

Through-beam 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
- Test input
- 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⁾

Max. 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

Test input: emitter on
emitter off

Test input inverse: emitter on
emitter off

Environmental data

Sealing

Temperature T_A
(operating and storage)

Weight Plastic/Stainless steel

Emitter				Receiver			
M1S 1KA 101 I1	M1S 1KA 401 I1	M1S 1KA 101 I4	M1S 1KA 401 I4	M1E 1NA 140 I1	M1E 1NA 440 I1	M1E 1PA 140 I1	M1E 1PA 440 I1
M1S 1KA 101 I1M	M1S 1KA 401 I1M	M1S 1KA 101 I4M	M1S 1KA 401 I4M	M1E 1NA 140 I1M	M1E 1NA 440 I1M	M1E 1PA 140 I1M	M1E 1PA 440 I1M
				NPN (light-/dark-on)		PNP (light-/dark-on)	
Cable 2 m	Connector M12	Cable 2 m	Connector M12	Cable 2 m	Connector M12	Cable 2 m	Connector M12
Yes				No			
15 m		35 m		15/35 m			
Infrared-LED, 880 nm, pulsed		Infrared-LED, 890 nm, pulsed					
10...30 VDC							
+/- 10% of U_{sp}							
< 25 mA				< 15 mA			
				100 mA			
				< 1,6 V			
				1000 Hz			
> 8 V or open < 1,5 V							
open or < 1,5 V > 8 V							
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 $U_s = 24\text{ V}$.

Option

Versions with integrated optical apertures for the detection of small objects or for precise positioning tasks.



Slit aperture

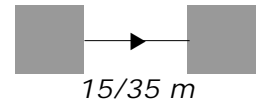


Round aperture

Slit aperture	Range	Round aperture	Range
0.5 mm x 9 mm	2.4 m	∅ 1.0 mm	0.45 m
1.0 mm x 9 mm	4.0 m	∅ 1.5 mm	1.05 m
2.0 mm x 9 mm	6.5 m	∅ 2.0 mm	2.15 m

