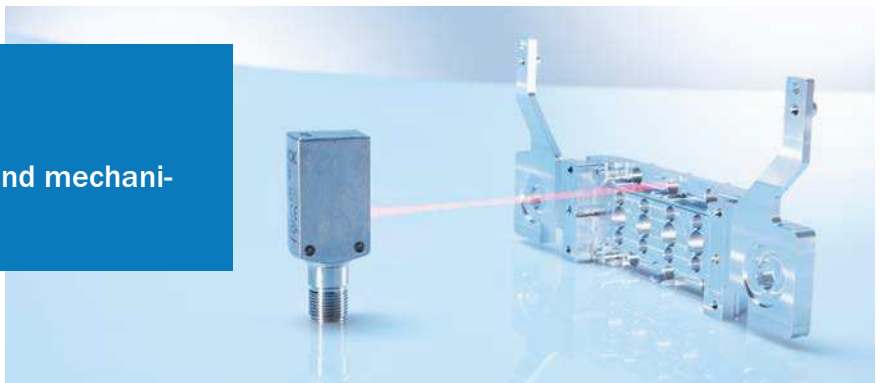


The new standard for optical and mechanical ruggedness



F

STAIN-  
LESS  
STEEL

★  
IP 69K

★

SIRIC®



optical ASIC  
invented by SICK

**Additional information**

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**Product description**

For the best possible performance in a wet environment: thanks to high light immunity, the new W4SL-3 Inox miniature photoelectric sensors from SICK with precise laser light spot set new standards when it comes to preventing undesired background reflections and to ambient light immunity, even in modern energy-saving lights. The combination of SICK's latest proprietary laser and SIRIC® technologies reduces incorrect switching. The photoelectric sensors complete this product family. One device can reliably

detect all transparent objects as well as tiny non-transparent objects. This reduces the variety of devices and saves on storage costs. The photoelectric sensors also feature an IO-Link function, so that initial system performance diagnostics can be done independently. The W4SL-3 Inox is certified in accordance with ECOLAB. The membrane teach-in pushbutton and the pin-cast electrical connections make it reliable even in critical ambient conditions.

**At a glance**

- Precise laser light spot, laser class 1
- Stainless steel housing with wash-down design
- Latest SIRIC® and laser technologies for outstanding background suppression and ambient light immunity
- Teach-in pushbutton can be switched between detection of transparent and tiny non-transparent objects
- ECOLAB certified, tested to IP 66, IP 67, IP 68 and IP 69K enclosure rating
- IO-Link (optional)

**Your benefits**

- Precise laser light spot for highly accurate switching
- Washable stainless steel housing reduces bacterial contamination
- Innovative washdown design with sealed connections and unique patented membrane teach-in pushbutton
- High ambient light immunity reduces incorrect switching and ultimately machine downtime, even when modern energy-saving lights are used
- The highest degree of machine design flexibility. Outstanding BGS (background suppression) eliminates the effect of undesired background reflections. Autocollimation permits detection through very small drilled holes.
- IO-Link provides effortless initial diagnostics of system performance

→ [www.mysick.com/en/W4SL-3V](http://www.mysick.com/en/W4SL-3V)

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

### Features

	WTB4SL-3V	WSE4SL-3V
Sensor principle	Photoelectric proximity sensor	Through-beam photoelectric sensor
Detection principle	Background suppression	-
Dimensions (W x H x D)	15.3 mm x 55.4 mm x 22.2 mm	
Housing design	Washdown	
Housing design (light emission)	Rectangular, Slim	
Mounting hole	M3	
Sensing range max.	25 mm ... 300 mm <sup>1)</sup>	0 m ... 60 m
Sensing range	25 mm ... 300 mm <sup>1)</sup>	0 m ... 50 m
Type of light	Visible red light	
Light source <sup>2)</sup>	Laser	
Light spot size (distance)	Ø 1 mm (170 mm)	Ø 1 mm (500 mm)
Wave length	650 nm	
Laser class <sup>3)</sup>	1	
Adjustment	Single teach-in button	

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

<sup>2)</sup> Average service life 50,000 h at T<sub>a</sub> = +25 °C.

