

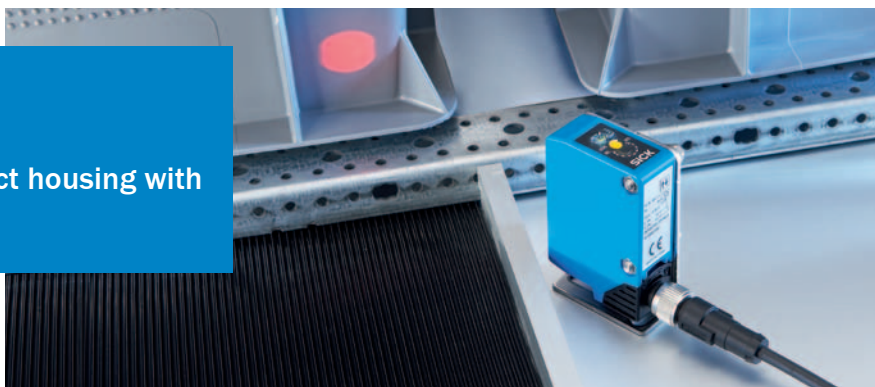



## W250-2 Compact photoelectric sensors


High performance in a compact housing with universal AC/DC voltage


**SICK**  
Sensor Intelligence.

High-performance in a compact housing with universal AC/DC voltage









**Additional information**

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**Product description**

The WT250 background suppression proximity sensors reliably detect at ranges up to 1000 mm. An easy-to-read positioning indicator provides approximate feedback of the adjusted range. Operating mode (light/dark) is selectable

via a control cable, which reduces the number of device variants. Both cable and rotatable M12 connector versions enhance this sensor's integration flexibility.

**At a glance**

- Visible red Bright Light LED
- Background suppression
- Potentiometer with an easy-to-read positioning indicator for adjusting the sensing range
- Cable or rotatable M12 connector
- Operating mode (light/dark) selectable via control wire
- Versions for 10 – 30 V DC or 24 – 240 V DC/ 24 – 240 V AC voltage supply in compact design

**Your benefits**

- Visible red light Bright Light LED simplifies alignment and easy-to-read positioning indicator for simple commissioning
- Reliable object detection in difficult ambient light conditions
- Cable or rotatable M12 connector provide installation flexibility
- Operating mode (light/dark) is selectable via a control cable to reduce the number of device variants
- Variants with DC voltage and universal AC/DC voltage in the same housing provide increased flexibility

→ [www.mysick.com/en/WTB250-2](http://www.mysick.com/en/WTB250-2)  
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

## Detailed technical data

### Features

	DC	AC/DC
<b>Sensor principle</b>	Photoelectric proximity sensor	
<b>Detection principle</b>	Background suppression	
<b>Dimensions (W x H x D)</b>	20 mm x 65 mm x 43.9 mm	20 mm x 60 mm x 43.9 mm
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>	100 mm ... 1,000 mm <sup>1)</sup> (depending on type)	
<b>Sensing range</b>	100 mm ... 1,000 mm <sup>1)</sup> (depending on type)	
<b>Type of light</b>	Visible red light	
<b>Light source <sup>2)</sup></b>	BrightLight-LED	
<b>Light spot (distance)</b>		
Sensing range max. 300 mm	Ø 30 mm (300 mm)	
Sensing range max. 500 mm	Ø 30 mm (500 mm)	
Sensing range max. 1,000 mm	Ø 35 mm (1,000 mm)	
<b>Sensing distance adjustment <sup>3)</sup></b>	Potentiometer, 2-turn	

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

<sup>2)</sup> Average service life 100,000 h at Ta = +25 °C.

<sup>3)</sup> With position indicator.

### Mechanics/electronics

	DC	AC/DC
<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>	24 V DC ... 240 V DC <sup>2)</sup> 24 V AC/DC ... 240 V AC/DC <sup>2)</sup>
<b>Residual ripple <sup>3)</sup></b>	≤ 5 V <sub>pp</sub>	–
<b>Power consumption</b>	≤ 35 mA <sup>4)</sup>	≤ 5 VA
<b>Switching output</b>	NPN, light/dark-switching, Selectable via L/D control wire, open collector PNP, light/dark-switching, Selectable via L/D control wire, open collector PNP, light switching, open collector (depending on type)	Relay, light switching, change-over contacts, electrically isolated <sup>5)</sup>
<b>Output current I<sub>max.</sub></b>	100 mA	–
<b>Switching current (switching voltage)</b>	–	3 A (240 V AC) 3 A (30 V DC)
<b>Response time</b>	≤ 3 ms <sup>6)</sup>	≤ 15 ms
<b>Switching frequency <sup>7)</sup></b>	160 Hz	33 Hz
<b>Angle of dispersion</b>	Approx. 3°	
<b>Connection type</b>	Cable, PVC, 0.18 mm <sup>2</sup> , Ø 3.8 mm <sup>8)</sup> Connector M12, 4-pin	Cable, PVC, 0.76 mm <sup>2</sup> , Ø 6.4 mm <sup>8)</sup>
<b>Circuit protection</b>	A <sup>9)</sup> , B <sup>10)</sup> , C <sup>11)</sup> , D <sup>12)</sup>	A <sup>9)</sup> , C <sup>11)</sup>
<b>Protection class</b>	⊕	⊕ <sup>13)</sup>
<b>Overvoltage category</b>	–	2
<b>Weight</b>		
Cable, 4-wire 2 m PVC	150 g	–
Connector M12, 4-pin	40 g	–
Cable, 5-wire 2 m PVC	–	160 g
Cable, 5-wire 5 m PVC	–	330 g
<b>Housing material</b>	Plastic, ABS	

	DC	AC/DC
Optics material	PMMA	
Enclosure rating	IP 67	
Items supplied	BEF-W250 mounting bracket	
Usage category	-	AC-15, DC-13, according to EN 60947-1
EMC <sup>14)</sup>	EN 60947-5-2	
Ambient operating temperature	-25 °C ... +55 °C	
Ambient storage temperature	-40 °C ... +70 °C	

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

<sup>2)</sup> +10 %.

<sup>3)</sup> May not exceed or fall short of  $V_S$ .

<sup>4)</sup> Without load.

<sup>5)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

<sup>13)</sup> Reference voltage 250 V AC.

<sup>14)</sup> The AC/DC devices meet the interference suppression requirements for industrial use (interference suppression class A). When used in residential areas it can cause interference.

## Ordering information

### DC

Sensing range max. <sup>1)</sup>	Output type	Switching mode	Connection	Model name	Part no.
100 mm ... 300 mm	NPN	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WTB250-2N1131	6044672
			Connector M12, 4-pin	WTB250-2N2431	6044673
	PNP	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WTB250-2P1131	6044674
			Connector M12, 4-pin	WTB250-2P2431	6044675
150 mm ... 500 mm	NPN	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WTB250-2N1141	6044678
			Connector M12, 4-pin	WTB250-2N2441	6044679
	PNP	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WTB250-2P1141	6044680
			Connector M12, 4-pin	WTB250-2P2441	6044682
		Light switching	Connector M12, 4-pin	WTB250-2F2441	6044685
200 mm ... 1,000 mm	NPN	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WTB250-2N1151	6044686
			Connector M12, 4-pin	WTB250-2N2451	6044689
	PNP	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WTB250-2P1151	6044690
			Connector M12, 4-pin	WTB250-2P2451	6044692

