

Retro-reflective sensors, M18 housing



- Range adjustable
- Light reserve warning indicator
- Dual transistor outputs, NPN or PNP
- 1000 Hz switching frequency
- Short-circuit protection, reverse polarity protection, and power-up output suppression
- Connections: Straight cable, 2 meter
Connector, M12
- EMC tested according to IEC 801 and EN50081-1/EN 50082-2



Product designation Plastic housing ¹⁾

Product designation Stainless steel ¹⁾

Output

Connection

Range adjustment

Optical data ²⁾

Range

Emitter

Electrical data ²⁾

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 Plastic/Stainless steel

M1R 1NA 100 I2	M1R 1NA 400 I2	M1R 1PA 100 I2	M1R 1PA 400 I2
M1R 1NA 100 I2M	M1R 1NA 400 I2M	M1R 1PA 100 I2M	M1R 1PA 400 I2M
NPN (light- and dark-on)		PNP (light- and dark-on)	
Cable 2 m	Connector M12	Cable 2 m	Connector M12
Yes			
0,05...3 m (retroreflector OZR 001)			
Infrared-LED, 950 nm, pulsed			
10...30 VDC			
+/- 10% of U_{sp}			
< 15 mA			
100 mA			
< 1,6 V			
1000 Hz			
IP 67			
-25...+65 °C			
Connector M12: ca.15/25 g , Cable 2 m: ca. 100/110 g			

1) For product designation of sensors with options see designation code on page 23.

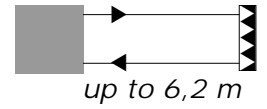
2) When not otherwise noted, all technical data at $T_A = 25\text{ °C}$ and $U_s = 24\text{ V}$.

Retro-reflector ●	Range	Retro-reflector ■	Range	Retro-reflective tape	Range
OZR 001	0.05 – 3.0 m	OZR 101	0.03 – 4.6 m	OZR 201*	0.09 – 1.0 m
OZR 002	0.02 – 2.8 m	OZR 102	0.05 – 1.6 m	OZR 202	0.15 – 2.2 m
OZR 003	0.04 – 1.3 m	OZR 103	0.02 – 3.8 m	OZR 203	0.15 – 1.5 m
		OZR 104	0.02 – 6.2 m	OZR 204*	0.15 – 1.5 m
				OZR 205*	0.15 – 2.2 m

