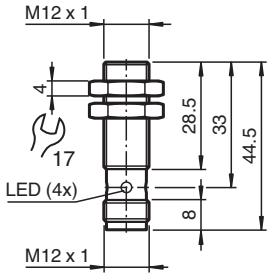


# Inductive sensor

## NBB4-12GM30-E2-V1

- Use in harsh environments
- High shock resistance
- Extended temperature range -40 ... +85 °C
- Extended operating voltage range
- Extremely high switching frequency

## Dimensions




## Technical Data

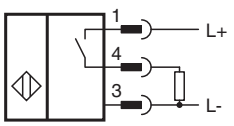
| | | |
|---|---|---|
| **General specifications** | | |
| Switching function | | Normally open (NO) |
| Output type | | PNP |
| Rated operating distance | $s_n$ | 4 mm |
| Installation | | flush |
| Output polarity | | DC |
| Assured operating distance | $s_a$ | 0 ... 3.24 mm |
| Actuating element | | mild steel, e. g. 1.0037, SR235JR (formerly St37-2)<br>12 mm x 12 mm x 1 mm |
| Reduction factor $r_{Al}$ | | 0.4 |
| Reduction factor $r_{Cu}$ | | 0.35 |
| Reduction factor $r_{304}$ | | 0.79 |
| Reduction factor $r_{Brass}$ | | 0.49 |
| Output type | | 3-wire |
| **Nominal ratings** | | |
| Operating voltage | $U_B$ | 6 ... 36 V |
| Switching frequency | f | 0 ... 2550 Hz |
| Hysteresis | H | typ. 5 % |
| Reverse polarity protection | | reverse polarity protected |
| Short-circuit protection | | pulsing |
| Voltage drop | $U_d$ | ≤ 1 V |
| Operating current | $I_L$ | 0 ... 200 mA |
| Off-state current | $I_r$ | max. 20 µA |

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## Technical Data

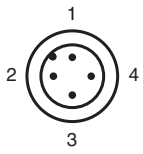
| | | |
|---|---|---|
| No-load supply current | $I_0$ | ≤ 10 mA |
| Time delay before availability | $t_v$ | ≤ 10 ms |
| Switching state indicator | | Multihole-LED, yellow |
| **Safety-relevant product characteristics** | | |
| $MTTF_d$ | | 1607 a |
| Mission Time ($T_M$) | | 20 a |
| Diagnostic Coverage (DC) | | 0 % |
| **Conformity** | | |
| PWIS conformity | | VDMA 24364-A1/B2/C1/T100°C-W |
| **Compliance with standards and directives** | | |
| Standard conformity | | |
| Standards | | EN IEC 60947-5-2 |
| **Approvals and certificates** | | |
| Protection class | | II |
| Rated insulation voltage | $U_i$ | 36 V |
| Rated impulse withstand voltage | $U_{imp}$ | 500 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: 36 V DC<br>Output Switching Current: 200 mA |
| CCC approval | | CCC approval / marking not required for products rated ≤36 V |
| Marine approval | | DNVGL TAA00003AK |
| **Ambient conditions** | | |
| Ambient temperature | | -40 ... 85 °C (-40 ... 185 °F) |
| Storage temperature | | -40 ... 85 °C (-40 ... 185 °F) |
| **Mechanical specifications** | | |
| Connection type | | Connector plug |
| Housing material | | brass , white bronze coated |
| Sensing face | | PBT , green |
| Degree of protection | | IP65 / IP66 / IP67 / IP68 / IP69 |
| Connector | | |
| Threading | | M12 x 1 |
| Number of pins | | 3 |
| Mass | | 23 g |
| Dimensions | | |
| Length | | 44.5 mm |
| Diameter | | 12 mm |
| Mounting | | with nuts, M12 |
| Tightening torque | | ≤ 10 Nm |
| **General information** | | |
| Scope of delivery | | 2 self locking nuts in scope of delivery |