<sup>3)</sup> EN60825-1:2008-05 & IEC 60825-1:2007-03 / CDRH 21 CFR 1040.10 & 1040.11

### Mechanics/electronics

	WTB4SL-3V	WSE4SL-3V
Supply voltage <sup>1)</sup>	10 V DC ... 30 V DC	
Ripple <sup>2)</sup>	< 5 V <sub>pp</sub>	
Power consumption <sup>3)</sup>	≤ 30 mA	
Output type	PNP <sup>4)</sup> / NPN <sup>4)</sup> (depending on type)	
Output function	Complementary	
Switching mode <sup>4)</sup>	Light/dark-switching	
Output current I <sub>max.</sub>	≤ 100 mA	
Response time <sup>5)</sup>	≤ 0.5 ms	
Switching frequency <sup>6)</sup>	1,000 Hz	
Connection type	Male connector, M8 <sup>7)</sup> / Male connector, M12 <sup>9)</sup> / Cable, 2 m <sup>8)</sup> (depending on type)	
Circuit protection	A <sup>10)</sup> , B <sup>11)</sup> , C <sup>12)</sup>	
Protection class	III	
Weight	Cable <sup>8)</sup> 80 g Connector M8 <sup>7)</sup> 40 g Connector M12 <sup>9)</sup> 45 g	
Housing material	Stainless steel V4A (1.4404, 316L)	
Optics material	PMMA	

	WTB4SL-3V	WSE4SL-3V
Enclosure rating	IP 66, IP 67, IP 68, IP 69K <sup>13)</sup>	
Ambient operating temperature	-10 °C ... +50 °C	
Ambient operating temperature extended <sup>14) 15)</sup>	-30 °C ... +55 °C	
Ambient storage temperature	-30 °C ... +70 °C	

<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A.

<sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Q = light-switching.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> Tightening torque, max.: 0.6 Nm.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> Tightening torque, max.: 0.7 Nm.

<sup>10)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>11)</sup> B = inputs and output reverse-polarity protected.

<sup>12)</sup> C = interference suppression.

<sup>13)</sup> Only in case of correctly mounted IP 69K connecting cable.

<sup>14)</sup> As of  $T_a = 50$  °C, a max. supply voltage  $V_{max.} = 24$  V and a max. load current  $I_{max.} = 50$  mA is permitted.

<sup>15)</sup> Using the sensor below  $T_a = -10$  °C is possible, if the sensor is turned on at  $T_a > -10$  °C, then the environment cools down and the sensor is not disconnected from the supply voltage during the whole time. It is not allowed to turn on the sensor below  $T_a = -10$  °C.

## Ordering information

Other models available at [www.mysick.com/en/W4SL-3V](http://www.mysick.com/en/W4SL-3V)

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### WTB4SL-3V

- **Sensor principle:** photoelectric proximity sensor
- **Switching mode:** light/dark-switching (Q = light-switching.)
- **Adjustment:** single teach-in button

Sensing range max. <sup>1)</sup>	Output type	Connection	Connection diagram	Model name	Part no.
25 mm ... 300 mm	PNP	Connector M8, 4-pin	Cd-083	WTB4SL-3P2262V	1058251
		Connector M12, 4-pin	Cd-083	WTB4SL-3P2462V	1058253
		Cable, 4-wire, 2 m, PVC	Cd-094	WTB4SL-3P1162V	1058256
	NPN	Connector M8, 4-pin	Cd-083	WTB4SL-3N2262V	1058252
		Connector M12, 4-pin	Cd-083	WTB4SL-3N2462V	1058254
		Cable, 4-wire, 2 m, PVC	Cd-094	WTB4SL-3N1162V	1058257

