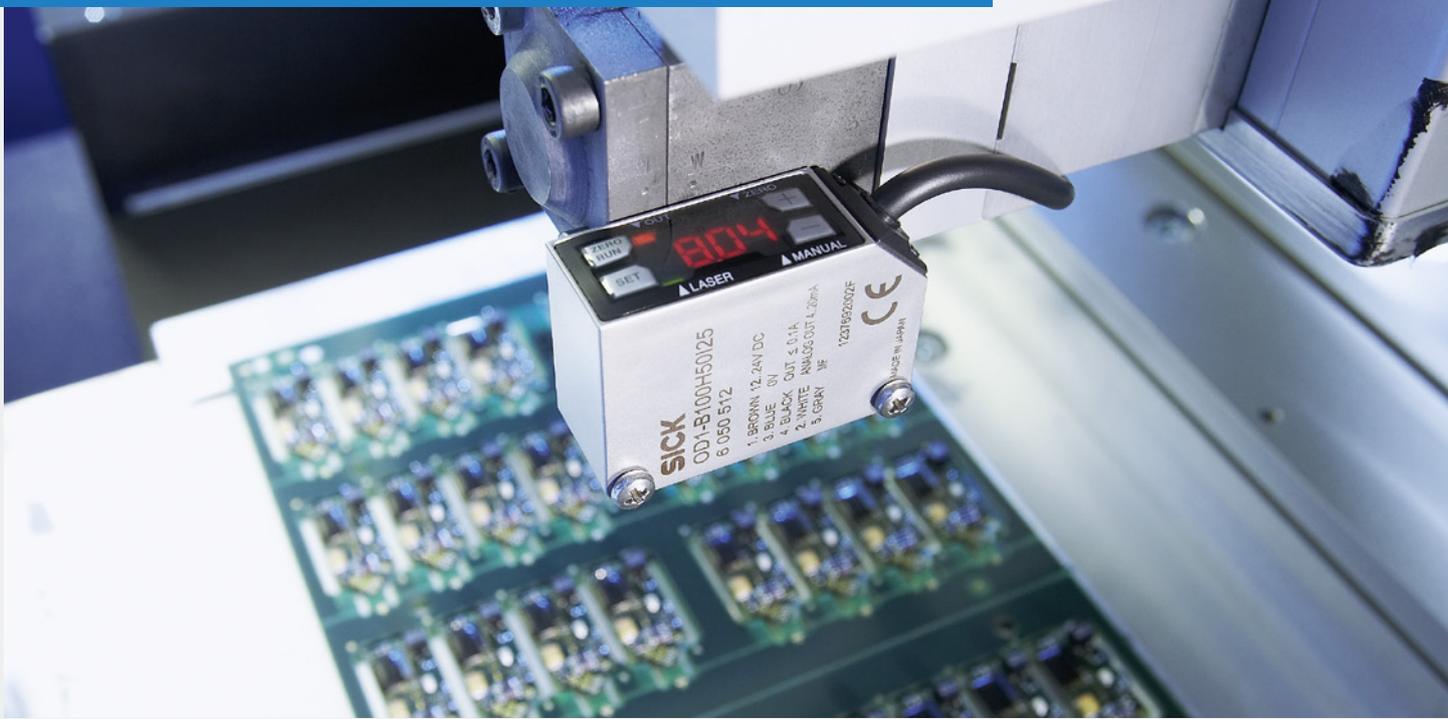




OD Mini Short Range Distance Sensors (Displacement)

Compact, lightweight sensor for precise measurement

OD Mini – The lightweight sensor in a compact housing



The OD Mini in original size: 44.4 mm x 31 mm x 17 mm

The new OD Mini short range distance sensor from SICK is one of the world's smallest displacement sensors with display and control elements. Its measurement accuracy in the μm range, high-quality fittings, compact size and low weight are impressive. The OD Mini is available in two housing designs.