## Connection Assignment




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## Connection Assignment



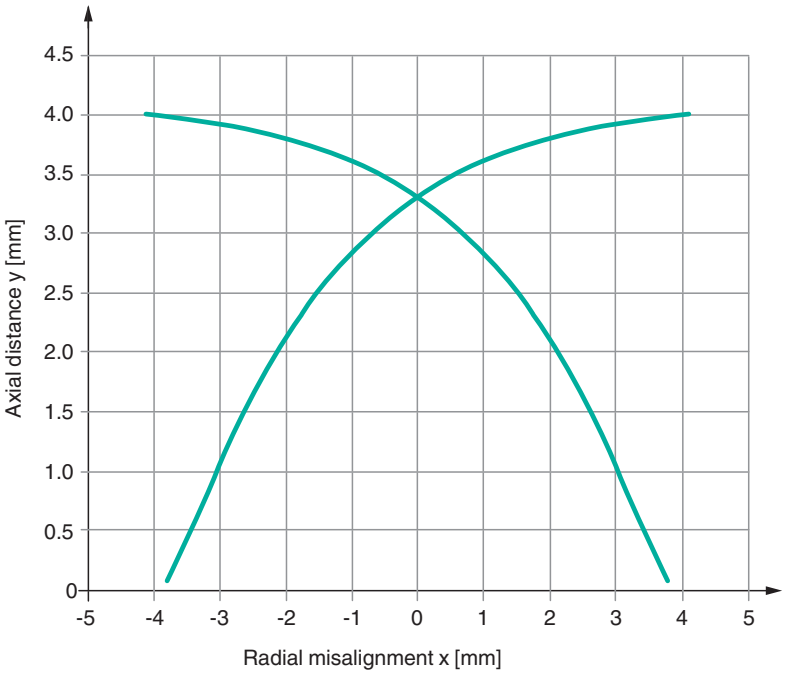

Wire colors in accordance with EN 60947-5-2

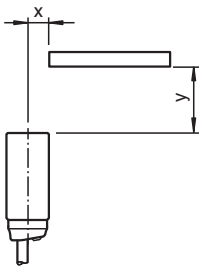
| | | |
|---|---|---|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue) |
| 4 | BK | (black) |

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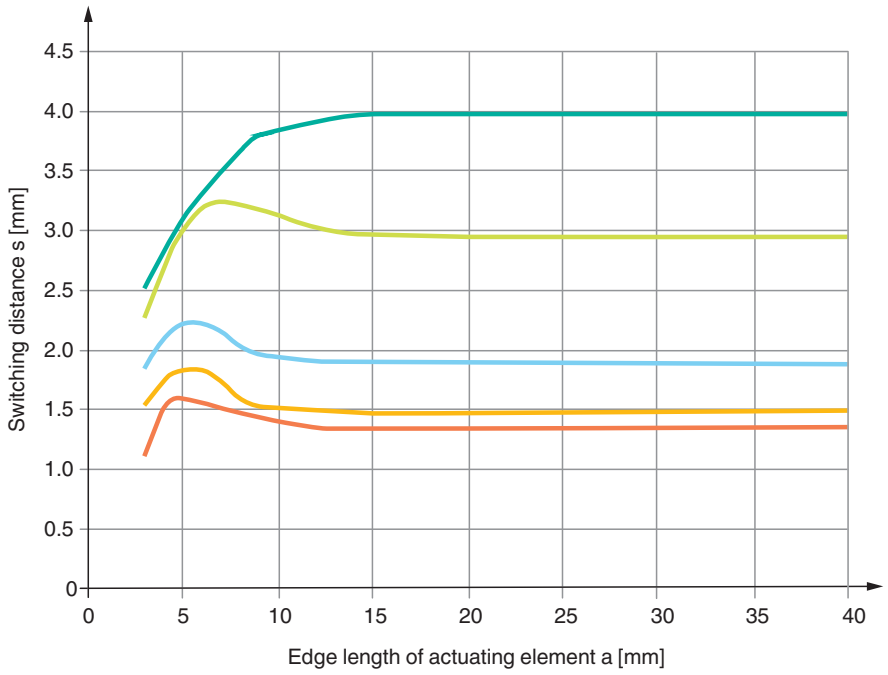
## Characteristic Curve

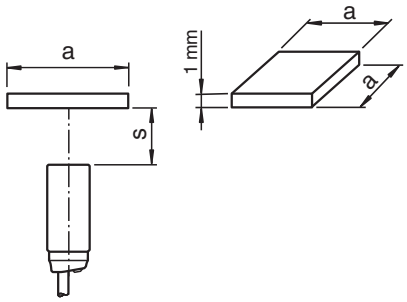
### Actuation by radial approach (standard target)




### Switching distance depending on the actuating element







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