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

### WSE4SL-3V

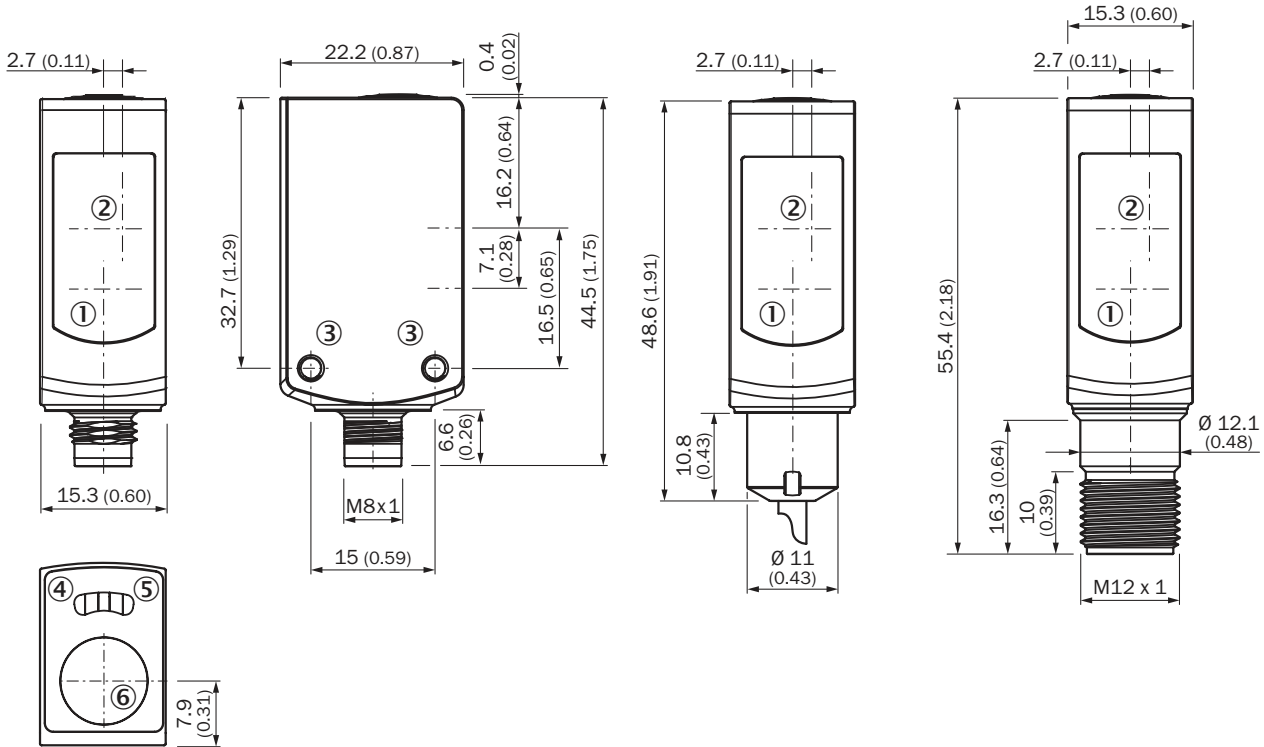
- **Sensor principle:** through-beam photoelectric sensor
- **Switching mode:** light/dark-switching (Q = light-switching.)
- **Adjustment:** single teach-in button

Sensing range max.	Output type	Connection	Connection diagram	Model name	Part no.
0 m ... 60 m	PNP	Connector M8, 4-pin	Cd-232	WSE4SL-3P2237V	1058267
		Connector M12, 4-pin	Cd-232	WSE4SL-3P2437V	1058269
	NPN	Cable, 4-wire, 2 m, PVC	Cd-231	WSE4SL-3N1137V	1058270