OD Mini, stainless steel – The robust sensor

Stainless steel housing for use in harsh conditions



- 44.4 mm x 31 mm x 17 mm
- 70 g
- Connector M8, 4-pin or
Cable with connector, M12, 5-pin

OD Mini, aluminum – The lightweight sensor

For highly dynamic applications, e.g. robotic arms and grippers



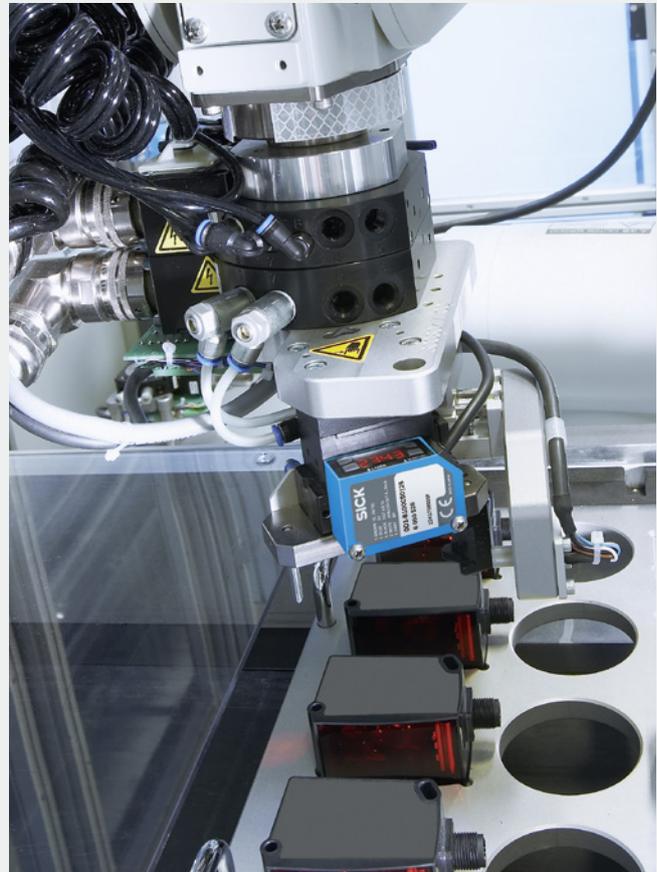
- 44.4 mm x 31 mm x 17 mm
- 40 g
- Connector M8, 4-pin or
Cable with connector, M12, 5-pin

Small sensor – great performance

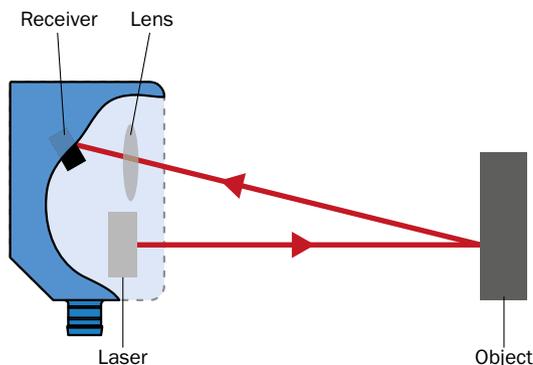
- **Precision measurement and positioning to the micrometer in dynamic applications**
 - Regardless of brightness and color of the object surface and at high speeds
- **Compact housing**
 - Can be installed when space is very limited
- **Lightweight**
 - Only 40 g (aluminum version)
- **Integrated LCD display**
 - Four buttons, very user-friendly
- **Simple electrical integration**
- **Integrated evaluation electronics**
 - Saves space and wiring effort

Typical industries and fields of application

- **Electronics and solar industry**
 - Measurement of electronic components for precise positioning
- **Machine tool and automobile industry**
 - Quality control of manufacturing tolerances
- **Handling and robotics industry**
 - Process control by robot positioning
- **Packaging machinery industry**
 - Classification and sorting (e.g. by length)