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

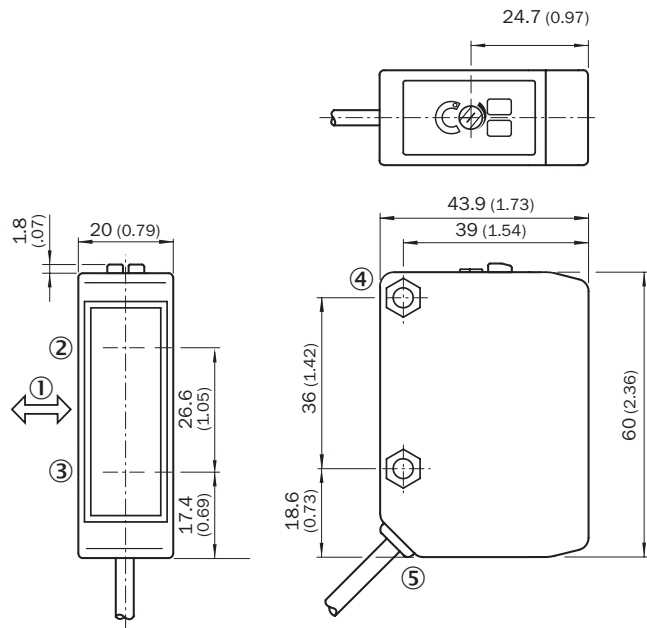
### AC/DC

Sensing range max. <sup>1)</sup>	Output type	Switching mode	Connection	Model name	Part no.
100 mm ... 300 mm	Relay	Light switching	Cable, 5-wire, 2 m, PVC	WTB250-2R1531	6044676
150 mm ... 500 mm	Relay	Light switching	Cable, 5-wire, 2 m, PVC	WTB250-2R1541	6044683
			Cable, 5-wire, 5 m, PVC	WTB250-2R1641	6044684
200 mm ... 1,000 mm	Relay	Light switching	Cable, 5-wire, 2 m, PVC	WTB250-2R1551	6044693

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

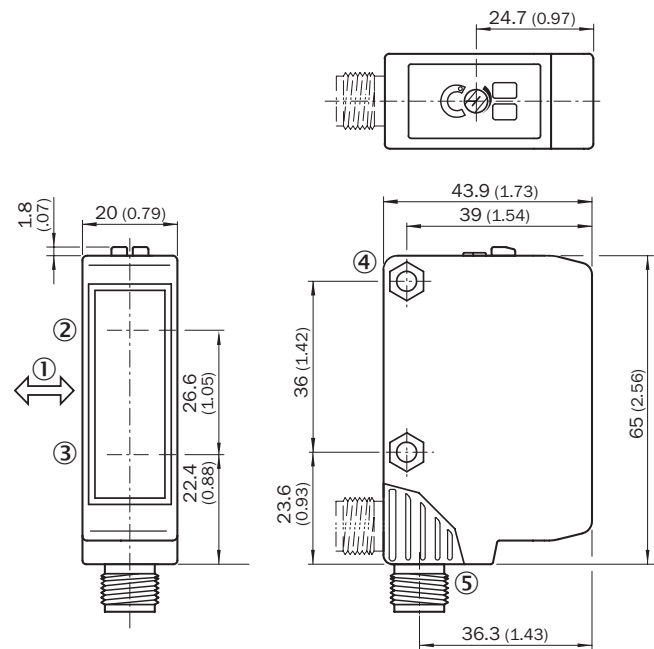
## Dimensional drawings

### WTB250-2, DC, cable



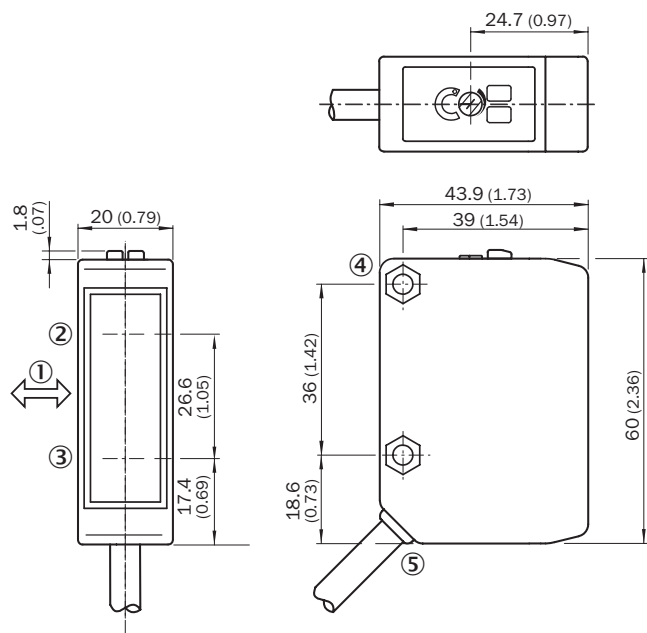
- ① Standard direction of the material being scanned
- ② Axis of sender
- ③ Axis of receiver
- ④ Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ⑤ Connection cable

### WTB250-2, DC, plug



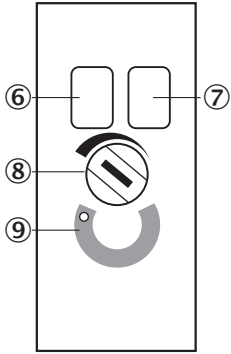
- ① Standard direction of the material being scanned
- ② Axis of sender
- ③ Axis of receiver
- ④ Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ⑤ M12 plug - 4-pin: Plug position rotatable by 90° (V>H); V: Vertikal final position; H: Horizontal final position, can be locked with slider

### WTB250-2, AC/DC, cable



- ① Standard direction of the material being scanned
- ② Axis of sender
- ③ Axis of receiver
- ④ Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ⑤ Connection cable

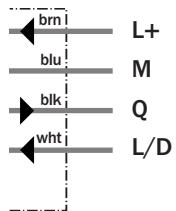
### Adjustments



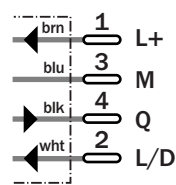
- ⑥ Status indicator LED green: stability indicator
- ⑦ Status indicator LED, yellow: Status of received light beam
- ⑧ Sensing distance adjustment: Poti
- ⑨ Position indicator for sensitivity setting (270°)

### Connection diagram

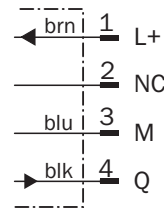
#### DC light/dark-switching, Cable, 4-wire



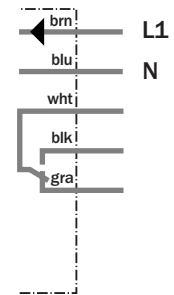
#### DC light/dark-switching, M12, 4-pin