Dimensional drawings

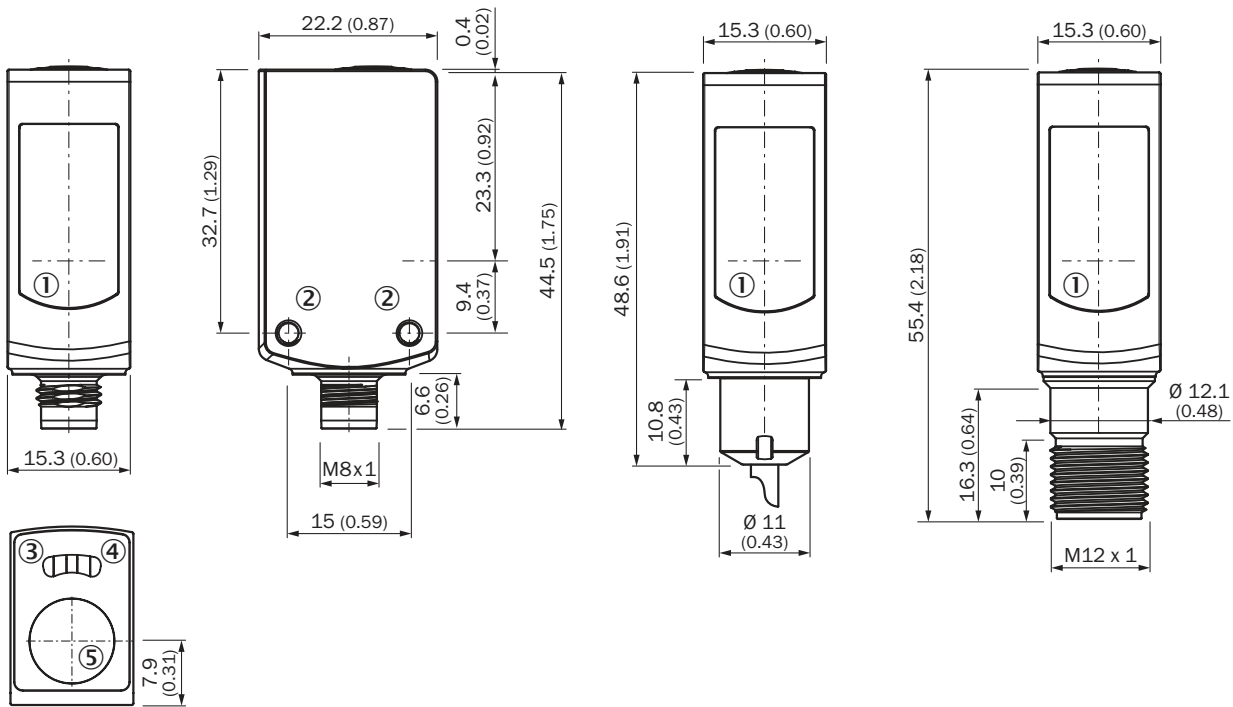
Dimensions in mm (inch)

WTB4SL-3



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Threaded mounting hole M3
- ④ Status indicator LED, yellow: Status of received light beam
- ⑤ Status indicator LED green: power on
- ⑥ Single teach-in button

WSE4SL-3



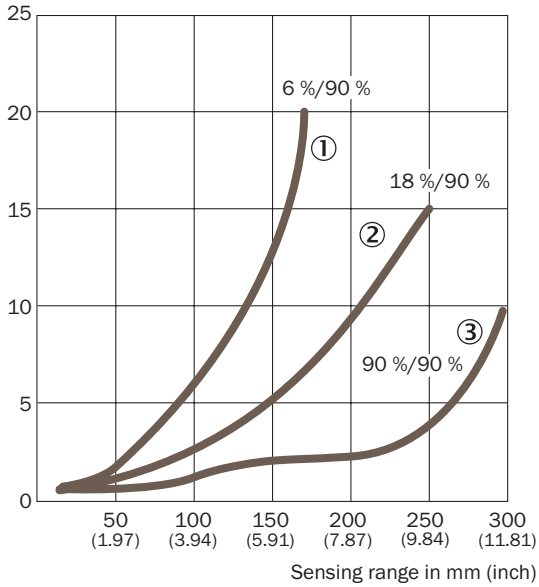
- ① Center of optical axis
- ② Threaded mounting hole M3
- ③ Status indicator LED, yellow: Status of received light beam
- ④ Status indicator LED green: power on
- ⑤ Single teach-in button

