

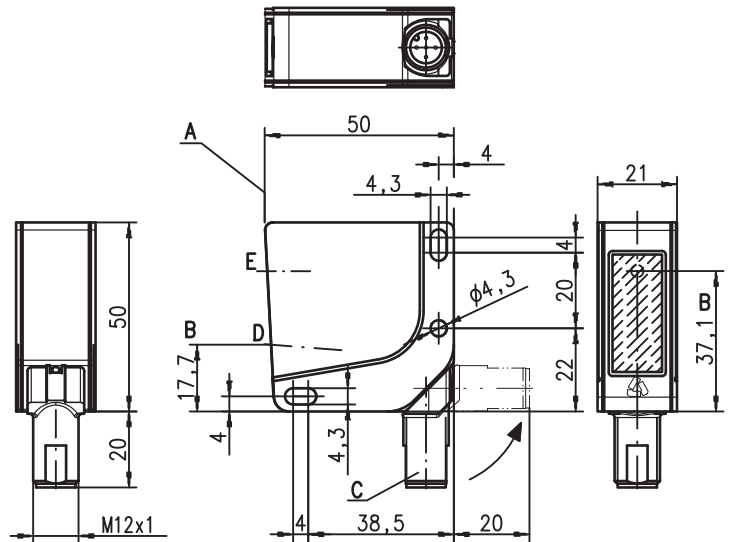
ODSL 9

Optical laser distance sensors

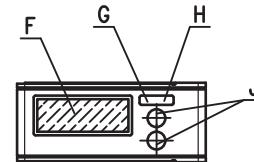
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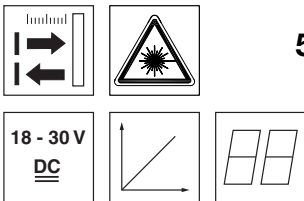
Dimensioned drawing



- A Reference edge for the measurement
- B Optical axis
- C Device plug M12
- D Receiver
- E Transmitter
- F LCD display
- G Indicator diode yellow
- H Indicator diode green
- J Control buttons

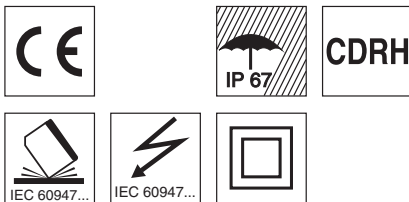
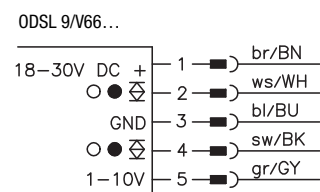
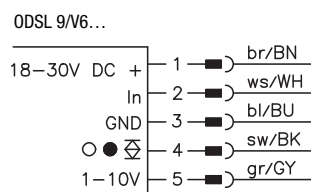
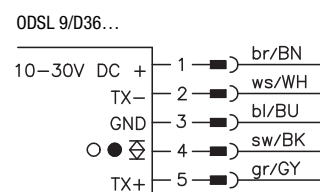
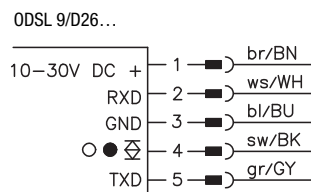
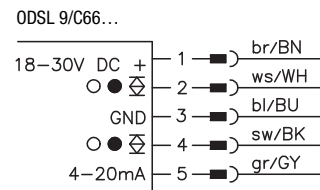
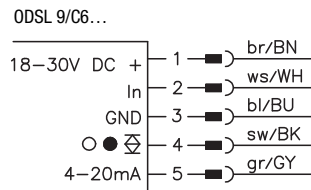
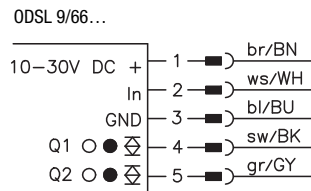


50 ... 450mm



- Large measurement range
- Reflection-independent distance information
- Configuration via PC/LC display and control buttons
- Measurement value is indicated in mm on LC display
- Configurable measure mode and measurement range
- M12 turning connector input (pin 2) for deactivating the laser, triggering, offset correction, reference measurement or teach-in
- M12 turning connector
- Fieldbus connection (e.g. PROFINET, PROFIBUS, ...) with a MA2xxi modular interfacing unit for ODSL 9/D26...