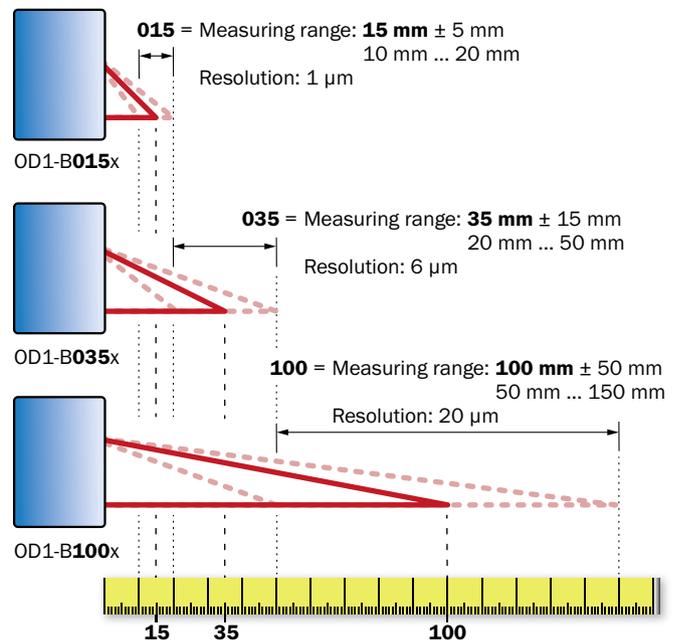


Technology: Triangulation principle



- A point of light is projected onto the object to be measured.
- The light reflected is captured by a light-sensitive receiver at a specific angle.
- Based on the angle between the send and receive direction, the position of the object is triangulated (lat. Triangulum: triangle).

Measuring ranges



In the measuring ranges between 10 mm and 150 mm, three sensor versions make very accurate, quick measurement of distances and positions possible.

Compact, lightweight sensor for precise measurement



Product description

Simple, precise, and economic solutions for measuring tasks; the OD Mini short range distance sensors (displacement) are impressive with their compact and rugged stainless steel housing. These sensors are equipped with the latest CMOS receiver technology for precise measurement, regardless of the brightness and color of the surface material. The integrated amplifier unit enables the OD Mini to work on a stand-alone

basis. Cabling to an external amplifier unit is no longer an issue. The OD Mini is simple to configure due to its intuitive design and display with four status LEDs. The OD Mini can also be remotely programmed via the external teaching input. The large number of available interfaces also simplifies integration into industrial networks. This ensures the highest possible reliability and precision when solving a wide range of measurement tasks.

At a glance

- Compact, robust housing
- Integrated amplifier unit, no additional unit necessary
- Display and LEDs on device for visualization of current status
- Digital, analog and serial interface available
- Simple teach-in using display or external teaching input
- CMOS receiver unit for precise, fast measurement in the μm range
- Three measuring ranges enabling measurement from 10 mm up to 150 mm

Your benefits

- Cost-saving commissioning through simple operating concept and display
- Small installation size and low weight also allow use in highly dynamic applications
- Reduction in cabling, as no additional amplifier unit is necessary
- High machine availability thanks to reliable measurement, regardless of brightness and color of surface
- The wide range of available interfaces enables simple integration into industrial networks
- Optimum performance even at high production speeds



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→ www.mysick.com/en/OD_Mini

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Detailed technical data

Performance

Measuring range	10 mm ... 20 mm 20 mm ... 50 mm 50 mm ... 150 mm
Resolution ¹⁾	10 mm ... 20 mm 1 µm 20 mm ... 50 mm 6 µm 50 mm ... 150 mm 20 µm
Repeatability ^{1) 2)}	10 mm ... 20 mm 3 µm 20 mm ... 50 mm 9 µm 50 mm ... 150 mm 30 µm
Linearity ^{3) 4)}	10 mm ... 20 mm ± 10 µm 20 mm ... 50 mm ± 30 µm 50 mm ... 150 mm ± 100 µm
Response time ⁵⁾	0.5 ms / 1 ms / 2 ms / 4 ms / auto
Measuring frequency	2 kHz / 1 kHz / 500 Hz / 250 Hz / auto
Light source ⁶⁾	Laser, red
Laser protection class	1 (EN 60825-1) 2 (21 CFR 1040.10)
Typ. light spot size (distance)	10 mm ... 20 mm 700 µm x 500 µm (15 mm) 20 mm ... 50 mm 800 µm x 450 µm (35 mm) 50 mm ... 150 mm 700 µm x 600 µm (100 mm)
Additional function	Averaging 1 ... 512x Automatic or manual sensitivity adjustment Teach-in of analog outputs Teach-in of switching outputs Invertable switching output Switching mode: object between sensor and background (ObSB) Multifunctional input: laser-off / external teach-in / trigger Switching mode: distance to object (DtO) Switching mode: window (Wnd)

¹⁾ Averaging function set to: 512.