Characteristic curves

Black-white shift

WTB4SL-3

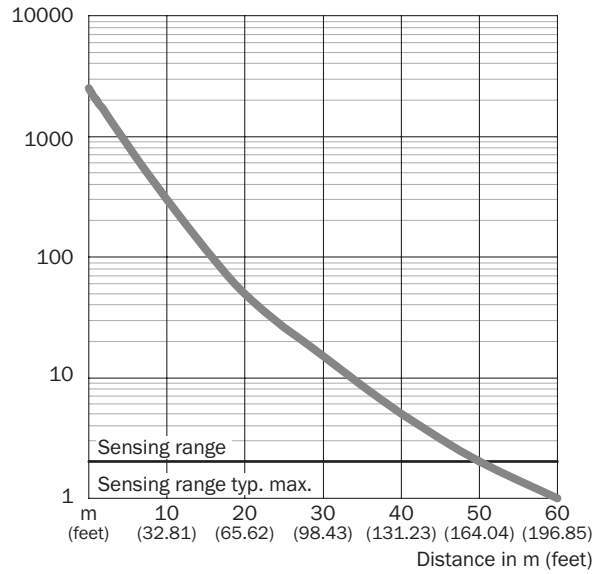
% of sensing range



- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

Operating reserve

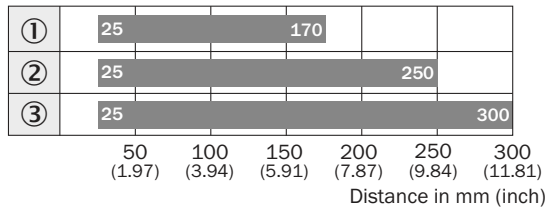
WSE4SL-3



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Bar diagrams

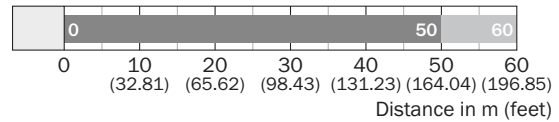
WTB4SL-3



■ Sensing range typ. max.

- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

WSE4SL-3

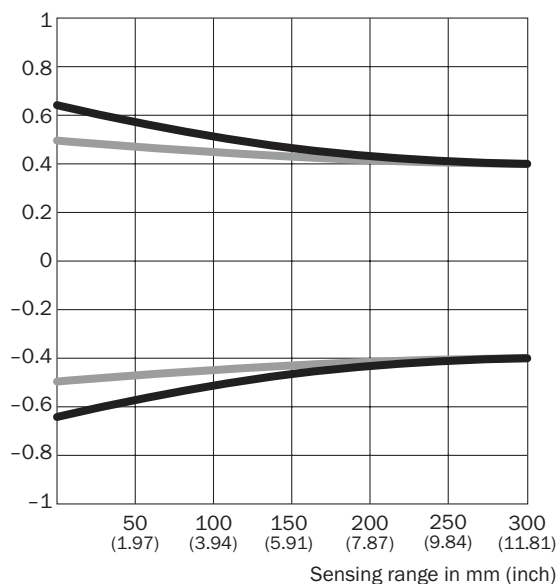


■ Sensing range      ■ Sensing range typ. max.

## Light spot diameter

### WTB4SL-3

Radius in mm (inch)



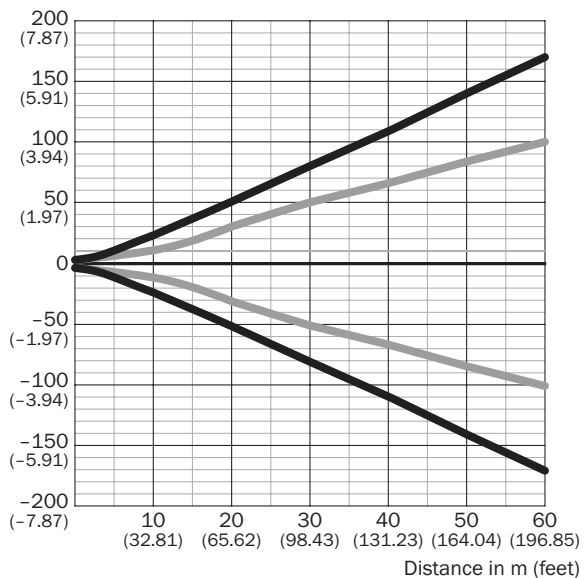
### Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
<b>50 mm</b> <b>(1.97)</b>	1.2 (0.05)	1.0 (0.04)
<b>100 mm</b> <b>(3.94)</b>	1.1 (0.04)	1.0 (0.04)
<b>200 mm</b> <b>(7.87)</b>	0.9 (0.04)	0.9 (0.04)
<b>300 mm</b> <b>(11.81)</b>	0.8 (0.03)	0.8 (0.03)

— Vertical  
— Horizontal

### WSE4SL-3

Radius in mm (inch)



