

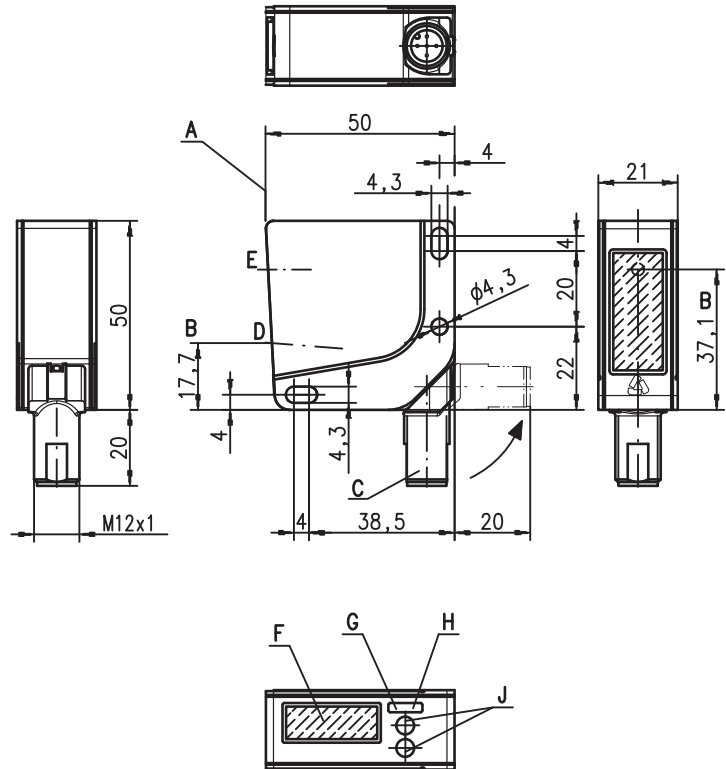
**ODSL 9**

**Optical laser distance sensors**

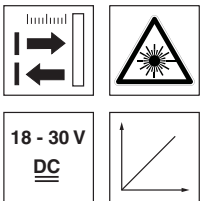
en 01-2014/07 50126802



**Dimensioned drawing**



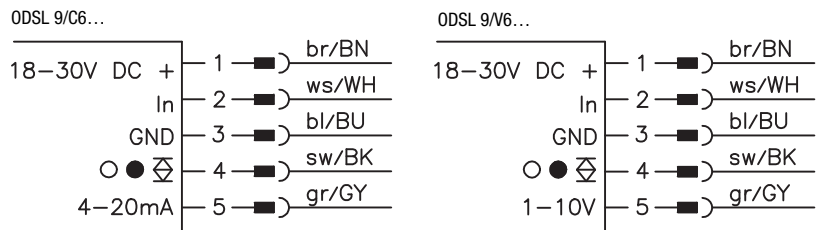
- A** Reference edge for the measurement
- B** Optical axis
- C** Device plug M12
- D** Receiver
- E** Transmitter
- F** LCD display
- G** Indicator diode yellow
- H** Green indicator diode
- J** Control buttons



**50 ... 200 mm**

- High resolution 0.01 mm, from 50 ... 100 mm
- Reflection-independent distance information
- PC/LC display and control buttons for configuration
- Measurement value is indicated with 0.01 mm resolution on LC display
- Configurable measure mode and measurement range
- Input (pin 2) for deactivation of laser, triggering, offset correction, reference measurement or teach-in
- M12 turning connector

**Electrical connection**



**Accessories:**

- (available separately)
- Mounting systems
  - Configuration software
  - Cable with M12 connector (K-D ...)

We reserve the right to make changes • DS\_ODSL9200\_en\_50126802.fm

## Specifications

### Optical data

Measurement range <sup>1)</sup>	50 ... 200mm
Resolution <sup>2)</sup>	0.01mm from 50 ... 100mm, 0.1mm from 100 ... 200mm
Light source	laser
Wavelength	655nm
Light spot	divergent, 1x1mm <sup>2</sup> at 100mm

### Error limits (relative to measurement distance)

Absolute measurement accuracy <sup>1)</sup>	± 0.5% from 50 ... 100mm ± 1% from 100 ... 200mm
Repeatability <sup>3)</sup>	± 0.25% from 50 ... 100mm ± 0.5% from 100 ... 200mm
B/W detection thresh. (6 ... 90% rem.)	≤ 0.5%
Temperature compensation	yes <sup>4)</sup>

### Timing

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

### Electrical data

Operating voltage U <sub>B</sub> <sup>5)</sup>	...C6/V6	18 ... 30VDC (incl. residual ripple)
Residual ripple		≤ 15% of U <sub>B</sub>
Open-circuit current		≤ 180mA
Switching output		push-pull switching output <sup>6)</sup> , PNP light switching, NPN dark switching
Signal voltage high/low		≥ (U <sub>B</sub> -2 V)/≤ 2V
Analog output	...V6 ...C6	voltage 1 ... 10V / 0 ... 10V / 1 ... 5V / 0 ... 5V, R <sub>L</sub> ≥ 2kΩ current 4 ... 20mA, R <sub>L</sub> ≤ 500Ω