#### DC, light switching, M12, 4-pin

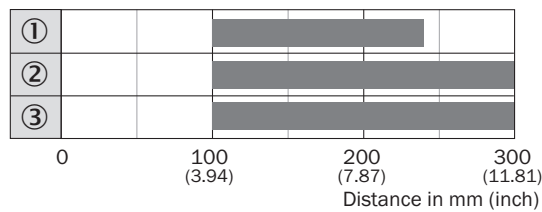


#### AC/DC light switching, Cable, 5-wire



### Sensing distance

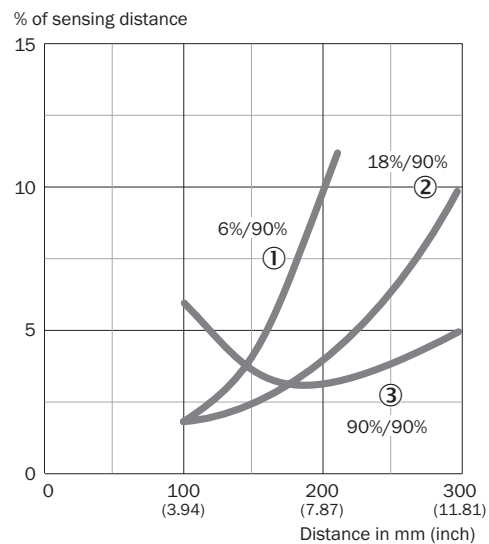
#### WTB250-2xxx3x



■ Operating distance

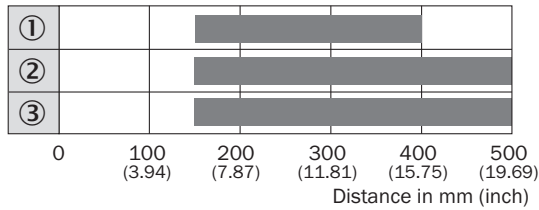
- ① Sensing range on black, background white
- ② Sensing range on gray, background white
- ③ Sensing range on white, background white

#### WTB250-2xxx3x



- ① Sensing range on black, background white
- ② Sensing range on gray, background white
- ③ Sensing range on white, background white

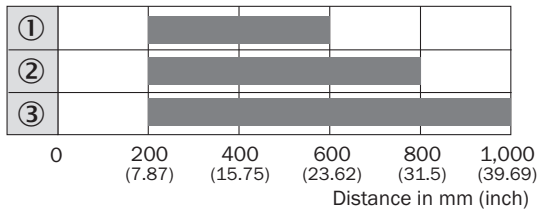
**WTB250-2xxx4x**



■ Operating distance

- ① Sensing range on black, background white
- ② Sensing range on gray, background white
- ③ Sensing range on white, background white

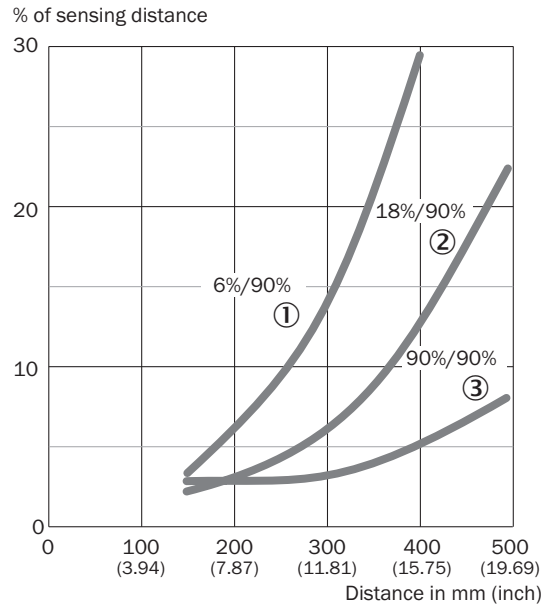
**WTB250-2xxx5x**



■ Operating distance

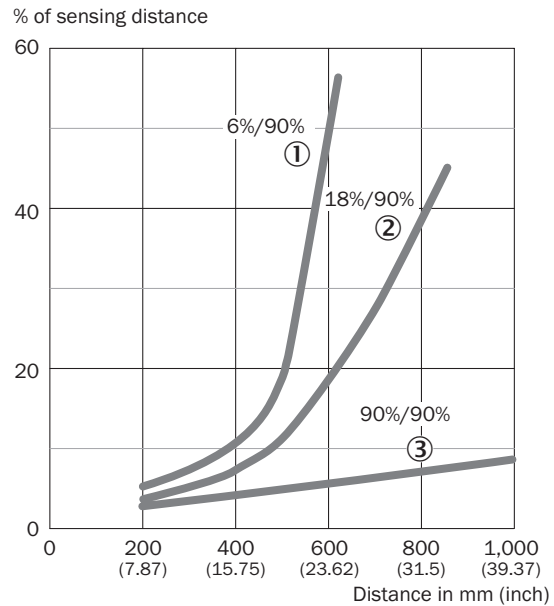
- ① Sensing range on black, background white
- ② Sensing range on gray, background white
- ③ Sensing range on white, background white

**WTB250-2xxx4x**



- ① Sensing range on black, background white
- ② Sensing range on gray, background white
- ③ Sensing range on white, background white

**WTB250-2xxx5x**



- ① Sensing range on black, background white
- ② Sensing range on gray, background white
- ③ Sensing range on white, background white

High-performance retro-reflective sensor in a compact housing with AC/DC



### Product description

The WL250 retro-reflective sensors feature a universal AC/DC voltage variant in a very compact housing.

An easy-to-read sensitivity indicator provides approximate feedback of

the adjusted sensing range. Plus, the ready-to-mount installation kit includes a mounting bracket and reflector for easy integration. A version with a rotatable M12 connector is ideal for space-restricted installations.

### At a glance

- Versions for 10 – 30 V DC or 24 – 240 V DC/ 24 – 240 V AC voltage supply in compact design
- Mounting bracket and P250 reflector included in delivery
- Visible red Bright Light LED
- Potentiometer sensitivity adjustment with indicator
- Operating mode (light/dark) selectable via control wire
- Cable or rotatable M12 connector

### Your benefits

- Visible red Bright Light LED for simpler alignment of the sensors
- Universal AC/DC voltage variants provide high performance and increased flexibility in environments with limited space
- Mounting kit reduces installation time
- Simple power control for individual application adjustments via potentiometer
- Operating mode (light/dark) is selectable via a control cable to reduce the number of device variants
- Mounting compatibility - DC devices and DC/AC devices available in same design
- Polarizing filter ensures reliable detection, even with shiny targets



### Additional information

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→ [www.mysick.com/en/WL250-2](http://www.mysick.com/en/WL250-2)  
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

### Features

	DC	AC/DC
<b>Sensor principle</b>	Photoelectric retro-reflective sensor	
<b>Dimensions (W x H x D)</b>	20 mm x 65 mm x 43.9 mm	20 mm x 60 mm x 43.9 mm
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>	0.01 m ... 15 m <sup>1)</sup> 0.01 m ... 12 m <sup>2)</sup>	
<b>Sensing range</b>	0.01 m ... 13 m <sup>1)</sup> 0.01 m ... 11 m <sup>2)</sup>	
<b>Type of light</b>	Visible red light	
<b>Light source <sup>3)</sup></b>	BrightLight-LED	
<b>Light spot (distance)</b>	Ø 260 mm (8 m)	
<b>Sensitivity adjustment <sup>4)</sup></b>	Potentiometer, 2-turn	

<sup>1)</sup> PL80A.

<sup>2)</sup> P250.

<sup>3)</sup> Average service life 100,000 h at Ta = +25 °C.

<sup>4)</sup> With position indicator.

