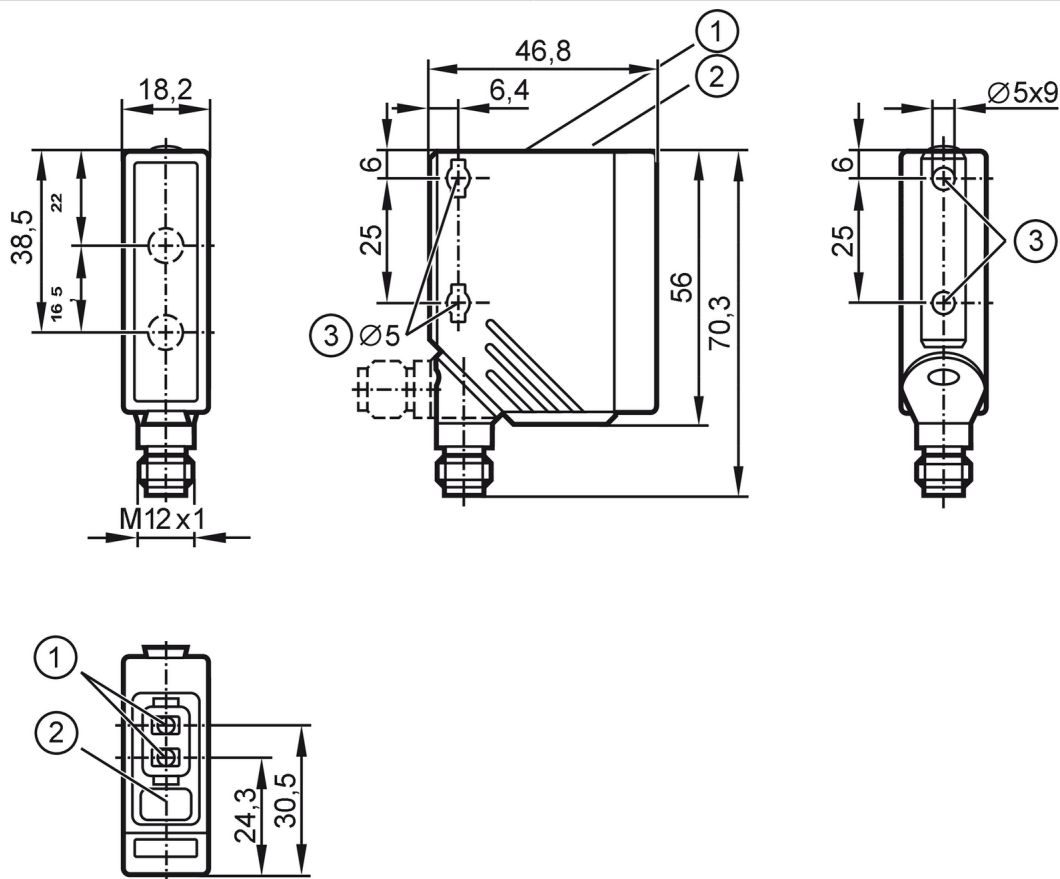


# O5D102

## Laser distance sensor

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- 1: setting pushbuttons  
2: alphanumeric display 3-digit  
3: Tightening torque < 2 Nm when using a mounting screw M5

Receiver in upper lens  
transmitter in lower lens



### Product characteristics

|                        |             |
|------------------------|-------------|
| Type of light          | red light   |
| Laser protection class | 2           |
| Housing                | rectangular |

### Application

|                 |                         |
|-----------------|-------------------------|
| Special feature | Background suppression  |
| Application     | Industrial applications |

### Electrical data

|                             |      |                                               |
|-----------------------------|------|-----------------------------------------------|
| Operating voltage           | [V]  | 10...30 DC; (cULus - Class 2 source required) |
| Current consumption         | [mA] | 75; (24 V)                                    |
| Protection class            |      | III                                           |
| Reverse polarity protection |      | yes                                           |
| Type of light               |      | red light                                     |
| Wave length                 | [nm] | 650                                           |
| Typ. lifetime               | [h]  | 50000                                         |



