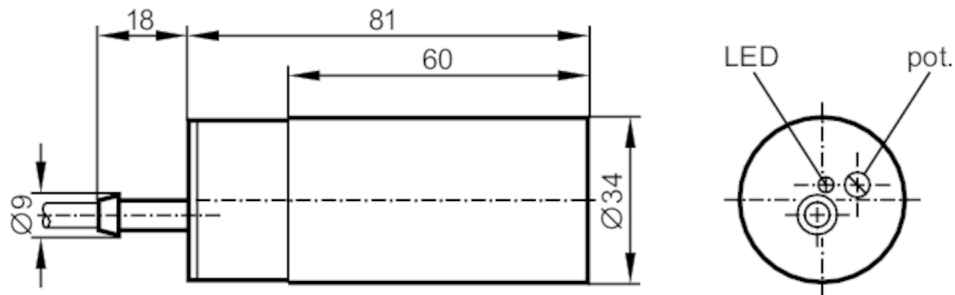


## Capacitive sensor

KB-2020-BBOA/NI



## Product characteristics

|                 |      |                 |
|-----------------|------|-----------------|
| Output function |      | normally closed |
| Sensing range   | [mm] | 3...20          |
| Housing         |      | cylindrical     |
| Dimensions      | [mm] | Ø 34 / L = 81   |

## Electrical data

|                             |     |                |
|-----------------------------|-----|----------------|
| Operating voltage           | [V] | 20...250 AC/DC |
| Protection class            |     | II             |
| Reverse polarity protection |     | no             |

## Outputs

|                                                 |      |                                                 |
|-------------------------------------------------|------|-------------------------------------------------|
| Output function                                 |      | normally closed                                 |
| Max. voltage drop switching output DC           | [V]  | 8                                               |
| Max. voltage drop switching output AC           | [V]  | 10                                              |
| Minimum load current                            | [mA] | 5                                               |
| Max. leakage current                            | [mA] | 2.5 (250 V AC) / 1.7 (110 V AC) / 1.5 (24 V DC) |
| Permanent current rating of switching output AC | [mA] | 200; (for UL application: 250 / 100 DC)         |
| Permanent current rating of switching output DC | [mA] | 200; (for UL application: 250 AC / 100 DC)      |
| Short-time current rating of switching output   | [mA] | 1500; (20 ms / 0,5 Hz)                          |
| Switching frequency AC                          | [Hz] | 25                                              |
| Switching frequency DC                          | [Hz] | 40                                              |
| Short-circuit proof                             |      | no                                              |
| Overload protection                             |      | no                                              |

## Detection zone

|                               |      |                |
|-------------------------------|------|----------------|
| Sensing range                 | [mm] | 3...20         |
| Sensing range adjustable      |      | yes            |
| Factory setting sensing range | [mm] | 20             |
| Real sensing range $S_r$      | [mm] | $20 \pm 10 \%$ |
| Operating distance            | [mm] | 0...16.2       |



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| Accuracy / deviations         |           |                                                                               |                                                                     |
|-------------------------------|-----------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Correction factor             |           | glass: 0.4 / water: 1 / ceramics: 0.2 / PVC: 0.2                              |                                                                     |
| Hysteresis                    | [% of Sr] | 1...15                                                                        |                                                                     |
| Switch point drift            | [% of Sr] | -15...15                                                                      |                                                                     |
| Operating conditions          |           |                                                                               |                                                                     |
| Ambient temperature           |           | [°C]                                                                          | -25...70                                                            |
| Protection                    |           |                                                                               | IP 65                                                               |
| Increased immunity            |           |                                                                               | yes; (increased immunity to conducted radio frequency interference) |
| Tests / approvals             |           |                                                                               |                                                                     |
| EMC                           |           | EN 60947-5-2                                                                  |                                                                     |
| MTTF                          |           | [years]                                                                       | 488                                                                 |
| Mechanical data               |           |                                                                               |                                                                     |
| Weight                        |           | [g]                                                                           | 258.5                                                               |
| Housing                       |           |                                                                               | cylindrical                                                         |
| Mounting                      |           |                                                                               | non-flush mountable                                                 |
| Dimensions                    |           | [mm]                                                                          | Ø 34 / L = 81                                                       |
| Materials                     |           |                                                                               | PBT                                                                 |
| Displays / operating elements |           |                                                                               |                                                                     |
| Display                       |           | switching status                                                              | 1 x LED, yellow                                                     |
| Electrical connection         |           |                                                                               |                                                                     |
| Required protection           |           | miniature fuse to IEC60127-2 sheet 1; ≤ 2 A; fast acting                      |                                                                     |
| Accessories                   |           |                                                                               |                                                                     |
| Items supplied                |           | Mounting clamps: 2                                                            |                                                                     |
|                               |           | cylinder screws: 2                                                            |                                                                     |
|                               |           | spring discs: 2                                                               |                                                                     |
| Remarks                       |           |                                                                               |                                                                     |
| Remarks                       |           | Recommendation: Check the safe functioning of the unit after a short circuit. |                                                                     |
| Pack quantity                 |           | 1 pcs.                                                                        |                                                                     |



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### Electrical connection

Cable: 2 m, PVC; 2 x 0.5 mm<sup>2</sup>

### Connection



Note miniature fuse to IEC60127-2 sheet 1  $\leq$  2 A fast acting  
Core colours :

BN =

brown

BU =

blue