

# Inductive Sensor

Welding Field Resistant with Correction Factor 1

## I30A001

Part Number



- **Extended temperature range**
- **Greatest possible switching distances with correction factor 1**
- **Very good magnetic and electromagnetic immunity**
- **Very high switching frequency**

Welding field resistant inductive sensors with correction factor 1 offer a unique combination of technical performance features: increased switching distances for reliable object detection, high switching frequencies for applications with high process speeds and an extended temperature range for use under various ambient conditions. A switching status LED for diagnosis functions reduces system downtime. In order to simplify integration, all housing designs are available in flush or non-flush mounting variants.

### Technical Data

#### Inductive Data

|                                                |                |
|------------------------------------------------|----------------|
| Switching Distance                             | 15 mm          |
| Correction Factors Stainless Steel V2A/CuZn/Al | 1,06/1,06/1,07 |
| Mounting                                       | flush          |
| Mounting A/B/C/D in mm                         | 0/15/45/0      |
| Switching Hysteresis                           | < 15 %         |

#### Electrical Data

|                                                                     |              |
|---------------------------------------------------------------------|--------------|
| Supply Voltage                                                      | 10...30 V DC |
| Current Consumption (U <sub>b</sub> = 24 V)                         | < 15 mA      |
| Switching Frequency                                                 | 2000 Hz      |
| Temperature Drift (-25 °C < T <sub>u</sub> < 60 °C)                 | 10 %         |
| Temperature Drift (T <sub>u</sub> < -25 °C, T <sub>u</sub> > 60 °C) | 20 %         |
| Temperature Range                                                   | -40...80 °C  |
| Switching Output Voltage Drop                                       | < 2,5 V      |
| Switching Output/Switching Current                                  | 200 mA       |
| Resistant to Magnetic Fields                                        | 200 mT       |
| Short Circuit Protection                                            | yes          |
| Reverse Polarity and Overload Protection                            | yes          |
| Protection Class                                                    | II           |
| Protective Insulation, Rated Voltage                                | 150 V        |

#### Mechanical Data

|                         |                |
|-------------------------|----------------|
| Housing Material        | CuZn; Teflon   |
| Welding Field Resistant | yes            |
| Full Encapsulation      | yes            |
| Degree of Protection    | IP67           |
| Connection              | M12 × 1; 4-pin |

#### Safety-relevant Data

|                        |           |
|------------------------|-----------|
| MTTFd (EN ISO 13849-1) | 2157,87 a |
|------------------------|-----------|

#### Function

|                 |     |
|-----------------|-----|
| Error Indicator | yes |
|-----------------|-----|

PNP NO/NC antivalent 

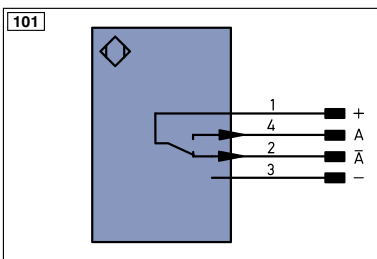
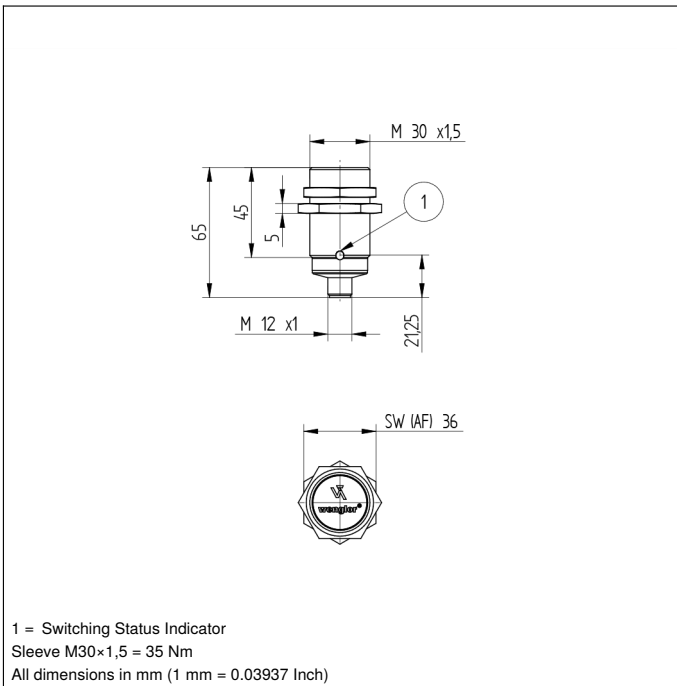
Connection Diagram No. **101**