²⁾ Constant ambient conditions.

³⁾ Measurement on 90 % remission (ceramic, white)

⁴⁾ For best performance consider warm up time ≤ 5 minutes.

⁵⁾ When automatic sensitivity adjustment is activated, the response time doubles.

⁶⁾ Wavelength: 650 nm, max. output: 0.39 mW.

Interfaces

Multifunctional input (MF) ¹⁾	1 x
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¹⁾ MF can be used as laser-off, trigger, external teach-in or deactivated.

Mechanics/electronics

Supply voltage V_s	DC 12 V (-5 %) ... DC 24 V (+10 %)
Power consumption ¹⁾	≤ 1.92 W
Warm-up time	≤ 5 min
Indication	4-digit 7-segment display (plus 4 LEDs for status display)
Control elements	4 buttons
Weight	
Aluminum housing with PPSU lens	40 g
Stainless steel housing with PPSU lens	70 g
Dimensions	44,4 mm x 31 mm x 17 mm

¹⁾ Without load, with current output.

Ambient data

Enclosure rating	IP 67
Protection class	III
Ambient temperature	Operation: -10 °C ... +40 °C Storage: -20 °C ... +60 °C
Min. rel. humidity (not condensing)	35 %
Max. rel. humidity (not condensing)	95 %
Temperature drift	± 0.08 % FS/K (FS = Full Scale = Measuring range of sensor)
Typ. ambient light safety	Artificial light: ≤ 3,000 lx Sunlight: ≤ 10,000 lx
Vibration resistance	10 Hz ... 55 Hz (amplitude 1.5 mm, x-, y-, z-axis 2 hours each)
Shock resistance	50 G (x-, y-, z-axis 3 times each)

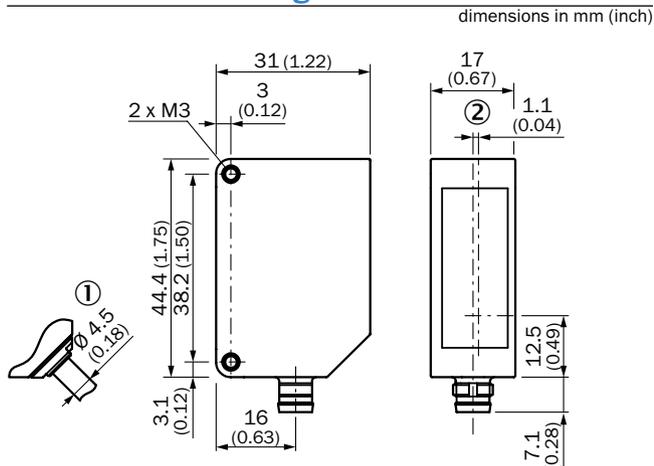
General notes

Note	Not free of paint wetting impairment substances
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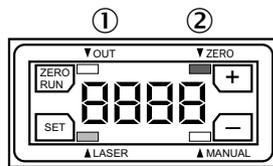
Ordering information

Housing material	Measurement range	Data interface	Connection type	Switching output	Model name	Part no.
Stainless steel housing with PPSU lens	10 mm ... 20 mm	1 x 4 mA ... 20 mA (< 300 Ω)	Connector M8, 4-pin	-	OD1-B015H05I14	6050495
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B015H05I25	6050496
		1 x 0 V ... 10 V (> 10 kΩ)	Connector M8, 4-pin	-	OD1-B015H05U14	6050497
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B015H05U25	6050498
	20 mm ... 50 mm	1 x 4 mA ... 20 mA (< 300 Ω)	Connector M8, 4-pin	-	OD1-B035H15I14	6050503
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B035H15I25	6050504
		1 x 0 V ... 10 V (> 10 kΩ)	Connector M8, 4-pin	-	OD1-B035H15U14	6050505
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B035H15U25	6050506
	50 mm ... 150 mm	1 x 4 mA ... 20 mA (< 300 Ω)	Connector M8, 4-pin	-	OD1-B100H50I14	6050511
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B100H50I25	6050512
		1 x 0 V ... 10 V (> 10 kΩ)	Connector M8, 4-pin	-	OD1-B100H50U14	6050513
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B100H50U25	6050514
Aluminum housing with PPSU lens	10 mm ... 20 mm	1 x 4 mA ... 20 mA (< 300 Ω)	Connector M8, 4-pin	-	OD1-B015C05I14	6050519
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B015C05I25	6050520
	20 mm ... 50 mm	1 x 4 mA ... 20 mA (< 300 Ω)	Connector M8, 4-pin	-	OD1-B035C15I14	6050523
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B035C15I25	6050524
	50 mm ... 150 mm	1 x 4 mA ... 20 mA (< 300 Ω)	Connector M8, 4-pin	-	OD1-B100C50I14	6050527
			Cable with connector M12, 5-pin	1 x PNP/NPN, selectable	OD1-B100C50I25	6050528