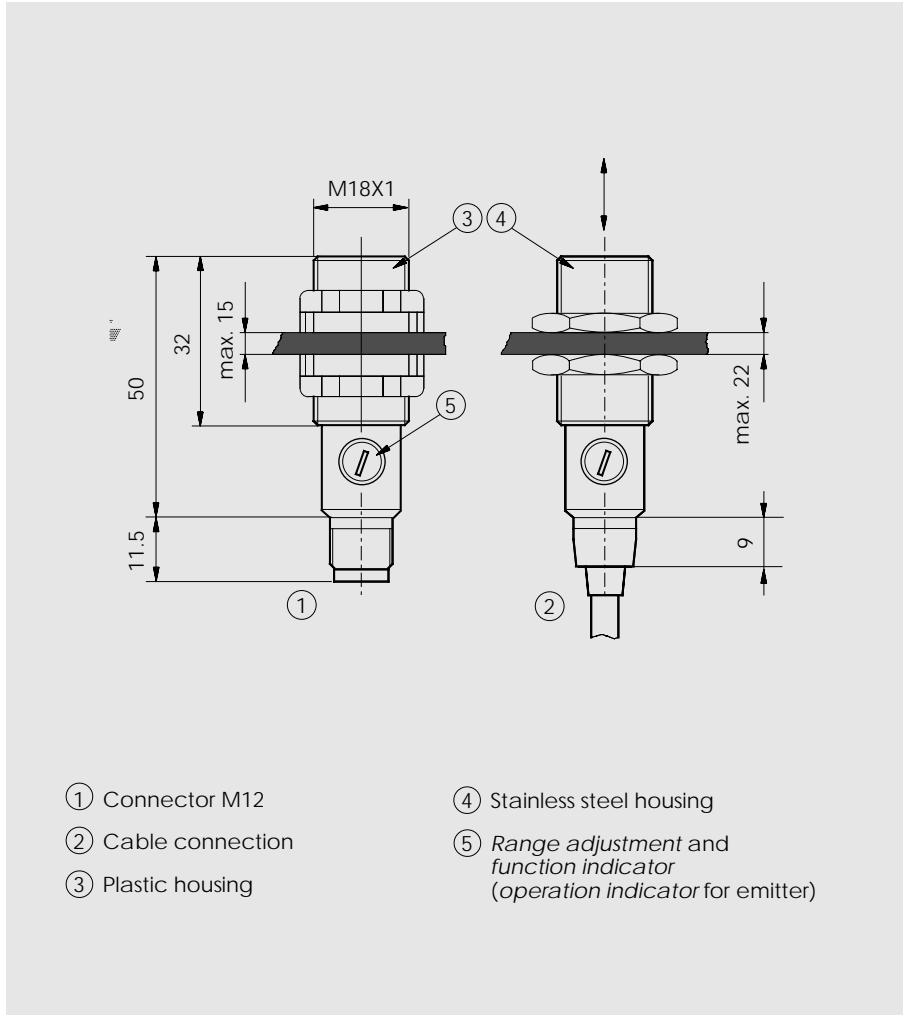
10...30 VDC

NPN / PNP
light-on and
dark-on output

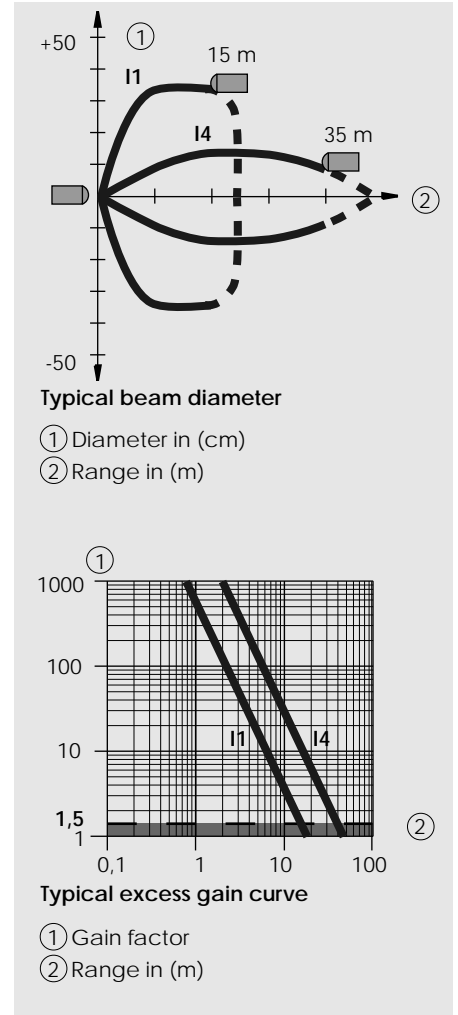


M1S/M1E

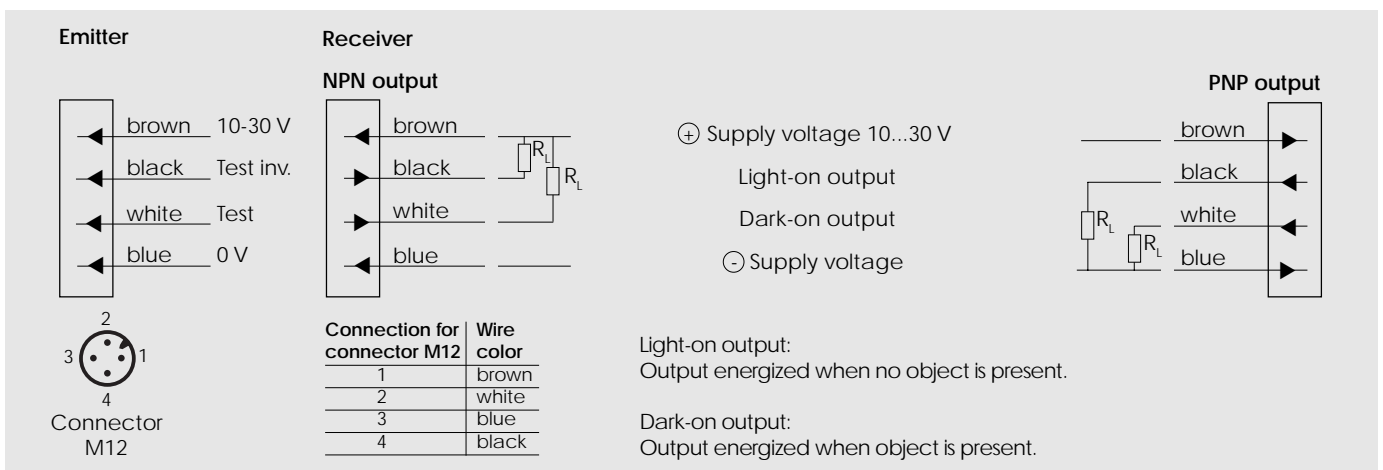
Dimensions (50 mm, M18 x 1)