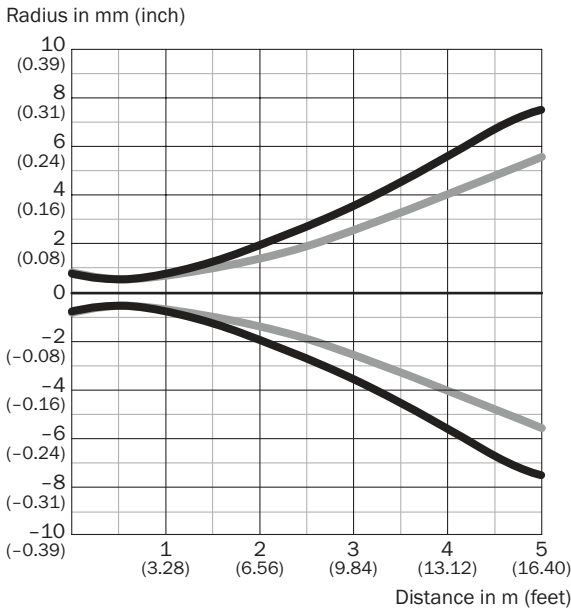
### Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
<b>0.5 m</b> <b>(1.64 feet)</b>	< 1.0 (0.04)	< 1.0 (0.04)
<b>1 m</b> <b>(3.28 feet)</b>	1.5 (0.06)	1.2 (0.05)
<b>5 m</b> <b>(16.40 feet)</b>	15 (0.59)	11 (0.43)
<b>10 m</b> <b>(32.81 feet)</b>	45 (1.77)	28 (1.10)
<b>60 m</b> <b>(196.85 feet)</b>	336 (13.23)	200 (7.87)

— Vertical  
— Horizontal

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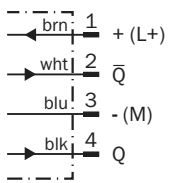
**WSE4SL-3, close up, near range**



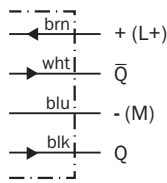
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**Connection diagram**

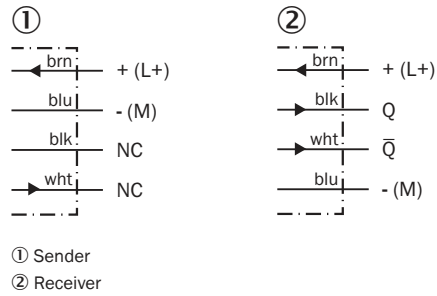
**Cd-083**



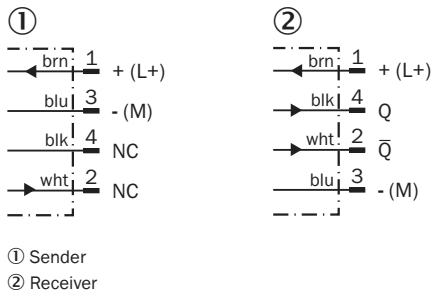
**Cd-094**



**Cd-231**



**Cd-232**







## Recommended accessories


### Plug connectors and cables

#### Connecting cable (female connector-open), PVC, hygienic systems

- Cable material: PVC
- Connector material: PVC

Figure	Connection type head A	Connection type head B	Connecting cable	Enclosure rating	Model name	Part no.
	Female connector, M8, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	IP 67, IP 69K	DOL-0804-G02MN	6033670
			5 m, 4-wire	IP 67, IP 69K	DOL-0804-G05MN	6033671
	Female connector, M8, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	IP 67, IP 69K	DOL-0804-W02MN	6033673
			5 m, 4-wire	IP 67, IP 69K	DOL-0804-W05MN	6033674
	Female connector, M12, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	IP 67, IP 69K	DOL-1204-G02MN	6028128
			5 m, 4-wire	IP 67, IP 69K	DOL-1204-G05MN	6028130
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	IP 67, IP 69K	DOL-1204-W02MN	6028129
			5 m, 4-wire	IP 67, IP 69K	DOL-1204-W05MN	6028131

### Universal bar clamp systems

Figure	Material	Description	Model name	Part no.
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	Plate N02N for universal clamp bracket	BEF-KHS-N02N	2051618

→ For additional accessories, please see page L-861

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