* 30 cm long

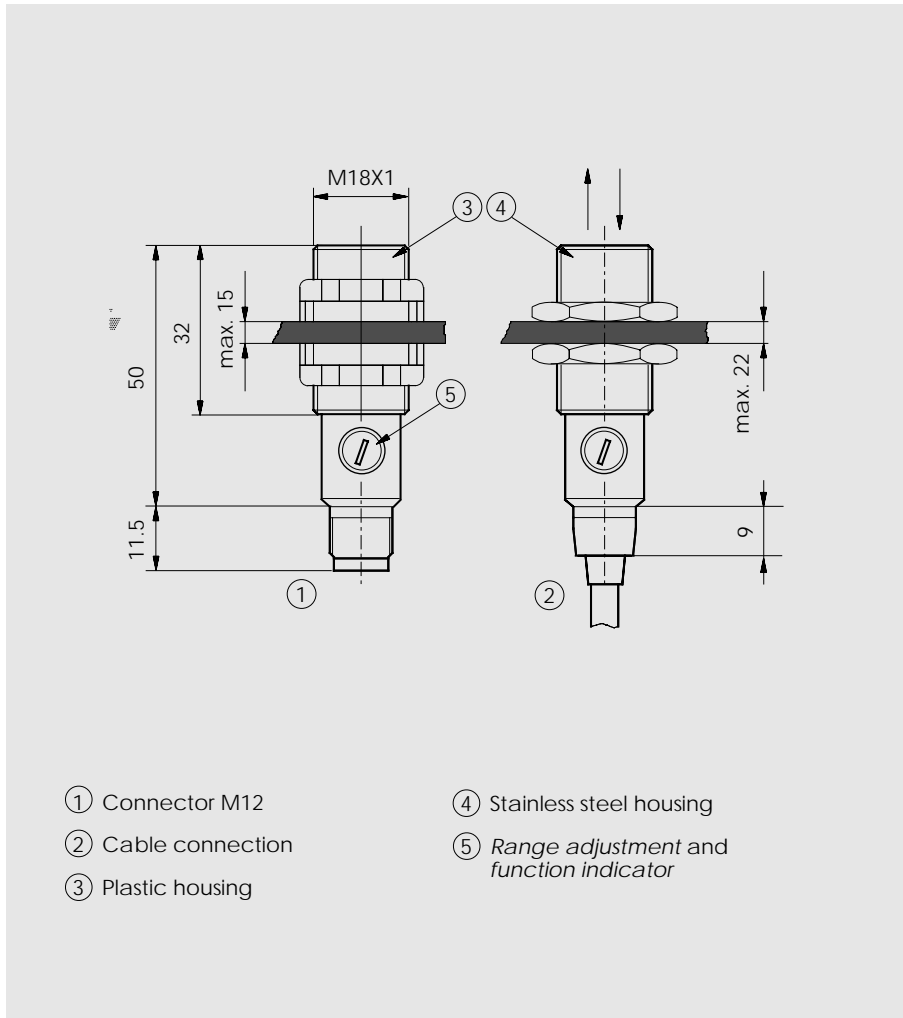
10...30 VDC

NPN / PNP
light-on and
dark-on output



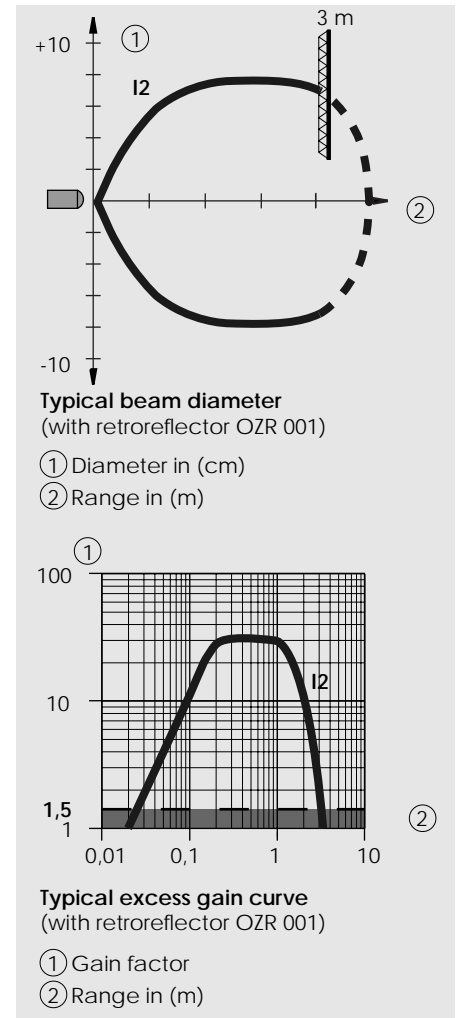
M1R

Dimensions (50 mm, M18 x 1)



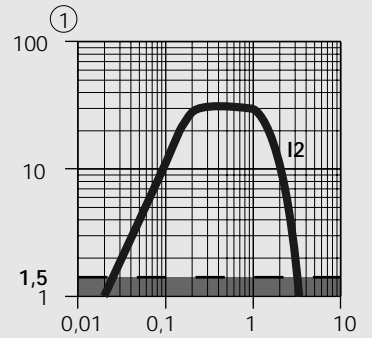
- ① Connector M12
- ② Cable connection
- ③ Plastic housing
- ④ Stainless steel housing
- ⑤ Range adjustment and function indicator

Optical diagrams



Typical beam diameter
(with retroreflector OZR 001)

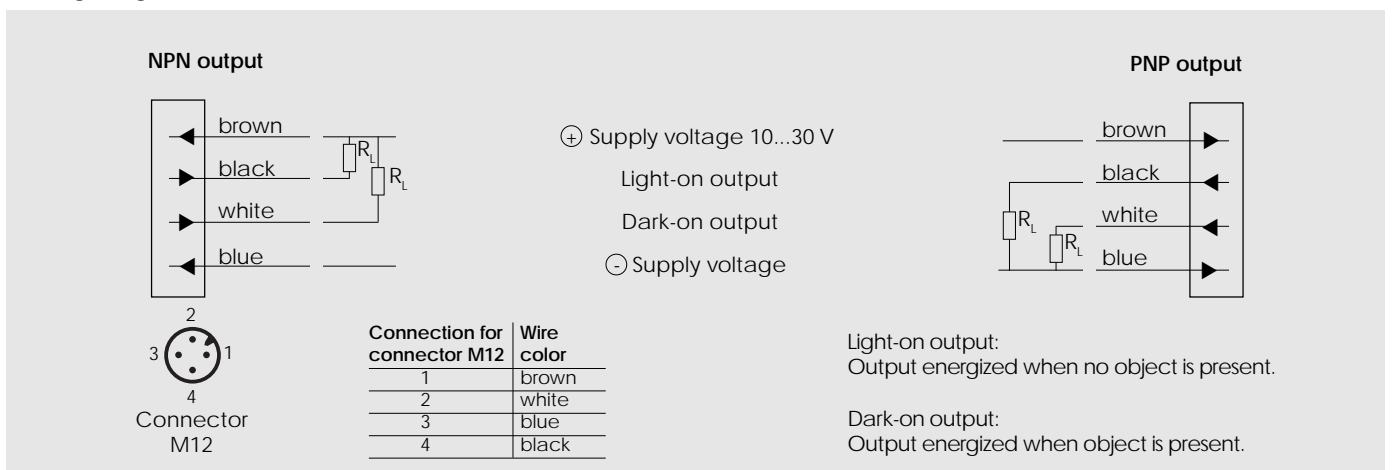
- ① Diameter in (cm)
- ② Range in (m)