Optical diagrams



Wiring diagram



Through-beam 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
- Test input
- 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⁾

Max. 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

Test input: emitter on
emitter off

Test input inverse: emitter on
emitter off

Environmental data

Sealing

Temperature T_A
(operating and storage)

Weight Plastic/Stainless steel

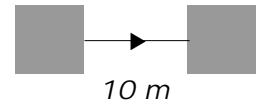
Emitter		Receiver			
M1S 1KA 101 W3	M1S 1KA 401 W3	M1E 1NA 140 W3	M1E 1NA 440 W3	M1E 1PA 140 W3	M1E 1PA 440 W3
M1S 1KA 101 W3M	M1S 1KA 401 W3M	M1E 1NA 140 W3M	M1E 1NA 440 W3M	M1E 1PA 140 W3M	M1E 1PA 440 W3M
		NPN (light- and dark-on)		PNP (light- and dark-on)	
Cable 2 m	Connector M12	Cable 2 m	Connector M12	Cable 2 m	Connector M12
Yes		No			
10 m					
Infrared-LED, 880 nm, pulsed					
10...30 VDC					
+/- 10% of U_{sp}					
< 25 mA		< 15 mA			
		100 mA			
		< 1,6 V			
		1000 Hz			
> 8 V or open < 1,5 V					
open or < 1,5 V > 8 V					
IP 67					
-25...+65 °C					
Connector M12: ca.15/25 g , Cable 2 m: ca. 100/110 g					

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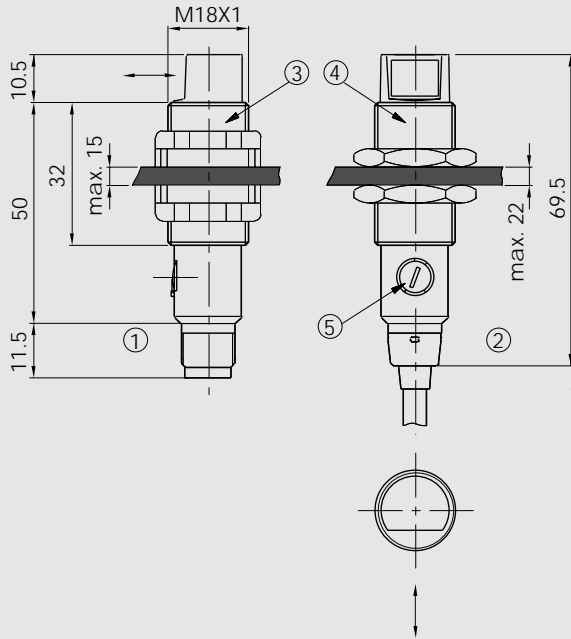
10...30 VDC

NPN / PNP
light-on and
dark-on output



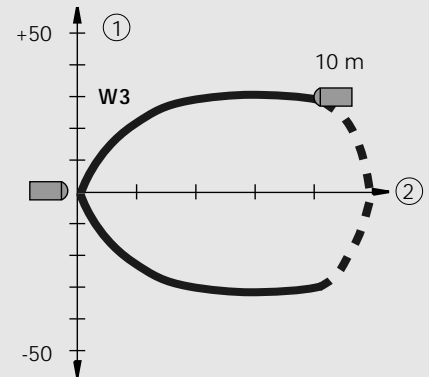
M1S/M1E right angle optics

Dimensions (60.5 mm, M18 x 1)



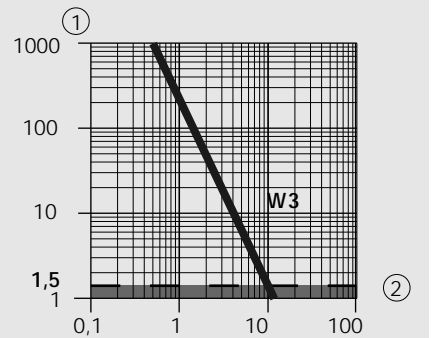
- ① Connector M12
- ② Cable connection
- ③ Plastic housing
- ④ Stainless steel housing
- ⑤ Range adjustment and function indicator (operation indicator for emitter)

Optical diagrams



Typical beam diameter

- ① Diameter in (cm)
- ② Range in (m)



Typical excess gain curve

- ① Gain factor
- ② Range in (m)

Wiring diagram