Dimensional drawing



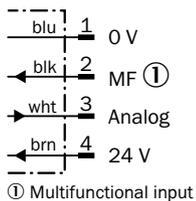
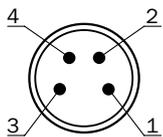
Adjustments



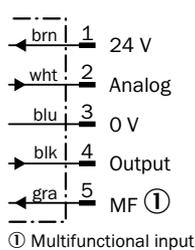
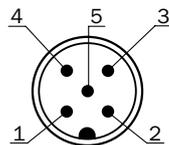
- ① Status indicator switching output
- ② Status indicator zeroing
- ③ Status indicator Teach mode
- ④ Status indicator laser

Connection type and diagram

OD1-BxxxxxxI14
OD1-BxxxxxxU14
 connector **M8**,
4-pin

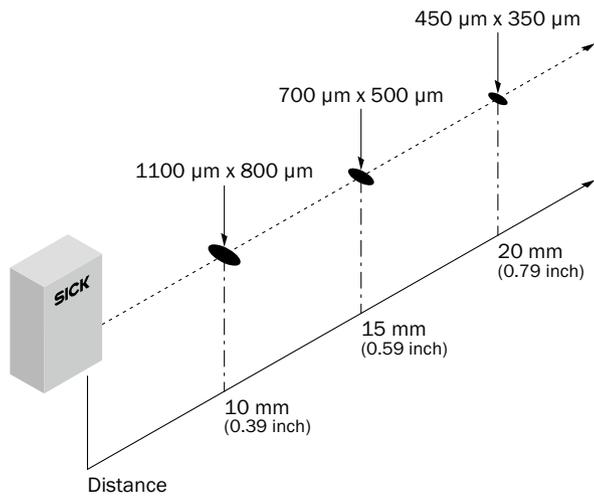