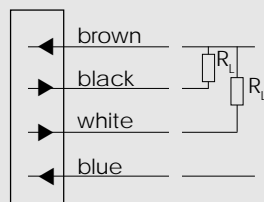
Typical excess gain curve
(with retroreflector OZR 001)

- ① Gain factor
- ② Range in (m)

Wiring diagram



NPN output

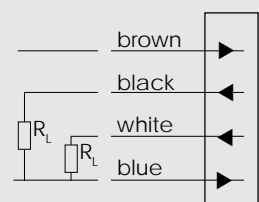


⊕ Supply voltage 10...30 V
Light-on output
Dark-on output
⊖ Supply voltage



Connection for connector M12	Wire color
1	brown
2	white
3	blue
4	black

PNP output



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

Dark-on output:
Output energized when object is present.

Retro-reflective sensors, right angle optics, M18 housing



- Range adjustable
- Light reserve warning indicator
- Dual transistor outputs, NPN or PNP
- 1000 Hz switching frequency
- Short-circuit protection, reverse polarity protection, and power-up output suppression
- Extended stainless steel case for protection of angle optic head (option)
- Connections: Straight cable, 2 meter
Connector, M12
- EMC tested according to IEC 801 and EN50081-1/EN 50082-2



Product designation Plastic housing ¹⁾

Product designation Stainless steel ¹⁾

Output

Connection

Range adjustment

Optical data ²⁾

Range

Emitter

Electrical data ²⁾

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 Plastic/Stainless steel

M1R 1NA 100 W4	M1R 1NA 400 W4	M1R 1PA 100 W4	M1R 1PA 400 W4
M1R 1NA 100 W4M	M1R 1NA 400 W4M	M1R 1PA 100 W4M	M1R 1PA 400 W4M
NPN (light- and dark-on)		PNP (light- and dark-on)	
Cable 2 m	Connector M12	Cable 2 m	Connector M12
Yes			
0,15...2,5 m (retroreflector OZR 001)			
Infrared-LED, 950 nm, pulsed			
10...30 VDC			
+/- 10% of U_{sp}			
< 15 mA			
100 mA			
< 1,6 V			
1000 Hz			
IP 67			
-25...+65 °C			
Connector M12: ca.15/25 g , Cable 2 m: ca. 100/110 g			

1) For product designation of sensors with options see designation code on page 23.

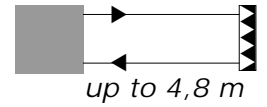
2) When not otherwise noted, all technical data at $T_A = 25\text{ °C}$ and $U_s = 24\text{ V}$.

Retro-reflector ●	Range	Retro-reflector ■	Range	Retro-reflective tape	Range
OZR 001	0.15 – 2.5 m	OZR 101	0.04 – 3.5 m	OZR 201*	0.24 – 0.7 m
OZR 002	0.06 – 2.2 m	OZR 102	0.09 – 1.2 m	OZR 202	0.39 – 1.9 m
OZR 003	0.14 – 1.0 m	OZR 103	0.03 – 3.0 m	OZR 203	0.25 – 1.3 m
		OZR 104	0.03 – 4.8 m	OZR 204*	0.25 – 0.9 m
				OZR 205*	0.25 – 1.5 m