### Mechanics/electronics

	DC	AC/DC
<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>	24 V DC ... 240 V DC <sup>2)</sup> 24 V AC/DC ... 240 V AC/DC <sup>2)</sup>
<b>Residual ripple <sup>3)</sup></b>	≤ 5 V <sub>pp</sub>	–
<b>Power consumption</b>	≤ 20 mA <sup>4)</sup>	≤ 5 VA
<b>Switching output</b>	NPN, light/dark-switching, Selectable via L/D control wire, open collector PNP, light/dark-switching, Selectable via L/D control wire, open collector PNP, light switching, open collector (depending on type)	Relay, light switching, change-over contacts, electrically isolated <sup>5)</sup>
<b>Output current I<sub>max.</sub></b>	≤ 100 mA	–
<b>Switching current (switching voltage)</b>	–	3 A (240 V AC) 3 A (30 V DC)
<b>Response time</b>	≤ 0.5 ms <sup>6)</sup>	≤ 15 ms
<b>Switching frequency <sup>7)</sup></b>	1,000 Hz	33 Hz
<b>Angle of dispersion</b>	Approx. 2°	
<b>Connection type</b>	Cable, PVC, 0.18 mm <sup>2</sup> , Ø 3.8 mm <sup>8)</sup> Connector M12, 4-pin	Cable, PVC, 0.76 mm <sup>2</sup> , Ø 6.4 mm <sup>8)</sup>
<b>Circuit protection</b>	A <sup>9)</sup> , B <sup>10)</sup> , C <sup>11)</sup> , D <sup>12)</sup>	A <sup>9)</sup> , C <sup>11)</sup>
<b>Protection class</b>	⊕	⊠ <sup>13)</sup>
<b>Overvoltage category</b>	–	2
<b>Weight</b>		
Cable, 4-wire 2 m PVC	150 g	–
Connector M12, 4-pin	40 g	–
Cable, 4-wire 5 m PVC	320 g	–
Cable, 5-wire 2 m PVC	–	160 g
Cable, 5-wire 5 m PVC	–	330 g
<b>Polarisation filter</b>	✓	
<b>Housing material</b>	Plastic , ABS	

	DC	AC/DC
Optics material	PMMA	
Enclosure rating	IP 67	
Items supplied	Reflector P250, BEF-W250 mounting bracket	
Usage category	-	AC-15, DC-13, according to EN 60947-1
EMC <sup>14)</sup>	EN 60947-5-2	
Ambient operating temperature	-25 °C ... +55 °C	
Ambient storage temperature	-40 °C ... +70 °C	

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

<sup>2)</sup> +10 %.

<sup>3)</sup> May not exceed or fall short of  $V_S$ .

<sup>4)</sup> Without load.

<sup>5)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

<sup>13)</sup> Reference voltage 250 V AC.

<sup>14)</sup> The AC/DC devices meet the interference suppression requirements for industrial use (interference suppression class A). When used in residential areas it can cause interference.

## Ordering information

### DC

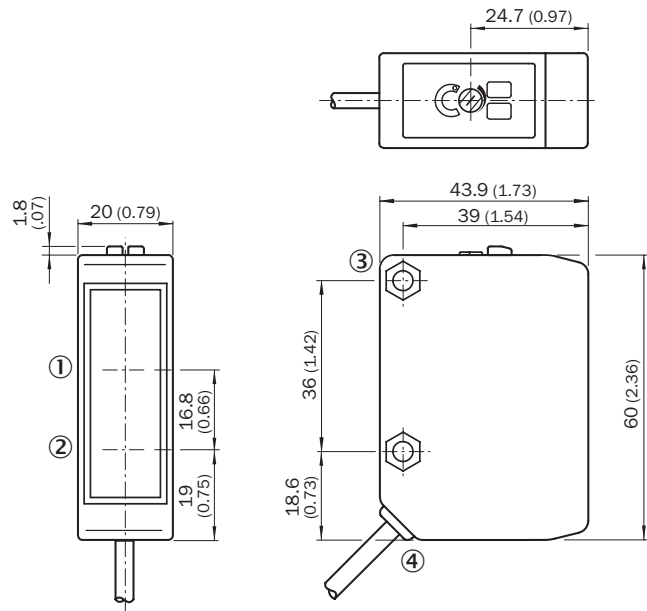
Sensing range max.	Output type	Switching mode	Connection	Model name	Part no.
0,01 m ... 15 m (PL80A) 0,01 m ... 12 m (P250)	NPN	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WL250-2N1131	6044695
			Connector M12, 4-pin	WL250-2N2431	6044696
	PNP	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WL250-2P1131	6044697
			Cable, 4-wire, 5 m, PVC	WL250-2P1231	6044698
			Connector M12, 4-pin	WL250-2P2431	6044699
			Light switching	Connector M12, 4-pin	WL250-2F2431

### AC/DC

Sensing range max.	Output type	Switching mode	Connection	Model name	Part no.
0,01 m ... 15 m (PL80A) 0,01 m ... 12 m (P250)	Relay	Light switching	Cable, 5-wire, 2 m, PVC	WL250-2R1531	6044700
			Cable, 5-wire, 5 m, PVC	WL250-2R1631	6044701

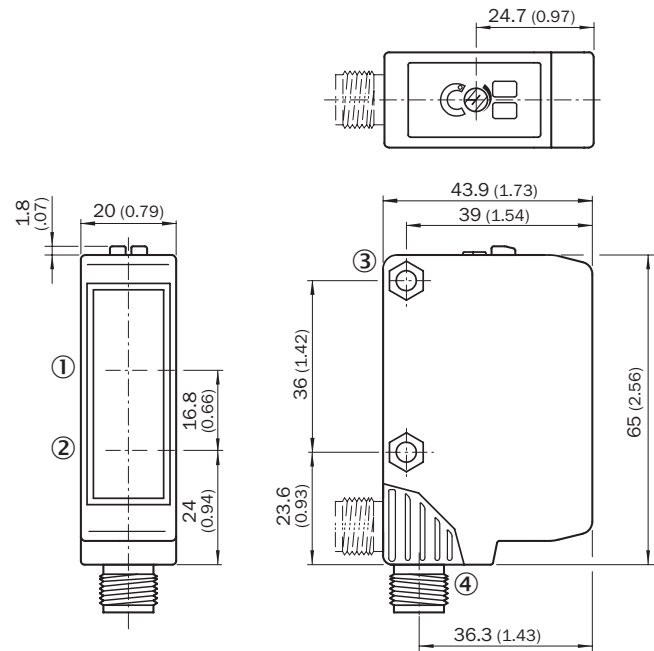
## Dimensional drawings

### WL250-2, DC, cable



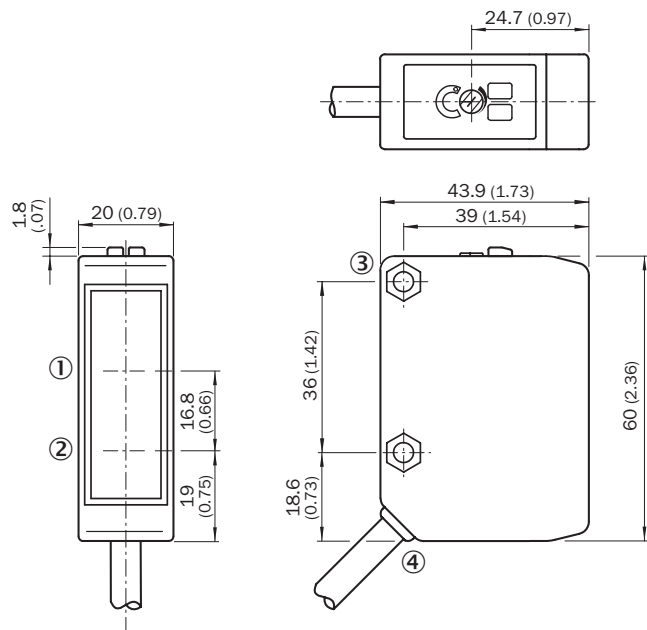
- ① Reception axis
- ② Axis of sender
- ③ Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ④ Connection cable