## Laser distance sensor

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| Inputs / outputs                    |                      |                                                   |
|-------------------------------------|----------------------|---------------------------------------------------|
| Number of inputs and outputs        |                      | Number of digital outputs: 2                      |
| Outputs                             |                      |                                                   |
| Total number of outputs             |                      | 2                                                 |
| Electrical design                   |                      | NPN                                               |
| Number of digital outputs           |                      | 2                                                 |
| Output function                     |                      | normally open / closed; (complementary)           |
| Max. current load per output        | [mA]                 | 100                                               |
| Switching frequency DC              | [Hz]                 | 11                                                |
| Short-circuit protection            |                      | yes                                               |
| Type of short-circuit protection    |                      | yes (non-latching)                                |
| Overload protection                 |                      | yes                                               |
| Monitoring range                    |                      |                                                   |
| Max. light spot diameter            | [mm]                 | 5                                                 |
| Light spot dimensions refer to      |                      | 2 m                                               |
| Detection range hysteresis          | [%]                  | < 2.5                                             |
| Note on monitoring range hysteresis |                      | black 6 % remission                               |
| Background suppression available    |                      | yes                                               |
| Background suppression              | [m]                  | < 20                                              |
| Measuring/setting range             |                      |                                                   |
| Measuring range                     | [m]                  | 0.03...2                                          |
| Sampling rate                       | [Hz]                 | 33                                                |
| Interfaces                          |                      |                                                   |
| Communication interface             |                      | IO-Link                                           |
| Transmission type                   |                      | COM2 (38,4 kBaud)                                 |
| IO-Link revision                    |                      | 1.1                                               |
| SDCI standard                       |                      | IEC 61131-9                                       |
| Profiles                            | Smart Sensor - SSP 0 | Generic Profiled Sensor                           |
|                                     | Function             | Multiple switching signal                         |
|                                     | Function             | Process data variable                             |
| SIO mode                            |                      | yes                                               |
| Process data analog                 |                      | 1                                                 |
| Process data binary                 |                      | 1                                                 |
| Min. process cycle time             | [ms]                 | 6.4                                               |
| Supported DeviceIDs                 | Type of operation    | DeviceID                                          |
|                                     | default              | 372                                               |
| Operating conditions                |                      |                                                   |
| Ambient temperature                 | [°C]                 | -25...60                                          |
| Note on ambient temperature         |                      | at ta < -10 °C warm-up is necessary, laser is off |
| Protection                          |                      | IP 65; IP 67                                      |
| Max. immunity to extraneous light   | [klx]                | 10; (on the object)                               |

# O5D102



## Laser distance sensor

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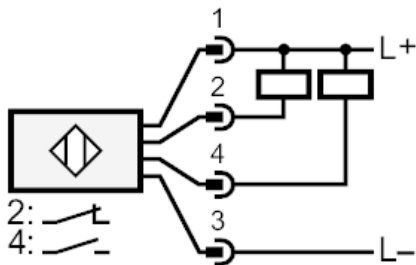
| Tests / approvals                          |                                    |                                                                                                                                     |
|--------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| EMC                                        | EN 60947-5-2                       |                                                                                                                                     |
| Vibration resistance                       | DIN EN 60068-2-6                   | 10 g (10...55 Hz) / 120 min. per axis (x, y, z)                                                                                     |
| Shock resistance                           | DIN EN 60068-2-27                  | 50 g 6 shocks / 11 ms half-sine (x, y, z)                                                                                           |
| Laser protection class                     |                                    | 2                                                                                                                                   |
| Notes on laser protection                  | Caution:                           | Laser light                                                                                                                         |
|                                            | Power:                             | <= 4,0 mW                                                                                                                           |
|                                            | Wave length:                       | 650 nm                                                                                                                              |
|                                            | pulse:                             | 1,3 ns                                                                                                                              |
|                                            | Do not stare into beam.            |                                                                                                                                     |
|                                            | Avoid exposure to the laser light. |                                                                                                                                     |
|                                            | laser class:                       | 2                                                                                                                                   |
|                                            |                                    | EN / IEC60825-1:2007                                                                                                                |
|                                            |                                    | EN / IEC60825-1:2014                                                                                                                |
|                                            |                                    | Complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3, as described in Laser Notice No. 56, dated May 8, 2019. |
| MTTF                                       | [years]                            | 151                                                                                                                                 |
| Mechanical data                            |                                    |                                                                                                                                     |
| Weight                                     | [g]                                | 84.8                                                                                                                                |
| Housing                                    |                                    | rectangular                                                                                                                         |
| Dimensions                                 | [mm]                               | 56 x 18.2 x 46.8                                                                                                                    |
| Material                                   |                                    | housing: PA; Front framework: stainless steel;<br>operator interface: TPU (urethane); lens: PMMA                                    |
| Lens alignment                             |                                    | Side sensing                                                                                                                        |
| Displays / operating elements              |                                    |                                                                                                                                     |
| Display                                    | Switching status                   | LED, yellow Switching output PIN 4                                                                                                  |
|                                            | Power                              | LED, green                                                                                                                          |
|                                            | Display                            | alphanumeric display, 3-digit                                                                                                       |
| Display unit                               |                                    | cm                                                                                                                                  |
| Remarks                                    |                                    |                                                                                                                                     |
| Pack quantity                              |                                    | 1 pcs.                                                                                                                              |
| Electrical connection                      |                                    |                                                                                                                                     |
| Connector: 1 x M12; coding: A; Contacts: 4 |                                    |                                                                                                                                     |
|                                            |                                    |                                                                                                                                     |



Laser distance sensor

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Connection



4: OUT / IO-Link

Other data

Accuracy

|          | Accuracy              |                        |  |  |
|----------|-----------------------|------------------------|--|--|
| distance | black (6 % remission) | white (90 % remission) |  |  |
| 0 mm     | ± 15 mm               | ± 15 mm                |  |  |
| 500 mm   | ± 15 mm               | ± 15 mm                |  |  |
| 1000 mm  | ± 15 mm               | ± 15 mm                |  |  |
| 1500 mm  | ± 20 mm               | ± 20 mm                |  |  |
| 2000 mm  | ± 30 mm               | ± 20 mm                |  |  |

Extraneous light on the object < 10 klx

Diagrams and graphs

Hysteresis graph