### Indicators

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

### 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>7)</sup>	1, 2, 3
VDE safety class <sup>8)</sup>	II, all-insulated
Degree of protection	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
Certifications	UL 508, C22.2 No.14-13 <sup>5) 9)</sup>

- 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) Minimum and maximum value depend on measurement distance
- 3) Same object, identical environmental conditions, measurement object ≥ 50x50mm<sup>2</sup>
- 4) Typ. ± 0.02 %/K
- 5) For UL applications: for use in class 2 circuits according to NEC only
- 6) The push-pull switching outputs must not be connected in parallel
- 7) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs
- 8) Rating voltage 50VAC
- 9) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

## Order guide

	<b>Designation</b>	<b>Part no.</b>
<b>Analog current output</b>		
1 teachable push/pull output	ODSL 9/C6-200-S12	50117334
<b>Analog voltage output</b>		
1 teachable push/pull output	ODSL 9/V6-200-S12	50113332

## Tables

## Diagrams

## Remarks

### Operate in accordance with intended use!

- ☞ This product is not a safety sensor and is not intended as personnel protection.
- ☞ The product may only be put into operation by competent persons.
- ☞ Only use the product in accordance with the intended use.

- Measurement time depends on the reflectivity of the measurement object and on the measurement mode.

### Laser safety notices



#### ATTENTION, LASER RADIATION – LASER CLASS 2

##### Never look directly into the beam!

The device fulfills the EN 60825-1:2008-05 (IEC 60825-1:2007) safety regulations for a product in **laser class 2** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24th, 2007.

- ↳ Never look directly into the laser beam or in the direction of reflecting laser beams!  
If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ↳ Do not point the laser beam of the device at persons!
- ↳ Intercept the laser beam with an opaque, non-reflective object if the laser beam is accidentally directed towards a person.
- ↳ When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- ↳ **CAUTION!** Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.  
The use of optical instruments or devices (e.g., magnifying glasses, binoculars) with the product will increase eye hazard.
- ↳ Adhere to the applicable legal and local regulations regarding protection from laser beams acc. to EN 60825 (IEC 60825) in its latest version.
- ↳ The device must not be tampered with and must not be changed in any way.  
There are no user-serviceable parts inside the device.  
Repairs must only be performed by Leuze electronic GmbH + Co. KG.

### NOTICE

#### Affix laser information and warning signs!

Laser information and warning signs are affixed to the device (see ①). In addition, self-adhesive laser information and warning signs (stick-on labels) are supplied in several languages (see ②).

- ↳ Affix the laser information sheet with the language appropriate for the place of use to the device.  
When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10" notice.
- ↳ Affix the laser information and warning signs near the device if no signs are attached to the device (e.g. because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.  
Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.

①

**A** Laser exit opening

②

**50106507-04**

LASERSTRAHLUNG NICHT IN DEN STRAHL Blicken	
Max. Leistung (peak):	1,2 mW
Impulsdauer:	22 ms
Wellenlänge:	650 nm
LASER KLASSE 2 DIN EN 60825-1:2008-05	

RADIACION LASER NO MIRRAR FIJAMENTE AL HAZ	
Potencia máx. (peak):	1,2 mW
Duración del impulso:	22 ms
Longitud de onda:	650 nm
PRODUCTO LASER DE CLASE 2 EN 60825-1:2007	

AVOID EXPOSURE – LASER RADIATION  
IS EMITTED FROM THIS APERTURE

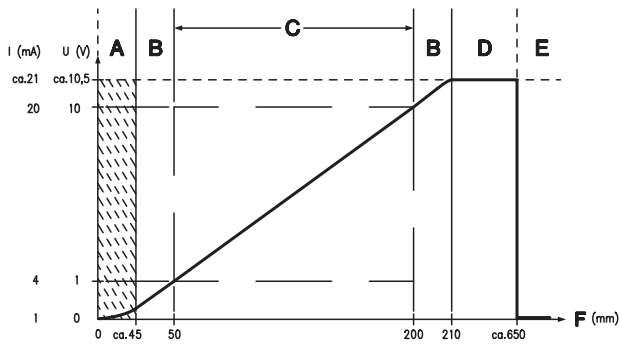
EXPOSITION DANGEREUSE – UN RAYONNEMENT  
LASER EST EMIS PAR CETTE OUVERTURE

LASER RADIATION DO NOT STARE INTO BEAM	
Maximum Output (peak):	1,2 mW
Pulse duration:	22 ms
Wavelength:	650 nm
CLASS 2 LASER PRODUCT EN 60825-1:2007 Complies with 21 CFR 1040.10	


RADIACÃO LASER NÃO OLHAR FIXAMENTE O FEIXE	
Potência máx. (peak):	1,2 mW
Período de pulso:	22 ms
Comprimento de onda:	650 nm
EQUIPAMENTO LASER CLASSE 2 EN 60825-1:2007	

激光辐射  
勿直视光束  
最大输出 (峰值): 1,2 mW  
脉冲持续时间: 22 ms  
波长: 650 nm  
2 类激光产品  
GB7247.1-2012

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



- A** Area not defined
- B** Linearity not defined
- C** Measurement range
- D** Object present
- E** No object detected
- F** Measurement distance

 From approx. 650mm, measurement value "0" is displayed and 0V/0mA is output at analog output.