

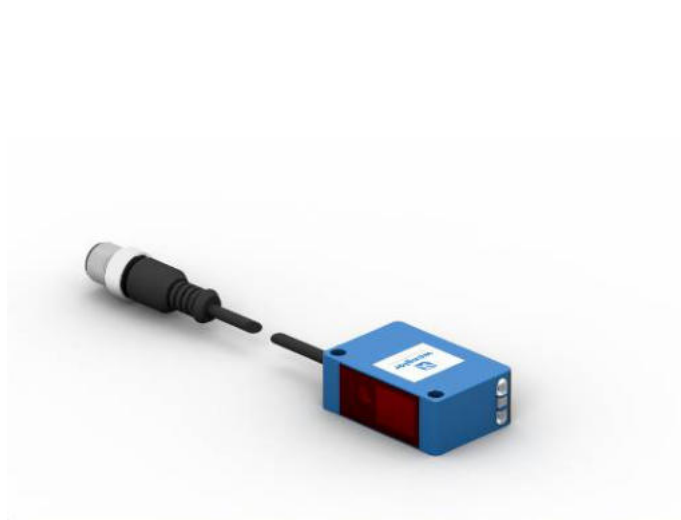
# Laser Distance Sensor

## Long-Range

**P1KY013** **LASER**

Part Number

**PNG** smart **der wintec.**



- 2 mutually independent switching outputs
- Interference-free towards gloss in the background with wintec
- Miniature design
- No mutual interference with WinTec
- Reliable in case of glossy objects with wintec
- Secure detection of black objects also in extremely inclined positions with wintec

These miniature sensors determine distance between the sensor and the object by means of transit time measurement.

wenglor's interference-free technology (wintec) is revolutionizing sensor technology: it prevents numerous sensors arranged directly opposite or next to each other from interfering with one another. The sensors reach a very high switching frequency and use laser class 1, which is safe for the human eye.

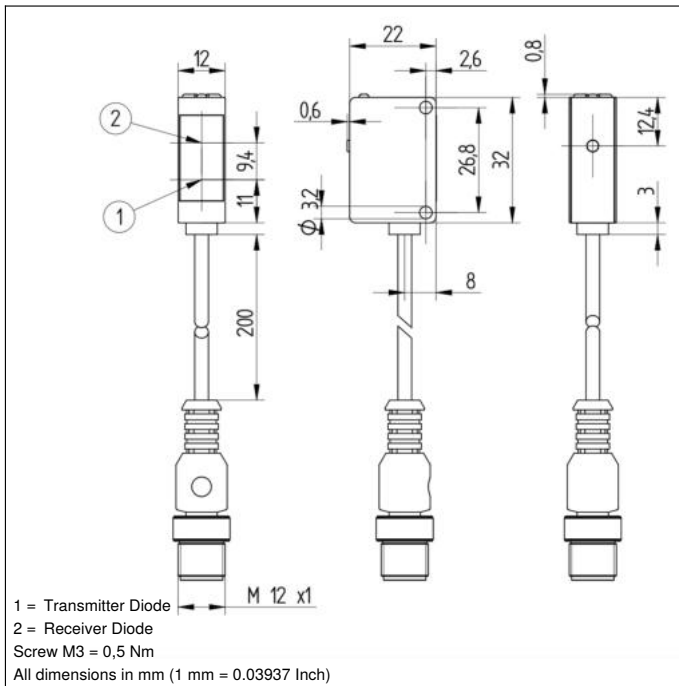


### Technical Data

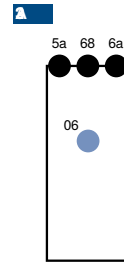
| Optical Data                                        |                |
|-----------------------------------------------------|----------------|
| Working Range                                       | 0...1000 mm    |
| Adjustable Range                                    | 100...1000 mm  |
| Switching Hysteresis                                | < 20 mm        |
| Light Source                                        | Laser (red)    |
| Wavelength                                          | 680 nm         |
| Service Life (T = +25 °C)                           | 100000 h       |
| Laser Class (EN 60825-1)                            | 1              |
| Beam Divergence                                     | < 16 mrad      |
| Max. Ambient Light                                  | 10000 Lux      |
| Light Spot Diameter                                 | see Table 1    |
| Triple Dot Laser                                    | yes            |
| Electrical Data                                     |                |
| Supply Voltage                                      | 10...30 V DC   |
| Supply Voltage with IO-Link                         | 18...30 V DC   |
| Current Consumption (U <sub>b</sub> = 24 V)         | < 30 mA        |
| Switching Frequency                                 | 500 Hz         |
| Response Time                                       | 1 ms           |
| Temperature Drift (-10 °C < T <sub>u</sub> ≤ 50 °C) | < 2 %          |
| Temperature Drift (-40 °C < T <sub>u</sub> ≤ 50 °C) | < 3 %          |
| Temperature Range                                   | -40...50 °C    |
| Number of Switching Outputs                         | 2              |
| Switching Output Voltage Drop                       | < 2,5 V        |
| Switching Output/Switching Current                  | 100 mA         |
| Short Circuit Protection                            | yes            |
| Reverse Polarity Protection                         | yes            |
| Overload Protection                                 | yes            |
| Interface                                           | IO-Link V1.1   |
| Protection Class                                    | III            |
| FDA Accession Number                                | 1620293-001    |
| Mechanical Data                                     |                |
| Setting Method                                      | Teach-In       |
| Housing Material                                    | Plastic        |
| Optic Cover                                         | PMMA           |
| Degree of Protection                                | IP67           |
| Connection                                          | M12 × 1; 4-pin |
| Cable Length                                        | 200 mm         |
| Safety-relevant Data                                |                |
| MTTFd (EN ISO 13849-1)                              | 1021,76 a      |
| NPN NO/NC antivalent                                | ●              |
| IO-Link                                             | ●              |
| Connection Diagram No.                              | 223            |
| Control Panel No.                                   | A23            |
| Suitable Connection Equipment No.                   | 2              |
| Suitable Mounting Technology No.                    | 400            |

