

# Laser Distance Sensor

## Triangulation

# P1PC381

Part Number



- Antivalent switching output
- Intuitive operating concept
- Switching point independent of material, color and brightness
- Wireless settings via NFC

These laser distance sensors work with a fine red light beam and a high-resolution CMOS line. They determine the distance between the sensor and the object by means of the triangulation principle. They are designed to fulfill applications in a wide range of industries intuitively, reliably and economically. Innovative functions simplify initial start-up and make the sensors versatile all-rounders. Extensive condition monitoring functions also enable predictive maintenance and trouble-free operation. Settings are entered via IO-Link or conveniently using the weCon app via NFC.



## Technical Data

| Optical Data              |             |
|---------------------------|-------------|
| Working Range             | 60...660 mm |
| Setting Range             | 60...660 mm |
| Switching Hysteresis      | < 1 %       |
| Light Source              | Laser (red) |
| Wavelength                | 655 nm      |
| Service Life (T = +25 °C) | 100000 h    |
| Laser Class (EN 60825-1)  | 1           |
| Max. Ambient Light        | 10000 Lux   |
| Light Spot Diameter       | see Table 1 |

| Electrical Data                             |              |
|---------------------------------------------|--------------|
| Supply Voltage                              | 18...30 V DC |
| Current Consumption (U <sub>b</sub> = 24 V) | < 30 mA      |
| Switching Frequency                         | 650 Hz       |
| Response Time                               | < 0,77 ms    |
| Temperature Drift                           | < 150 μm/K   |
| Temperature Range                           | -25...60 °C  |
| Number of Switching Outputs                 | 1            |
| Switching Output Voltage Drop               | < 1,5 V      |
| Switching Output/Switching Current          | 100 mA       |
| Short Circuit Protection                    | yes          |
| Reverse Polarity Protection                 | yes          |
| Overload Protection                         | yes          |
| Interface                                   | IO-Link V1.1 |
| IO-Link Version                             | 1.1.4        |
| IO-Link transmission speed                  | COM3         |
| Protection Class                            | III          |
| FDA Accession Number                        | 2512215-000  |

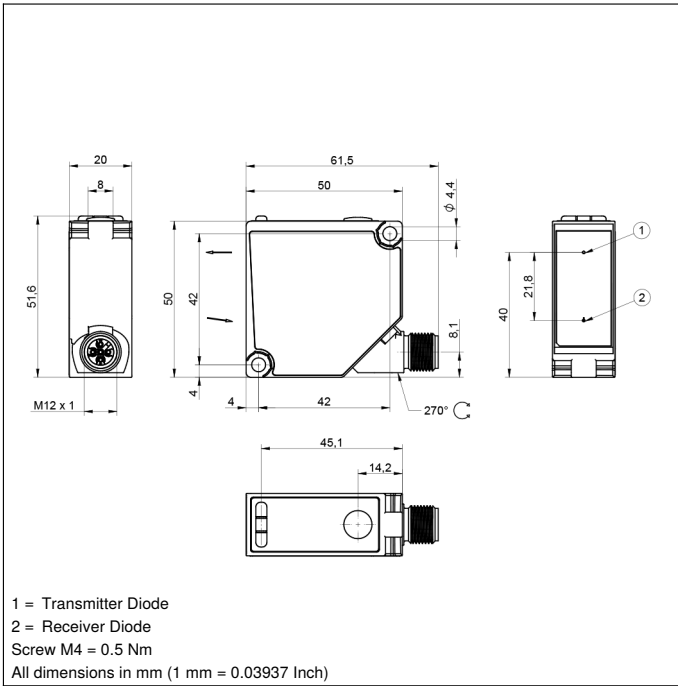
| Mechanical Data      |                |
|----------------------|----------------|
| Setting Method       | NFC            |
| Setting Method       | Teach-In       |
| Housing Material     | Plastic, ABS   |
| Degree of Protection | IP67           |
| Degree of Protection | IP68           |
| Connection           | M12 × 1; 5-pin |
| Optic Cover          | Plastic, PMMA  |

| Safety-relevant Data   |                                                                             |
|------------------------|-----------------------------------------------------------------------------|
| MTTFd (EN ISO 13849-1) | 821,68 a                                                                    |
| Scope of delivery      | 1 × initial start-up instructions<br>1 × sensor<br>1 × Z1PE002 mounting set |

|                                   |               |
|-----------------------------------|---------------|
| PNP NC, PNP NO                    | ●             |
| IO-Link                           | ●             |
| NFC interface                     | ●             |
| Connection Diagram No.            | <b>243</b>    |
| Control Panel No.                 | <b>X14</b>    |
| Suitable Connection Equipment No. | <b>2   35</b> |
| Suitable Mounting Technology No.  | <b>380</b>    |

