

# Retro-reflective sensors with polarizing filters, in a metal housing



- Robust die-cast zinc housing
- Glass protected optics
- Light reserve warning indicator
- Dual transistor outputs, NPN or PNP
- Short-circuit protection, reverse polarity protection, and power-up output suppression
- Test input (option)
- Connections: Cable, 2 meter  
Connector, M8  
Connector, Torson, on 20 cm long cable (option)
- EMC tested according to IEC 801 and EN50081-1/EN 50082-2



## Product designation<sup>1)</sup>

Output
Connection
Range adjustment

## Optical data<sup>2)</sup>

Range
Emitter

## Electrical data<sup>2)</sup>

Supply voltage $U_s$
Allowable ripple
Current consumption (without load)
Max. load current $I_L$
Residual voltage
Max. switching frequency

## Environmental data

Sealing
Temperature $T_A$ (operating and storage)
Weight

## Option<sup>1)</sup>

Test input: emitter on
emitter off

ORP 2NA 100 R1	ORP 2NA 500 R1	ORP 2PA 100 R1	ORP 2PA 500 R1
NPN (light- and dark-on)		PNP (light- and dark-on)	
Cable 2 m	Connector M8	Cable 2 m	Connector M8
Yes			
0,3...3,5 m (retroreflector OZR 001)			
Visible-red LED, 660 nm, pulsed, with polarizing filter			
		10...45 VDC	
		+/- 10% of $U_s$	
		< 20 mA	
		250 mA	
		< 1,6 V	
		1000 Hz	
IP 67			
-20...+60 °C			
ca. 150 g	ca. 85 g	ca. 150 g	ca. 85 g

+ $U_s$ or open	
< 1,5 V	< $U_s$ - 8 V

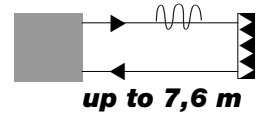
1) For product designation of sensors with options see designation code on page 67.  
2) When not otherwise noted, all technical data at  $T_A = 25\text{ °C}$  and  $U_s = 24\text{ V}$ .

Retro-reflector ●	Range	Retro-reflector ■	Range	Retro-reflective tape	Range
OZR 001	0.30 – 3.5 m	OZR 101	0.15 – 5.0 m	OZR 201	0 m
OZR 002	0.15 – 3.4 m	OZR 102	0.20 – 1.9 m	OZR 202	0 m
OZR 003	0.25 – 1.4 m	OZR 103	0.15 – 4.8 m	OZR 203	0.35 – 1.7 m
		OZR 104	0.15 – 7.6 m	OZR 204*	0.35 – 1.3 m
				OZR 205*	0.35 – 1.7 m

\* 30 cm long

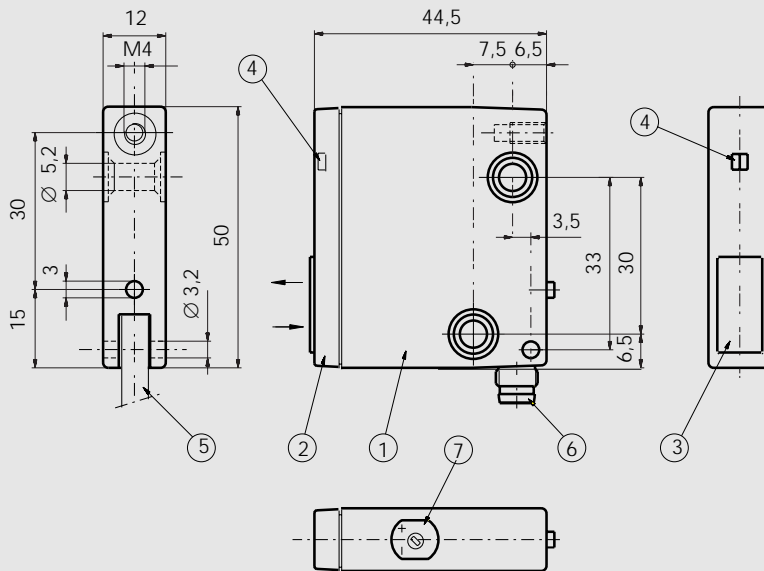
10...45 VDC

NPN / PNP  
light-on and  
dark-on output



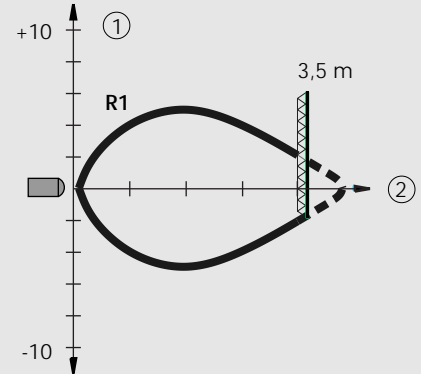
**ORP**

**Dimensions (50 mm x 44,5 mm x 12 mm)**



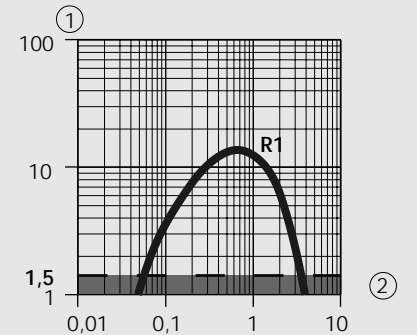
- ① Housing
- ② Lens/filter
- ③ Glass cover
- ④ Function indicator
- ⑤ Cable
- ⑥ Connector M8
- ⑦ Range adjustment

**Optical diagrams**



**Typical beam diameter**  
(with retroreflector OZR 001)

- ① Diameter in (cm)
- ② Range in (m)

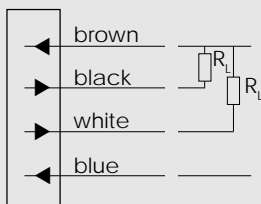


**Typical excess gain curve**  
(with retroreflector OZR 001)

- ① Gain factor
- ② Range in (m)

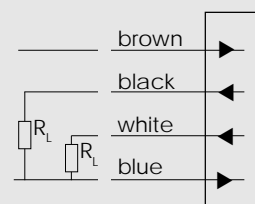
**Wiring diagram**

**NPN-output**

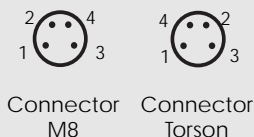


⊕ Supply voltage 10...45 V  
Light-on output  
Dark-on output  
⊖ Supply voltage

**PNP-output**



Light-on output:  
Output energized when no object is present.  
Dark-on output:  
Output energized when object is present.



Connection for connector M8	Wire color	Connection for test input
1	brown	Supply+
2	white	Test input
3	blue	Supply-
4	black	Output