OD1-BxxxxxxI25
OD1-BxxxxxxU25
 cable with connector **M12**,
5-pin

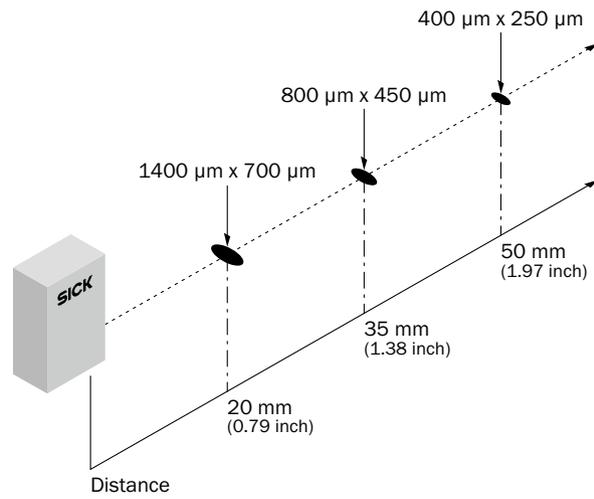


Light spot size

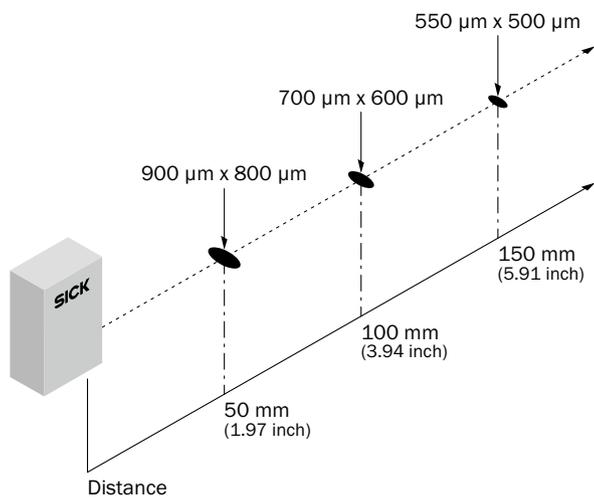
OD1-B015x05xxx



OD1-B035x15xxx

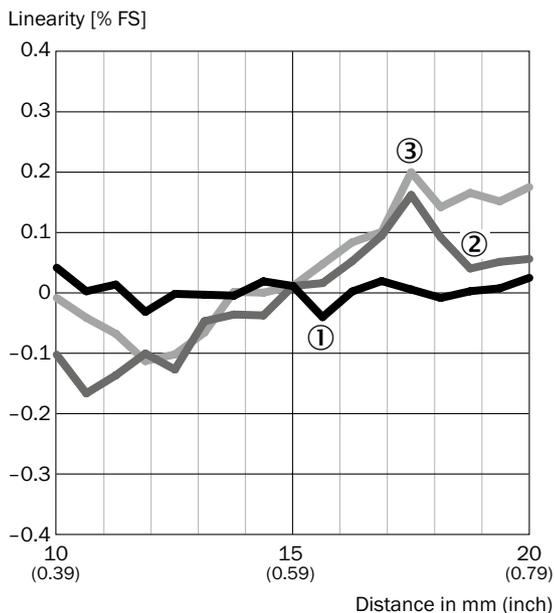


OD1-B100x50xxx



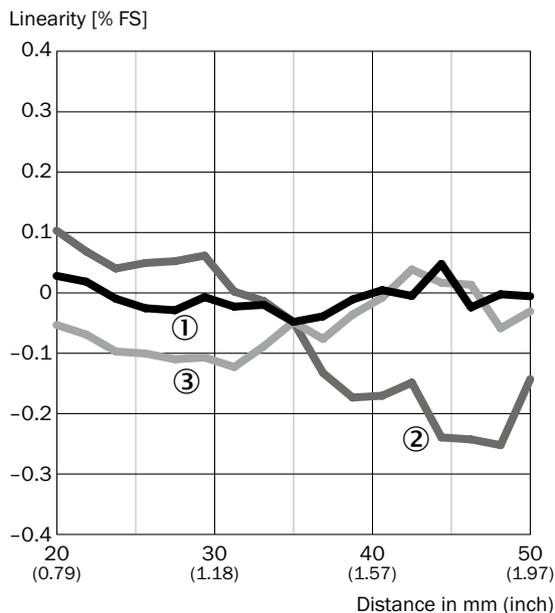
Linearity

OD1-B015x05xxx



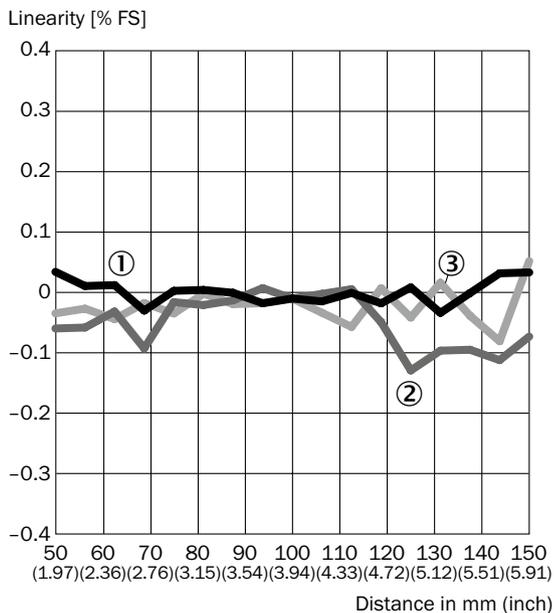
- ① White ceramic
- ② Stainless steel
- ③ Black rubber

