



## Inductive sensor

IEB3003BAPKG/V4A/US-104



### Product characteristics

|                    |                 |
|--------------------|-----------------|
| Electrical design  | PNP             |
| Output function    | normally closed |
| Sensing range [mm] | 3               |
| Housing            | Threaded type   |
| Dimensions [mm]    | M8 x 1 / L = 50 |

### Application

|             |                                                                                                |
|-------------|------------------------------------------------------------------------------------------------|
| System      | Increased sensing range                                                                        |
| Application | Suitable for industrial, mobile, cooling and lubricating applications; Industrial applications |

### Electrical data

|                             |            |
|-----------------------------|------------|
| Operating voltage [V]       | 10...30 DC |
| Current consumption [mA]    | < 10       |
| Protection class            | III        |
| Reverse polarity protection | yes        |

### Outputs

|                                                      |                 |
|------------------------------------------------------|-----------------|
| Electrical design                                    | PNP             |
| Output function                                      | normally closed |
| Max. voltage drop switching output DC [V]            | 2.5             |
| Permanent current rating of switching output DC [mA] | 100             |
| Short-time current rating of switching output [mA]   | 100             |
| Switching frequency DC [Hz]                          | 1500            |
| Short-circuit protection                             | yes             |
| Overload protection                                  | yes             |

### Monitoring range

|                               |               |
|-------------------------------|---------------|
| Sensing range [mm]            | 3             |
| Real sensing range $S_r$ [mm] | $3 \pm 10 \%$ |
| Operating distance [mm]       | 0...2.43      |
| Increased sensing range       | yes           |

### Accuracy / deviations

|                          |                                                                            |
|--------------------------|----------------------------------------------------------------------------|
| Correction factor        | steel: 1 / stainless steel: 0.7 / brass: 0.4 / aluminum: 0.4 / copper: 0.3 |
| Hysteresis [% of $S_r$ ] | 1...20                                                                     |



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|                                      |                           |                                                                                                                          |
|--------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Switch-point drift                   | [% of Sr]                 | -10...10                                                                                                                 |
| <b>Operating conditions</b>          |                           |                                                                                                                          |
| Ambient temperature                  | [°C]                      | -40...85                                                                                                                 |
| Protection                           |                           | IP 65; IP 66; IP 67; IP 68; IP 69K                                                                                       |
| <b>Tests / approvals</b>             |                           |                                                                                                                          |
| EMC                                  | EN 61000-4-2 ESD          | 4 kV CD / 8 kV AD                                                                                                        |
|                                      | EN 61000-4-3 HF radiated  | 10 V/m                                                                                                                   |
|                                      | EN 61000-4-4 Burst        | 2 kV                                                                                                                     |
|                                      | EN 61000-4-6 HF conducted | 10 V                                                                                                                     |
|                                      | EN 55011                  | class B                                                                                                                  |
| Vibration resistance                 | EN 60068-2-6 Fc           | 20 g (10...3000 Hz) / 50 sweep cycles per frequency; 1 octave per minute in 3 axes                                       |
| Shock resistance                     | EN 60068-2-27 Ea          | 100 g 11 ms half-sine; 3 shocks each in every direction of the 3 coordinate axes                                         |
| Continuous shock resistance          | EN 60068-2-27             | 40 g 6 ms; 4000 shocks each in every direction of the 3 coordinate axes                                                  |
| Fast temperature changes             | EN 60068-2-14 Na          | TA = -40 °C; TB = 85 °C; t1 = 30 min; t2 = < 10 s; 50 cycles                                                             |
| Salt spray test                      | EN 60068-2-52 Kb          | severity level 5 (4 test cycles)                                                                                         |
| MTTF                                 | [years]                   | 1396                                                                                                                     |
| Embedded software included           |                           | yes                                                                                                                      |
| UL approval                          | Ta                        | -25...70 °C                                                                                                              |
|                                      | Enclosure type            | Type 1                                                                                                                   |
|                                      | voltage supply            | Limited Voltage/Current                                                                                                  |
|                                      | UL approval number        | A028                                                                                                                     |
|                                      | File number UL            | E174191                                                                                                                  |
| <b>Mechanical data</b>               |                           |                                                                                                                          |
| Weight                               | [g]                       | 17.5                                                                                                                     |
| Housing                              |                           | Threaded type                                                                                                            |
| Mounting                             |                           | flush mountable                                                                                                          |
| Dimensions                           | [mm]                      | M8 x 1 / L = 50                                                                                                          |
| Thread designation                   |                           | M8 x 1                                                                                                                   |
| Material                             |                           | stainless steel (1.4404 / 316L); sensing face: LCP white;<br>LED window: PEI; lock nuts: stainless steel (1.4404 / 316L) |
| Tightening torque                    | [Nm]                      | A = 5 mm: 2 Nm; B: 5 Nm                                                                                                  |
| <b>Displays / operating elements</b> |                           |                                                                                                                          |
| Display                              | Switching status          | 4 LED, yellow                                                                                                            |
| <b>Accessories</b>                   |                           |                                                                                                                          |
| Items supplied                       |                           | lock nuts: 2                                                                                                             |
| <b>Remarks</b>                       |                           |                                                                                                                          |
| Pack quantity                        |                           | 1 pcs.                                                                                                                   |

# IES231



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### Electrical connection

Connector: 1 x M12; coding: A



### Connection



### Diagrams and graphs

#### Installation