Electrical connection



Accessories:

(available separately)

- Mounting systems
- Configuration software
- Cable with M12 connector (K-D ...)
- Connection cable for MA2xxi (K-DS M12A-MA-5P-3m-S-PUR, Part no. 50115049)

We reserve the right to make changes • DS\_ODSL9450\_en\_50112185.fm

## Specifications

### Optical data

|                                 |  |
|---------------------------------|--|
| Measurement range <sup>1)</sup> | 50 ... 450mm                           |
| Resolution                      | 0.1mm                                  |
| Light source                    | laser                                  |
| Wavelength                      | 655nm                                  |
| Light spot                      | divergent, 1x1mm <sup>2</sup> at 450mm |
| Laser warning notice            | see remarks                            |

### Error limits (relative to measurement distance)

|   |                   |
|---|-------------------|
| Absolute measurement accuracy <sup>1)</sup> | ± 1%              |
| Repeatability <sup>2)</sup>                 | ± 0.5%            |
| B/W detection thresh. (6 ... 90% rem.)      | ≤ 0.5%            |
| Temperature compensation                    | yes <sup>3)</sup> |

### Timing

|                       |                   |
|-----------------------|-------------------|
| Measurement time      | 2ms <sup>1)</sup> |
| Response time         | ≤ 6ms             |
| Delay before start-up | ≤ 300ms           |

### Electrical data

|                                  |                                   |  |
|----------------------------------|-----------------------------------|--|
| Operating voltage U <sub>B</sub> | ...C6/C66/V6/V66<br>...D26/D36/66 | 18 ... 30VDC (incl. residual ripple)<br>10 ... 30VDC (incl. residual ripple)   |
| Residual ripple                  |                                   | ≤ 15% of U <sub>B</sub>  |
| Open-circuit current             |                                   | ≤ 180mA  |
| Switching output                 |                                   | push-pull switching output <sup>4)</sup> ,<br>PNP light switching, NPN dark switching                                  |
| Signal voltage high/low          |                                   | ≥ (U <sub>B</sub> -2 V)/≤ 2V   |
| Analog output                    | ...V6/V66<br>...C6/C66            | voltage 1 ... 10V / 0 ... 10V / 1 ... 5V / 0 ... 5V, R <sub>L</sub> ≥ 2kΩ<br>current 4 ... 20mA, R <sub>L</sub> ≤ 500Ω |
| Serial interface                 | ...D26/D36                        | RS 232/RS 485, 9600 ... 57600Bd,<br>1 start bit, 8 data bits, 1 stop bit, no parity                                    |
| Transmission protocol            |                                   | 14 bit, 16 bit, ASCII, Remote Control  |

### Indicators

|            |                                     | Teach-in on GND   | Teach-in on +U <sub>B</sub> |
|------------|-------------------------------------|---|-----------------------------|
| Green LED  | continuous light<br>flashing<br>off | ready<br>fault<br>no voltage  | teaching procedure          |
| Yellow LED | continuous light<br>flashing<br>off | object inside teach-in measurement distance<br>object outside teach-in measurement distance | teaching procedure          |

### Mechanical data

|                 |                      |
|-----------------|----------------------|
| Housing         | plastic              |
| Optics cover    | glass                |
| Weight          | approx. 50g          |
| Connection type | M12 connector, 5-pin |

### Environmental data

|                                   |   |
|-----------------------------------|---|
| Ambient temp. (operation/storage) | -20°C ... +50°C / -30°C ... +70°C                                       |
| Protective circuit <sup>5)</sup>  | 1, 2, 3   |
| VDE safety class <sup>6)</sup>    | II, all-insulated   |
| Protection class                  | IP 67   |
| Laser class                       | 2 (according to EN 60825-1 and 21 CFR 1040.10 with Laser Notice No. 50) |
| Standards applied                 | IEC 60947-5-2   |