### WL250-2, DC, plug



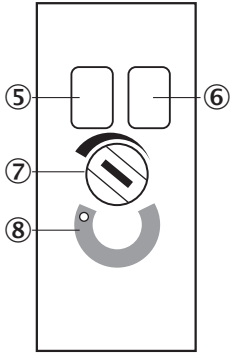
- ① Reception axis
- ② Axis of sender
- ③ Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ④ M12 plug - 4-pin: Plug position rotatable by 90° (V>H); V: Vertical final position; H: Horizontal final position, can be locked with slider

### WL250-2, AC/DC, cable



- ① Reception axis
- ② Axis of sender
- ③ Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ④ Connection cable

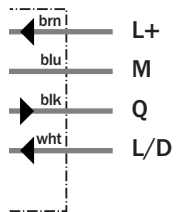
### Adjustments



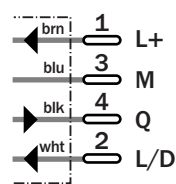
- ⑤ Status indicator LED green: sensibility indicator⑥  
Status indicator LED, yellow: Status of received light beam
- ⑦ Sensitivity adjustment: poti
- ⑧ Position indicator for sensitivity setting (270°)

### Connection diagram

#### DC light/dark-switching, Cable, 4-wire



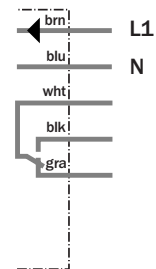
#### DC light/dark-switching, M12, 4-pin



#### DC, light switching, M12, 4-pin

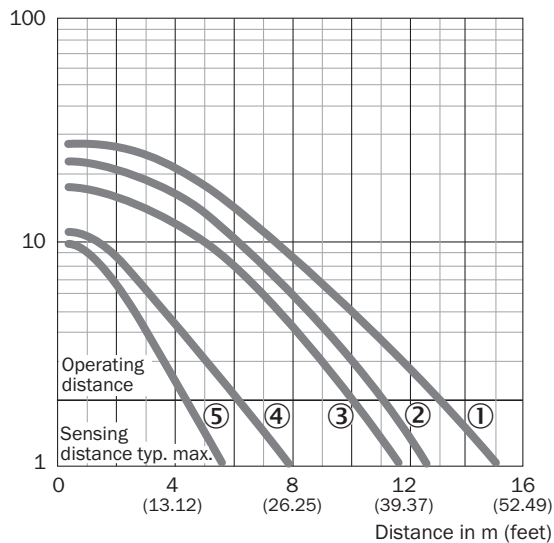


#### AC/DC light switching, Cable, 5-wire



### Operating reserve

Function reserve



- ① Reflector type PL80A
- ② Reflector type P205
- ③ Reflector type PL50A, PL40A, PL30A, PL31A
- ④ Reflector type PL20A
- ⑤ Reflective tape Diamond Grade (100 mm x 100 mm/3.94 inch x 3.94 inch)

### Sensing range

Reflector Type	Operating distance (m)	Sensing range max. typ. (m)
①	0.01	13, 15
②	0.01	11, 12
③	0.01	10, 11.5
④	0.01	6, 8
⑤	0.08	4.5, 5.5

- Operating distance    ■ Sensing range max. typ.
- ① Reflector type PL80A, C110A
- ② Reflector type P205
- ③ Reflector type PL50A, PL40A, PL30A, PL31A
- ④ Reflector type PL20A
- ⑤ Reflective tape Diamond Grade (100 mm x 100 mm/3.94 inch x 3.94 inch)



High-performance through-beam sensor in a compact housing with AC/DC



### Product description

The WS/WE250 through-beam sensors feature a universal AC/DC voltage variant in a very compact housing. Potentiometer with an easy-to-read positioning indicator for adjusting the sensing range.

Plus, the ready-to-mount installation kit includes a mounting bracket for easy integration. A version with a rotatable M12 connector is ideal for space-restricted installations.

### At a glance

- Very high sensing range in compact housing
- Versions for 10 – 30 V DC or 24 – 240 V DC/ 24 – 240 V AC voltage supply in compact design
- Mounting bracket included in delivery
- Potentiometer with an easy-to-read positioning indicator for adjusting the sensing range
- Operating mode (light/dark) selectable via control wire
- Cable or rotatable M12 connector

### Your benefits

- Universal AC/DC voltage variants provide high performance and increased flexibility in environments with limited space
- High performance reserve in harsh environmental conditions
- Mounting kit reduces installation time
- Operating mode (light/dark) is selectable via a control cable to reduce the number of device variants
- Mounting compatibility - DC devices and AC/DC devices available in same design



### Additional information

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Operating reserve . . . . . 19

Scanning range . . . . . 19

→ [www.mysick.com/en/WSE250-2](http://www.mysick.com/en/WSE250-2)  
For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

## Detailed technical data

### Features

	DC	AC/DC
<b>Sensor principle</b>	Through-beam photoelectric sensor	
<b>Dimensions (W x H x D)</b>	20 mm x 65 mm x 43.9 mm	20 mm x 60 mm x 43.9 mm
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>	0 m ... 50 m	
<b>Sensing range</b>	0 m ... 40 m	
<b>Type of light</b>	Visible red light	
<b>Light source <sup>1)</sup></b>	BrightLight-LED	
<b>Light spot (distance)</b>	Ø 0.6 m (20 m)	
<b>Sensitivity adjustment <sup>2)</sup></b>	Potentiometer, 2-turn	

<sup>1)</sup> Average service life 100,000 h at Ta = +25 °C.

<sup>2)</sup> With position indicator.

### Mechanics/electronics

	DC	AC/DC	
<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>4)</sup>	24 V DC ... 240 V DC <sup>2)</sup> 24 V AC/DC ... 240 V AC/DC <sup>2)</sup>	
<b>Residual ripple <sup>3)</sup></b>	≤ 5 V <sub>pp</sub>	–	
<b>Power consumption, sender</b>	20 mA <sup>4)</sup>	≤ 3,5 VA	
<b>Power consumption, receiver</b>	20 mA <sup>4)</sup>	≤ 3,5 VA	
<b>Switching output</b>	NPN, light/dark-switching, Selectable via L/D control wire, open collector PNP, light/dark-switching, Selectable via L/D control wire, open collector PNP, light switching, open collector (depending on type)	Relay, light switching, change-over contacts, electrically isolated <sup>5)</sup>	
<b>Output current I<sub>max.</sub></b>	≤ 100 mA	–	
<b>Switching current (switching voltage)</b>	–	3 A (240 V AC) 3 A (30 V DC)	
<b>Response time</b>	≤ 0.5 ms <sup>6)</sup>	≤ 15 ms	
<b>Switching frequency <sup>7)</sup></b>	1,000 Hz	33 Hz	
<b>Angle of dispersion</b>	Approx. 2°		
<b>Angle of reception</b>	20°		
<b>Connection type</b>	Cable, PVC, 0.18 mm <sup>2</sup> , Ø 3.8 mm <sup>8)</sup> Connector	Cable, PVC, 0.76 mm <sup>2</sup> , Ø 6.4 mm <sup>8)</sup>	
<b>Circuit protection</b>	A <sup>9)</sup> , B <sup>10)</sup> , C <sup>11)</sup> , D <sup>12)</sup>	A <sup>9)</sup> , C <sup>11)</sup>	
<b>Protection class</b>	⊕	□ <sup>13)</sup>	
<b>Overvoltage category</b>	–	2	
<b>Weight</b>			
	Cable, 4-wire 2 m PVC	300 g	–
	Connector M12, 4-pin	80 g	–
	Cable, 5-wire 2 m PVC	–	310 g
	Cable, 5-wire 5 m PVC	–	660 g
<b>Housing material</b>	ABS, Plastic		
<b>Optics material</b>	PMMA		
<b>Enclosure rating</b>	IP 67		
<b>Items supplied</b>	BEF-W250 mounting bracket		

	DC	AC/DC
Usage category	-	AC-15, DC-13, according to EN 60947-1
EMC <sup>14)</sup>	EN 60947-5-2	
Ambient operating temperature	-25 °C ... +55 °C	
Ambient storage temperature	-40 °C ... +70 °C	

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

<sup>2)</sup> +10 %.