* 30 cm long

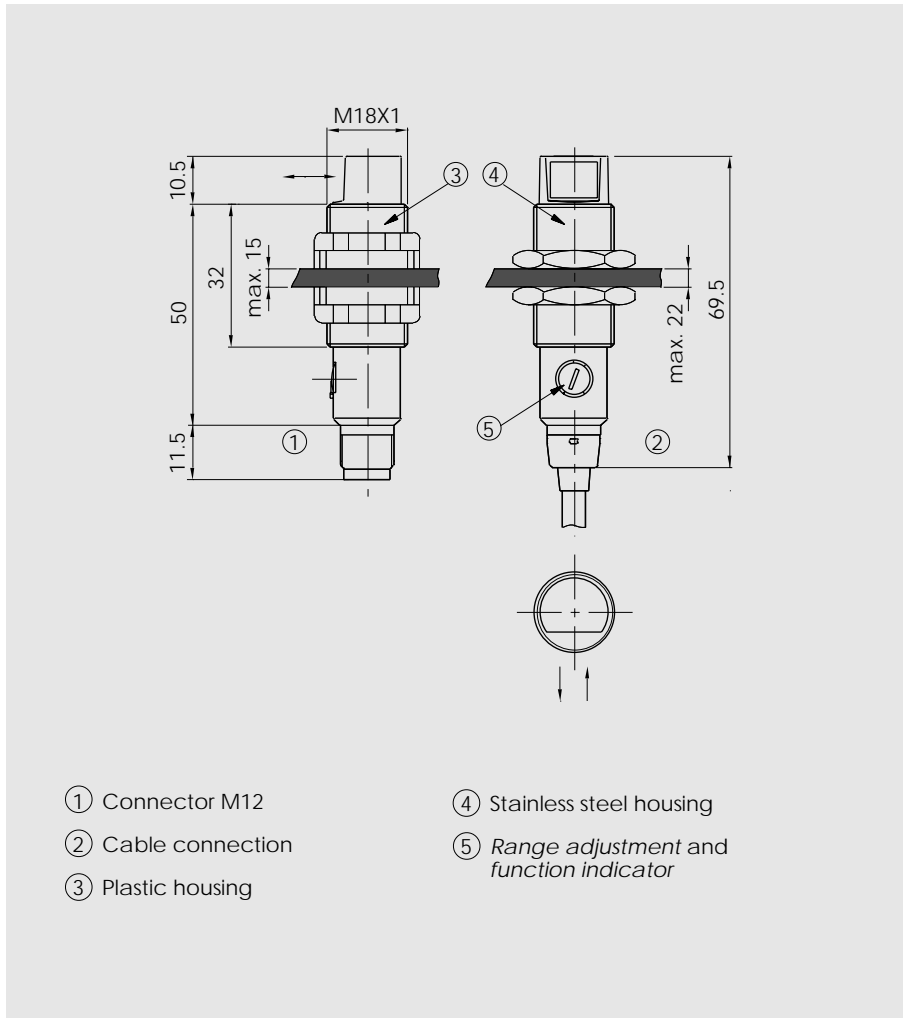
10...30 VDC

NPN / PNP
light-on and
dark-on output

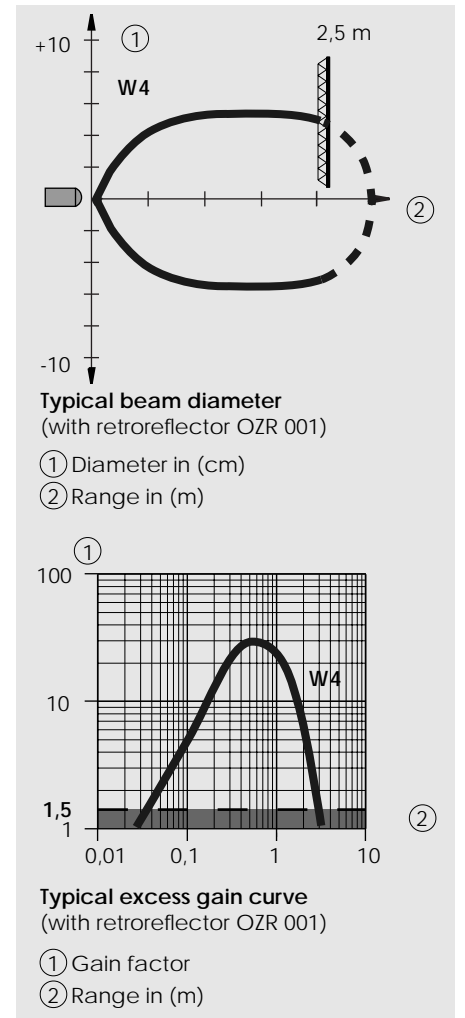


M1R right angle optics

Dimensions (60.5 mm, M18 x 1)



Optical diagrams



Wiring diagram