- 1) Luminosity coefficient 6% ... 90%, complete measurement range, "Standard" operating mode, at 20°C, medium range of U<sub>B</sub>, measurement object ≥ 50x50mm<sup>2</sup>  
 2) Same object, identical environmental conditions, measurement object ≥ 50x50mm<sup>2</sup>  
 3) Typ. ± 0.02 %/K  
 4) The push-pull switching outputs must not be connected in parallel  
 5) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs  
 6) Rating voltage 50VAC

## Order guide

|                               | Designation        | Part No. |
|-------------------------------|--------------------|----------|
| <b>Analog current output</b>  |                    |          |
| 1 teachable push/pull output  | ODSL 9/C6-450-S12  | 50111157 |
| 2 push/pull outputs           | ODSL 9/C66-450-S12 | 50111161 |
| <b>Analog voltage output</b>  |                    |          |
| 1 teachable push/pull output  | ODSL 9/V6-450-S12  | 50111158 |
| 2 push/pull outputs           | ODSL 9/V66-450-S12 | 50111162 |
| <b>Serial digital output</b>  |                    |          |
| RS 232, 1 push/pull output    | ODSL 9/D26-450-S12 | 50111159 |
| RS 485, 1 push/pull output    | ODSL 9/D36-450-S12 | 50111160 |
| <b>Only switching outputs</b> |                    |          |
| 2 teachable push/pull outputs | ODSL 9/66-450-S12  | 50111163 |

## Tables

## Diagrams

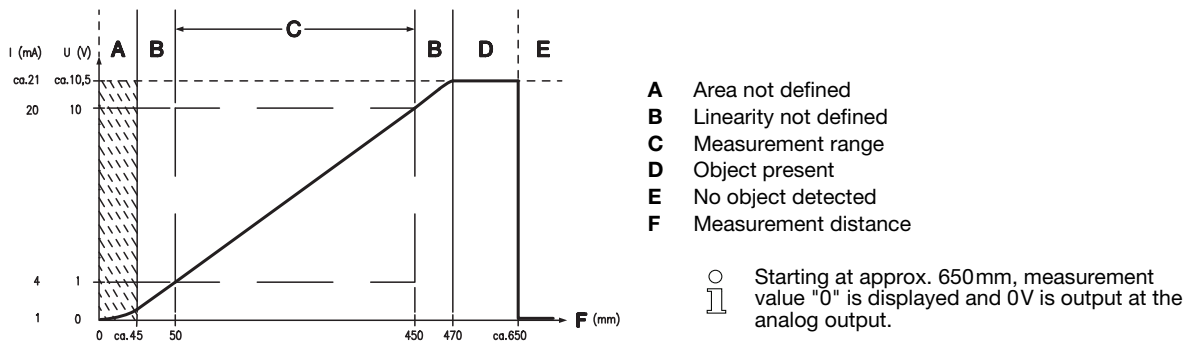
## Remarks

- Measurement time depends on the reflectivity of the measurement object and on the measurement mode.
- **Approved purpose:** This product may only be used by qualified personnel and must only be used for the approved purpose. This sensor is not a safety sensor and is not to be used for the protection of persons.

**ODSL 9**

**Optical laser distance sensors**

**Analog output: characteristic curve for factory setting**



**Serial output: transmission protocol for factory setting**

9600Bd, 1 start bit, 8 data bits, 1 stop bit,  
 transmission protocol ASCII measurement values

Transmission format: **MMMMM<CR>**

**MMMMM** = 5-digit measurement value in mm (resolution 0.1 mm)

**<CR>** = ASCII character "Carriage Return" (x0D)

**Operation of ODSL 9/D26... with MA2xxi modular interfacing unit**

Set **S4** rotary switch for device selection in MA 2xxi to switch position "**B**" (AMS)  
 (see MA 2xxi Technical description).

Set the serial interface of the ODSL 9/D26... to:

- ASCII (factory setting)
- Baud rate: 38400Bd (see ODSL 9 Technical description...)