### Complementary Products

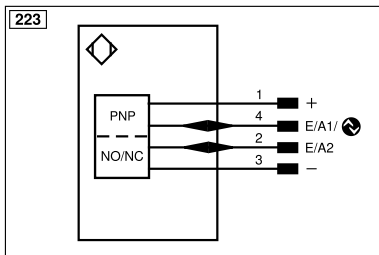
|                |  |
|----------------|--|
| IO-Link Master |  |
| Software       |  |



## Ctrl. Panel



06 = Teach Button  
5a = Switching Status Display, O1  
68 = supply voltage indicator  
6a = Switching Status Display, O2



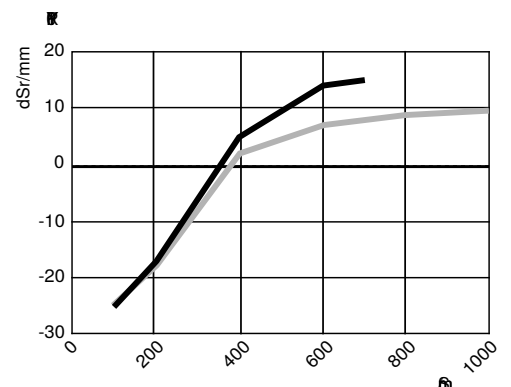
| Legend    |                                            |                                        |                                |
|-----------|--------------------------------------------|----------------------------------------|--------------------------------|
| +         | Supply Voltage +                           | nc                                     | Not connected                  |
| -         | Supply Voltage 0 V                         | U                                      | Test Input                     |
| ~         | Supply Voltage (AC Voltage)                | Ů                                      | Test Input inverted            |
| A         | Switching Output (NO)                      | W                                      | Trigger Input                  |
| Ā         | Switching Output (NC)                      | W-                                     | Ground for the Trigger Input   |
| V         | Contamination/Error Output (NO)            | O                                      | Analog Output                  |
| Ȳ         | Contamination/Error Output (NC)            | O-                                     | Ground for the Analog Output   |
| E         | Input (analog or digital)                  | BZ                                     | Block Discharge                |
| T         | Teach Input                                | Amv                                    | Valve Output                   |
| Z         | Time Delay (activation)                    | a                                      | Valve Control Output +         |
| S         | Shielding                                  | b                                      | Valve Control Output 0 V       |
| RxD       | Interface Receive Path                     | SY                                     | Synchronization                |
| TxD       | Interface Send Path                        | SY-                                    | Ground for the Synchronization |
| RDY       | Ready                                      | E+                                     | Receiver-Line                  |
| GND       | Ground                                     | S+                                     | Emitter-Line                   |
| CL        | Clock                                      | ±                                      | Grounding                      |
| E/A       | Output/Input programmable                  | SnR                                    | Switching Distance Reduction   |
| IO-Link   | IO-Link                                    | Rx+/-                                  | Ethernet Receive Path          |
| PoE       | Power over Ethernet                        | Tx+/-                                  | Ethernet Send Path             |
| IN        | Safety Input                               | Bus                                    | Interfaces-Bus A(+)/B(-)       |
| OSSD      | Safety Output                              | La                                     | Emitted Light disengageable    |
| Signal    | Signal Output                              | Mag                                    | Magnet activation              |
| BI_D+/-   | Ethernet Gigabit bidirect. data line (A-D) | RES                                    | Input confirmation             |
| ENo RS422 | Encoder 0-pulse 0/0 (TTL)                  | EDM                                    | Contact Monitoring             |
| PT        | Platinum measuring resistor                | ENARIS422                              | Encoder A/Ā (TTL)              |
|           |                                            | ENBRIS422                              | Encoder B/B̄ (TTL)             |
|           |                                            | ENA                                    | Encoder A                      |
|           |                                            | ENB                                    | Encoder B                      |
|           |                                            | AMIN                                   | Digital output MIN             |
|           |                                            | AMAX                                   | Digital output MAX             |
|           |                                            | ACK                                    | Digital output OK              |
|           |                                            | SY In                                  | Synchronization In             |
|           |                                            | SY OUT                                 | Synchronization OUT            |
|           |                                            | OLT                                    | Brightness output              |
|           |                                            | M                                      | Maintenance                    |
|           |                                            | rsv                                    | Reserved                       |
|           |                                            | Wire Colors according to DIN IEC 60757 |                                |
|           |                                            | BK                                     | Black                          |
|           |                                            | BN                                     | Brown                          |
|           |                                            | RD                                     | Red                            |
|           |                                            | OG                                     | Orange                         |
|           |                                            | YE                                     | Yellow                         |
|           |                                            | GN                                     | Green                          |
|           |                                            | BU                                     | Blue                           |
|           |                                            | VT                                     | Violet                         |
|           |                                            | GY                                     | Grey                           |
|           |                                            | WH                                     | White                          |
|           |                                            | PK                                     | Pink                           |
|           |                                            | GNYE                                   | Green/Yellow                   |

**Table 1**

| Working Distance    | 100 mm | 500 mm | 1000 mm |
|---------------------|--------|--------|---------|
| Light Spot Diameter | 4 mm   | 7 mm   | 15 mm   |

## Switching Distance Deviation

Typical characteristic curve based on white, 90 % remission



Sr = Switching Distance

dSr = Switching Distance Change

black 6 % remission

grey 18 % remission