Suitable Connection Equipment No. **2**

Suitable Mounting Technology No. **130**

### Complementary Products

PNP-NPN Converter BG2V1P-N-2M



| Legend                |                                            |                 |                                |                                      |                            |
|-----------------------|--------------------------------------------|-----------------|--------------------------------|--------------------------------------|----------------------------|
| +                     | Supply Voltage +                           | PT              | Platinum measuring resistor    | EN <sup>A/RS422</sup>                | Encoder A/ $\bar{A}$ (TTL) |
| -                     | Supply Voltage 0 V                         | nc              | not connected                  | EN <sup>B/RS422</sup>                | Encoder B/ $\bar{B}$ (TTL) |
| ~                     | Supply Voltage (AC Voltage)                | U               | Test Input                     | EN <sup>A</sup>                      | Encoder A                  |
| A                     | Switching Output (NO)                      | $\bar{U}$       | Test Input inverted            | EN <sup>B</sup>                      | Encoder B                  |
| $\bar{A}$             | Switching Output (NC)                      | W               | Trigger Input                  | A <sub>MIN</sub>                     | Digital output MIN         |
| V                     | Contamination/Error Output (NO)            | W-              | Ground for the Trigger Input   | A <sub>MAX</sub>                     | Digital output MAX         |
| $\bar{V}$             | Contamination/Error Output (NC)            | O               | Analog Output                  | A <sub>OK</sub>                      | Digital output OK          |
| E                     | Input (analog or digital)                  | O-              | Ground for the Analog Output   | SY <sub>in</sub>                     | Synchronization In         |
| T                     | Teach Input                                | BZ              | Block Discharge                | SY <sub>OUT</sub>                    | Synchronization OUT        |
| Z                     | Time Delay (activation)                    | A <sub>WV</sub> | Valve Output                   | OL <sub>T</sub>                      | Brightness output          |
| S                     | Shielding                                  | a               | Valve Control Output +         | M                                    | Maintenance reserved       |
| RxD                   | Interface Receive Path                     | b               | Valve Control Output 0 V       | rsv                                  | reserved                   |
| TxD                   | Interface Send Path                        | SY              | Synchronization                | Wire Colors according to DIN IEC 757 |                            |
| RDY                   | Ready                                      | SY-             | Ground for the Synchronization | BK                                   | Black                      |
| GND                   | Ground                                     | E+              | Receiver-Line                  | BN                                   | Brown                      |
| CL                    | Clock                                      | S+              | Emitter-Line                   | RD                                   | Red                        |
| E/A                   | Output/Input programmable                  | ⊕               | Grounding                      | OG                                   | Orange                     |
|                       | IO-Link                                    | S <sub>nR</sub> | Switching Distance Reduction   | YE                                   | Yellow                     |
| PoE                   | Power over Ethernet                        | Rx+/-           | Ethernet Receive Path          | GN                                   | Green                      |
| IN                    | Safety Input                               | Tx+/-           | Ethernet Send Path             | BU                                   | Blue                       |
| OSSD                  | Safety Output                              | Bus             | Interfaces-Bus A(+)/B(-)       | VT                                   | Violet                     |
| Signal                | Signal Output                              | L <sub>a</sub>  | Emitted Light disengageable    | GY                                   | Grey                       |
| Bl_D+/-               | Ethernet Gigabit bidirect. data line (A-D) | Mag             | Magnet activation              | WH                                   | White                      |
| EN <sup>0/RS422</sup> | Encoder 0-pulse 0-0 (TTL)                  | RES             | Input confirmation             | PK                                   | Pink                       |
|                       |                                            | EDM             | Contacting Monitoring          | GNYE                                 | Green/Yellow               |

## Mounting