<sup>3)</sup> May not exceed or fall short of  $V_S$ .

<sup>4)</sup> Without load.

<sup>5)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

<sup>13)</sup> Reference voltage 250 V AC.

<sup>14)</sup> The AC/DC devices meet the interference suppression requirements for industrial use (interference suppression class A). When used in residential areas it can cause interference.

## Ordering information

### DC

Sensing range max.	Output type	Switching mode	Connection	Model name	Part no.	
0 m ... 50 m	NPN	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WSE250-2N1131	6044709	
			Connector M12, 4-pin	WSE250-2N2431	6044711	
	PNP	Light/dark-switching	Cable, 4-wire, 2 m, PVC	WSE250-2P1131	6044703	
			Connector M12, 4-pin	WSE250-2P2431	6044705	
			Light switching	Connector M12, 4-pin	WSE250-2F2431	6044706

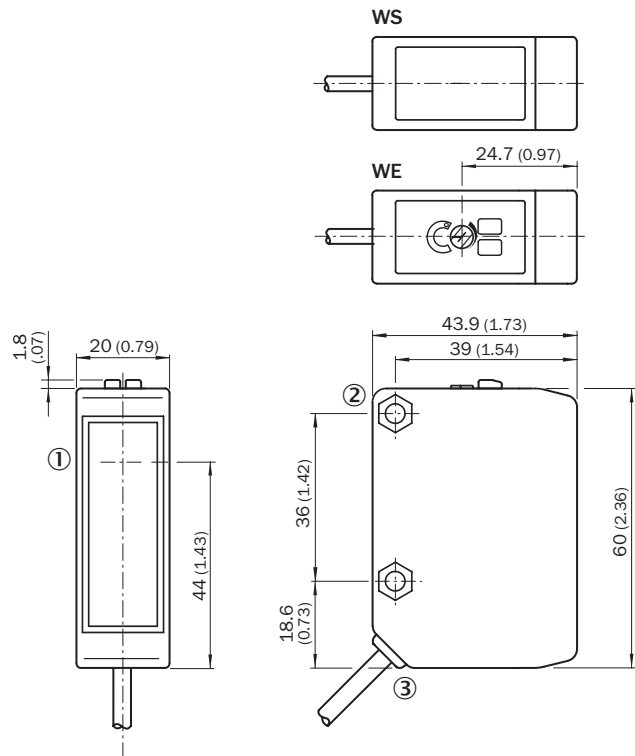
### AC/DC

Sensing range max.	Output type	Switching mode	Connection	Model name	Part no.
0 m ... 50 m	Relay	Light switching	Cable, 5-wire, 2 m, PVC	WSE250-2R1531	6044707
	Relay	Light switching	Cable, 5-wire, 5 m, PVC	WSE250-2R1631	6044708



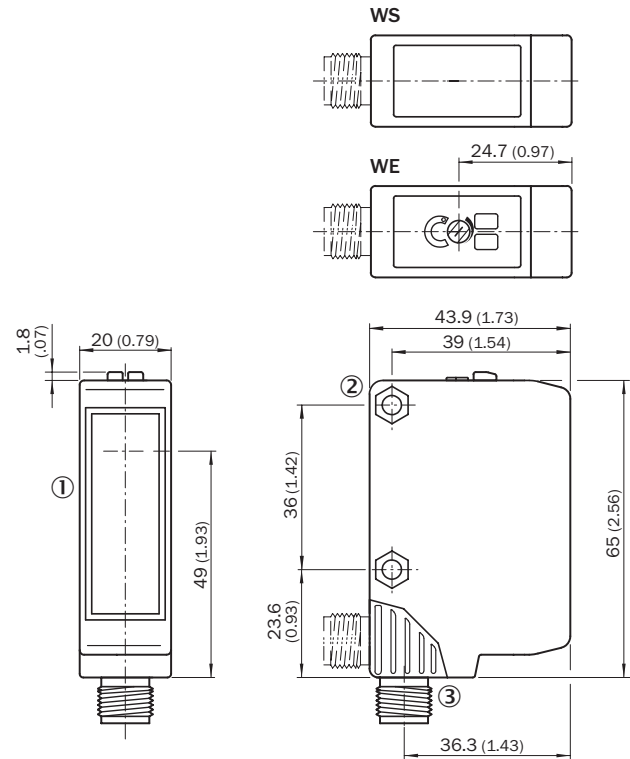
## Dimensional drawings

### WSE250-2, DC, cable



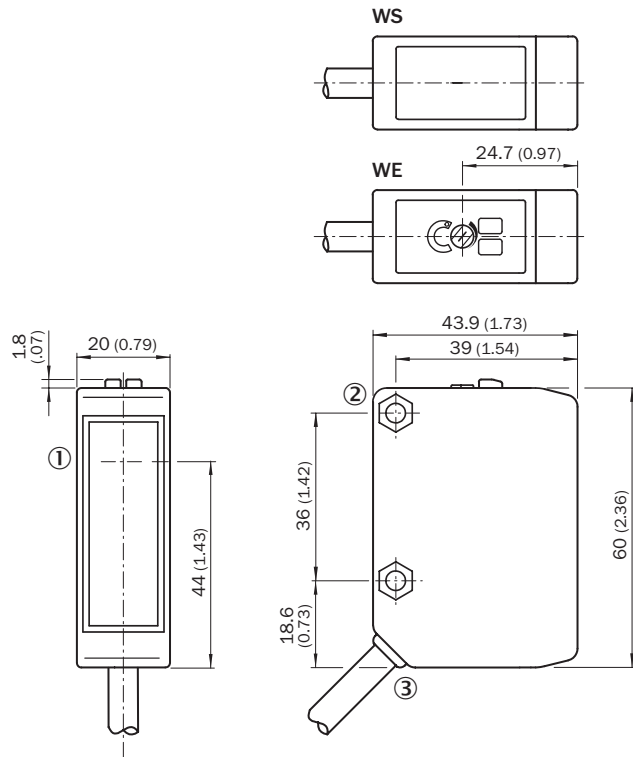
- ① Center of the optical axis, sender (WS 250), receiver (WE 250)
- ② Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ③ Connection cable

### WSE250-2, DC, plug



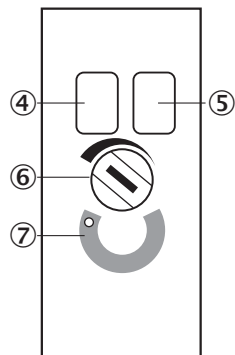
- ① Center of the optical axis, sender (WS 250), receiver (WE 250)
- ② Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ③ M12 plug - 4-pin: Plug position rotatable by 90° (V>H); V: Vertikal final position; H: Horizontal final position, can be locked with slider

WSE250-2, AC/DC, cable



- ① Center of the optical axis, sender (WS 250), receiver (WE 250)
- ② Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nut on both sides
- ③ Connection cable