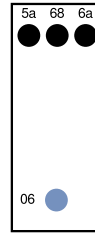
## Complementary Products

|                      |  |
|----------------------|--|
| Dust extraction tube |  |
| IO-Link Master       |  |
| Protective housing   |  |
| Protective Screen    |  |
| Software             |  |

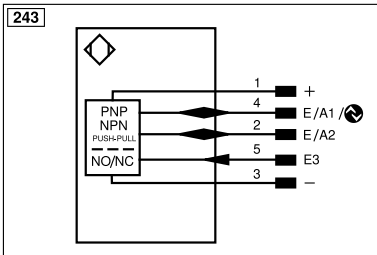


### Ctrl. Panel

X14



- 06 = Teach Button
- 5a = Switching Status Indicator, O1
- 68 = Power LED
- 6a = Switching Status Indicator, O2



| Legend    |                                            |       |                                |                                        |                     |
|-----------|--------------------------------------------|-------|--------------------------------|----------------------------------------|---------------------|
| +         | Supply Voltage +                           | PT    | Platinum measuring resistor    | ENAR5422                               | Encoder A/Ā (TTL)   |
| -         | Supply Voltage 0 V                         | nc    | Not connected                  | ENBR5422                               | Encoder B/B̄ (TTL)  |
| ~         | Supply Voltage (AC Voltage)                | U     | Test Input                     | ENA                                    | Encoder A           |
| A         | Switching Output (NO)                      | Ū     | Test Input inverted            | ENB                                    | Encoder B           |
| Ā         | Switching Output (NC)                      | W     | Trigger Input                  | AMIN                                   | Digital output MIN  |
| V         | Contamination/Error Output (NO)            | W-    | Ground for the Trigger Input   | AMAX                                   | Digital output MAX  |
| V̄        | Contamination/Error Output (NC)            | O     | Analog Output                  | AOK                                    | Digital output OK   |
| E         | Input (analog or digital)                  | O-    | Ground for the Analog Output   | SY In                                  | Synchronization In  |
| T         | Teach Input                                | BZ    | Block Discharge                | SY OUT                                 | Synchronization OUT |
| R         | Reset input                                | Amv   | Valve Output                   | Out                                    | Brightness output   |
| Z         | Time Delay (activation)                    | a     | Valve Control Output +         | M                                      | Maintenance         |
| S         | Shielding                                  | b     | Valve Control Output 0 V       | rsv                                    | Reserved            |
| RxD       | Interface Receive Path                     | SY    | Synchronization                | Wire Colors according to DIN IEC 60757 |                     |
| TxD       | Interface Send Path                        | SY-   | Ground for the Synchronization | BK                                     | Black               |
| RDY       | Ready                                      | E+    | Receiver-Line                  | BN                                     | Brown               |
| GND       | Ground                                     | S+    | Emitter-Line                   | RD                                     | Red                 |
| CL        | Clock                                      | ⊕     | Grounding                      | OG                                     | Orange              |
| E/A       | Output/Input programmable                  | SnR   | Switching Distance Reduction   | YE                                     | Yellow              |
|           | IO-Link                                    | Rx+/- | Ethernet Receive Path          | GN                                     | Green               |
| PoE       | Power over Ethernet                        | Tx+/- | Ethernet Send Path             | BU                                     | Blue                |
| IN        | Safety Input                               | Bus   | Interfaces-Bus A(+)/B(-)       | VT                                     | Violet              |
| QSSD      | Safety Output                              | La    | Emitted Light disengageable    | GY                                     | Grey                |
| Signal    | Signal Output                              | Mag   | Magnet activation              | WH                                     | White               |
| Bl_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES   | Input confirmation             | PK                                     | Pink                |
| ENo RS422 | Encoder 0-pulse 0/0 (TTL)                  | EDM   | Contacting Monitoring          | GNYE                                   | Green/Yellow        |

Table 1

| Working Distance | 60 mm        | 360 mm     | 660 mm     |
|------------------|--------------|------------|------------|
| Spot Size        | 1,5 × 3,5 mm | 1,3 × 5 mm | 1,2 × 7 mm |