OD1-B035x15xxx



- ① White ceramic
- ② Stainless steel
- ③ Black rubber

OD1-B100x50xxx



- ① White ceramic
- ② Stainless steel
- ③ Black rubber

Accessories

Plug connectors and cables

Connecting cable (female connector-open)

- Connection type head B: cable

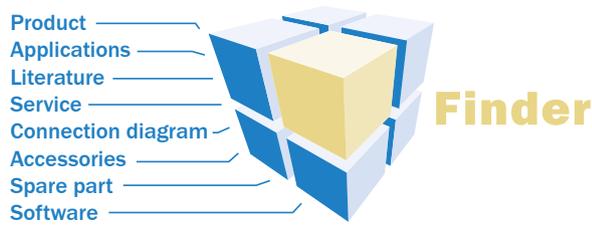
	Connection type head A	Material	Special feature	Cable length	Model name	Part no.	OD Mini connector	OD Mini cable with connector
	Female connector, M8, 4-pin, straight	PVC	-	2 m	DOL-0804-G02M	6009870	●	-
				5 m	DOL-0804-G05M	6009872	●	-
				10 m	DOL-0804-G10M	6010754	●	-
				15 m	DOL-0804-G15M	6035232	●	-
				20 m	DOL-0804-G20M	6029109	●	-
				30 m	DOL-0804-G30M	6029110	●	-
				50 m	DOL-0804-G50M	6029111	●	-
	Female connector, M8, 4-pin, straight	PUR, halogen-free	Drag chain use	2 m	DOL-0804-G02MC	6025894	●	-
				5 m	DOL-0804-G05MC	6025895	●	-
				10 m	DOL-0804-G10MC	6025896	●	-
				15 m	DOL-0804-G15MC	6038622	●	-
				20 m	DOL-0804-G20MC	6051148	●	-
	Female connector, M8, 4-pin, angled	PVC	-	2 m	DOL-0804-W02M	6009871	●	-
				5 m	DOL-0804-W05M	6009873	●	-
				10 m	DOL-0804-W10M	6010755	●	-
 Illustration may differ	Female connector, M8, 4-pin, angled	PUR, halogen-free	Drag chain use	2 m	DOL-0804-W02MC	6025897	●	-
				5 m	DOL-0804-W05MC	6025898	●	-
				10 m	DOL-0804-W10MC	6025899	●	-
	Female connector, M12, 5-pin, straight	PVC	-	2 m	DOL-1205-G02M	6008899	-	●
				5 m	DOL-1205-G05M	6009868	-	●
				10 m	DOL-1205-G10M	6010544	-	●
	Female connector, M12, 5-pin, straight	PUR, halogen-free	-	2 m	DOL-1205-G02MC	6025906	-	●
			Shielded	5 m	DOL-1205-G05MAC	6036384	-	●
			-	5 m	DOL-1205-G05MC	6025907	-	●
			Shielded	10 m	DOL-1205-G10MAC	6036385	-	●
			-	10 m	DOL-1205-G10MC	6025908	-	●
			Shielded	20 m	DOL-1205-G20MAC	6036386	-	●

Female connector (ready to assemble)

	Connection type head A	Model name	Part no.	OD Mini connector	OD Mini cable with connector
	Female connector, M8, 4-pin, straight	DOS-0804-G	6009974	●	-
	Female connector, M8, 4-pin, angled	DOS-0804-W	6009975	●	-
	Female connector, M12, 5-pin, straight	DOS-1205-G	6009719	-	●
	Female connector, M12, 5-pin, angled	DOS-1205-W	6009720	-	●

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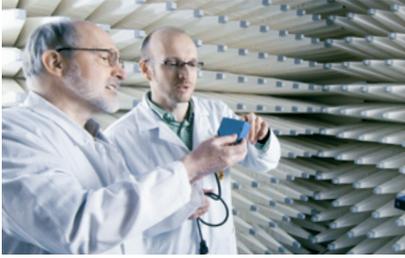
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SICK at a glance



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Unique product range

- Non-contact detecting, counting, classifying, positioning and measuring of any type of object or media
- Accident and operator protection with sensors, safety software and services
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- Laser measurement technology for detecting the volume, position and contour of people and objects
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