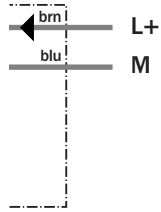
Adjustments



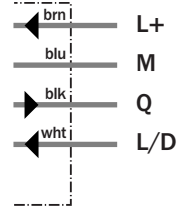
- ④ Status indicator LED green: stability indicator⑤  
Status indicator LED, yellow: Status of received light beam
- ⑥ Sensitivity adjustment: poti
- ⑦ Position indicator for sensitivity setting (270°)

## Connection diagram

**DC, sender, cable, 4-wire, light-switching**



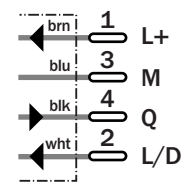
**DC, receiver, cable, 4-wire, light/dark-switching**



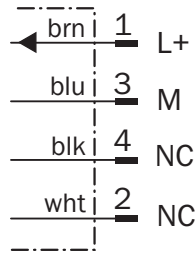
**DC, sender, Connector M12, 4-pin**



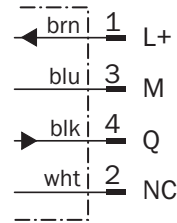
**DC, receiver, connector M12, 4-pin, light/dark-switching**



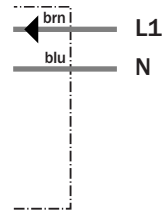
**DC, sender, Connector M12, 4-pin**



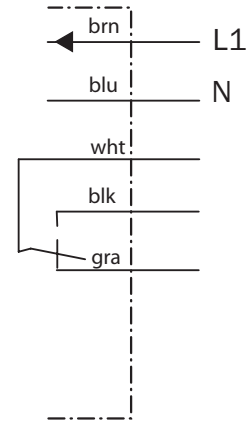
**DC, receiver, connector M12, 4-pin, light-switching**



**AC/DC, sender, cable, 5-wire**

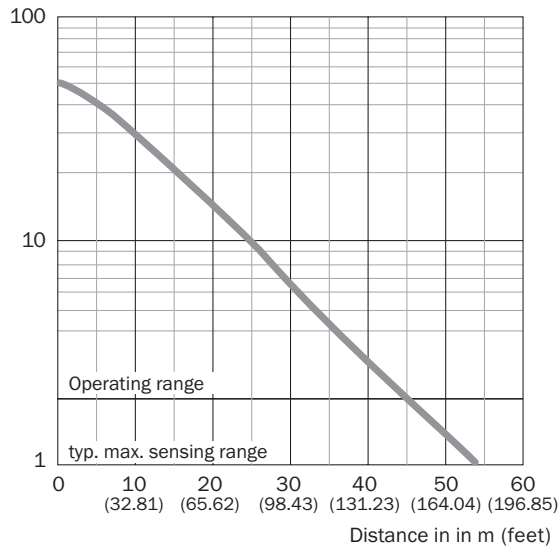


**AC/DC, sender, cable, 5-wire, light switching**

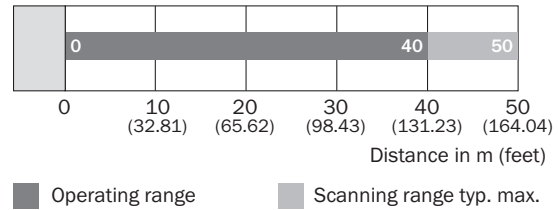


## Operating reserve

Operating reserve




## Sensing range










W250-2

Mounting brackets/plates



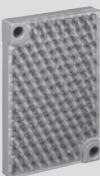
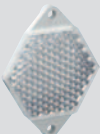

Figure	Accessory type	Material	Model name	Part no.	WTB250-2	WL250-2	WSE250-2
	Mounting brackets	Steel, zinc coated	BEF-W250	5305850	●	●	●

Plug connectors and cables

- Connector M12, 4-pin
- Connector type: Female connector










Figure	Flying leads	Enclosure rating	Sheath material	Cable length	Model name	Part no.	WTB250-2	WL250-2	WSE250-2
	Straight	IP 67	PVC	2 m	DOL-1204-G02M	6009382	●	●	●
				5 m	DOL-1204-G05M	6009866	●	●	●
				10 m	DOL-1204-G10M	6010543	●	●	●
				15 m	DOL-1204-G15M	6010753	●	●	●
	Straight	IP 68	PUR halogen free	2 m	DOL-1204-G02MC	6025900	●	●	●
				5 m	DOL-1204-G05MC	6025901	●	●	●
				10 m	DOL-1204-G10MC	6025902	●	●	●
				15 m	DOL-1204-G15MC	6034749	●	●	●
	Straight	IP 69K	PVC	2 m	DOL-1204-G02MN	6028128	●	●	●
				5 m	DOL-1204-G05MN	6028130	●	●	●
				10 m	DOL-1204-G10MN	6028132	●	●	●
				25 m	DOL-1204-G25MN	6028134	●	●	●
	Angled	IP 67	PVC	2 m	DOL-1204-W02M	6009383	●	●	●
				5 m	DOL-1204-W05M	6009867	●	●	●
				10 m	DOL-1204-W10M	6010541	●	●	●
	Angled	IP 68	PUR halogen free	2 m	DOL-1204-W02MC	6025903	●	●	●
				5 m	DOL-1204-W05MC	6025904	●	●	●
				10 m	DOL-1204-W10MC	6025905	●	●	●
	Straight	IP 67	PBT	-	DOS-1204-G	6007302	●	●	●
	Angled		PBT	-	DOS-1204-W	6007303	●	●	●

Reflectors

Figure	Accessory type	Dimensions (L x W x H)	Material	Model name	Part no.	WTB250-2	WL250-2	WSE250-2
	Angular	47 mm x 47 mm	PMMA/ABS	P250	5304812	-	●	-
		15 mm x 38 mm	PMMA/ABS	PL20A	1012719	-	●	-
		28 mm x 56 mm	PMMA/ABS	PL30A	1002314	-	●	-
				PL31A	1002315	-	●	-
		37 mm x 56 mm	PMMA/ABS	PL40A	1012720	-	●	-
		-	PMMA/ABS	PL50A	1000132	-	●	-
		80 mm x 80 mm	PMMA/ABS	PL80A	1003865	-	●	-
		Reflective tape	91.4 cm x 74.9 cm <sup>1)</sup>	-	REF-DG-K	4019634	-	●

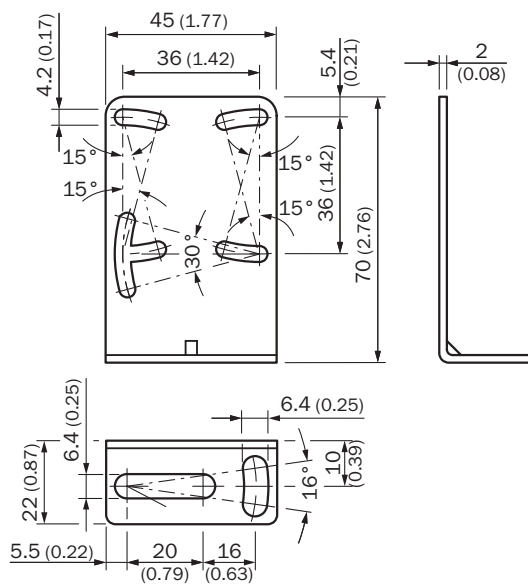
Terminal and alignment brackets

- Accessory type: Universal terminal systems

Figure	Material	Model name	Part no.	WTB250-2	WL250-2	WSE250-2
	Zinc plated steel (sheet), Diecast zinc (clamp)	BEF-KHS-N02	2051608	●	●	●
	Steel, zinc coated	BEF-KHS-L01	2023057	●	●	●
		BEF-MS12G-A	4056054	●	●	●
		BEF-MS12G-B	4056055	●	●	●
		BEF-MS12L-A	4056052	●	●	●
		BEF-MS12L-B	4056053	●	●	●
		BEF-MS12Z-A	4056056	●	●	●
		BEF-MS12Z-B	4056057	●	●	●
	Aluminum	BEF-RMC-D12	5321878	●	●	●

Dimensional drawings Mounting brackets/plates

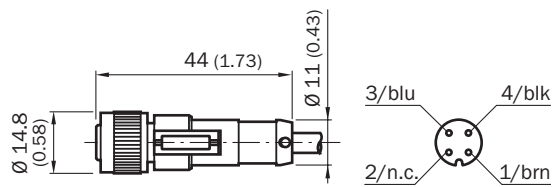
**BEF-W250**



All dimensions in mm (inch)

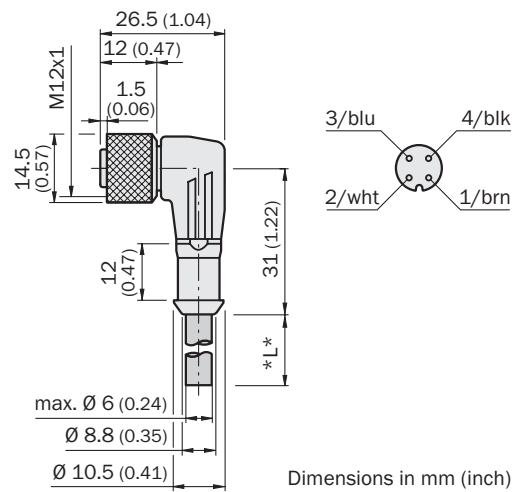
Dimensional drawings Plug connectors and cables

**DOL-1204-GxxM, DOL-1204-GxxMC, DOL-1204-GxxMN**



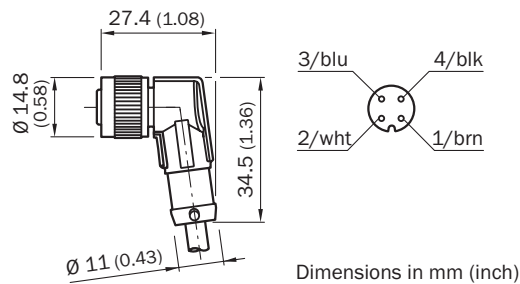
Dimensions in mm (inch)

**DOL-1204-WxxM**



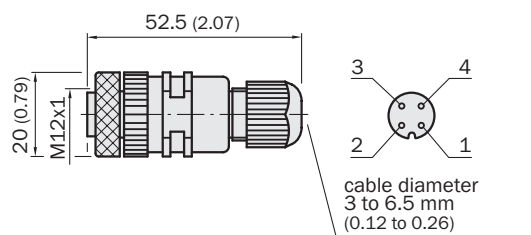
Dimensions in mm (inch)

**DOL-1204-WxxMC**



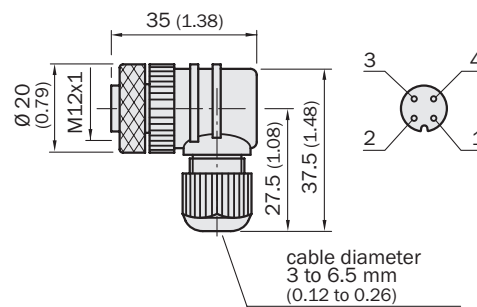
Dimensions in mm (inch)

**DOS-1204-G**



Dimensions in mm (inch)

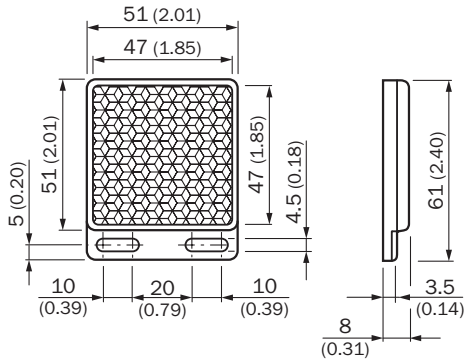
**DOS-1204-W**



Dimensions in mm (inch)

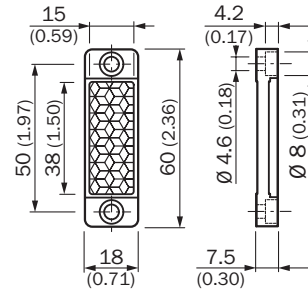
Dimensional drawings Reflectors

**P250**



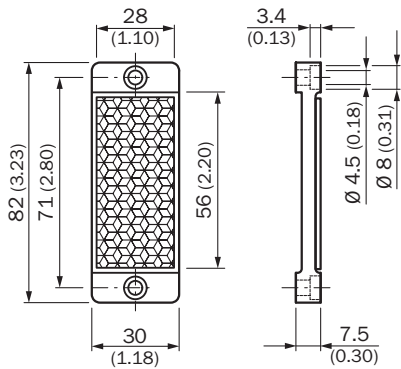
All dimensions in mm (inch)

**PL20A**



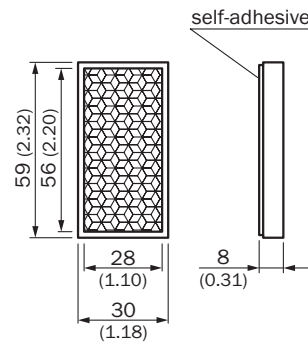
All dimensions in mm (inch)

**PL30A**



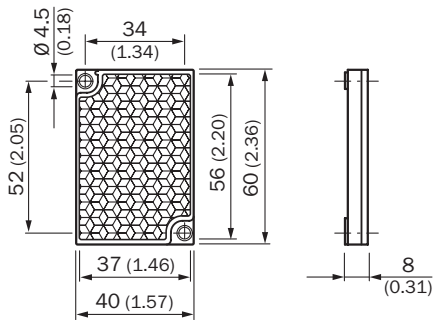
All dimensions in mm (inch)

**PL31A**



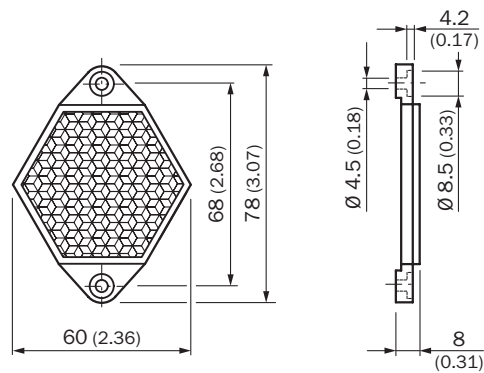
All dimensions in mm (inch)

**PL40A**



All dimensions in mm (inch)

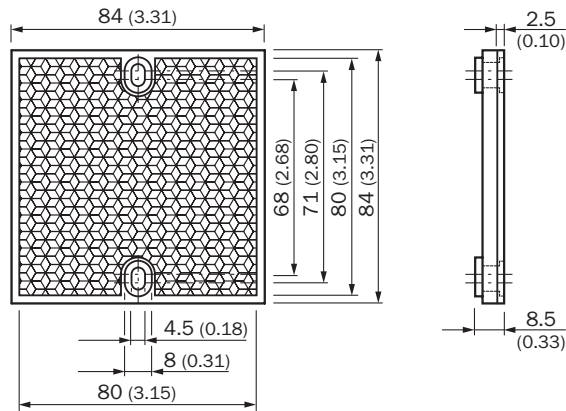
**PL50A**



All dimensions in mm (inch)

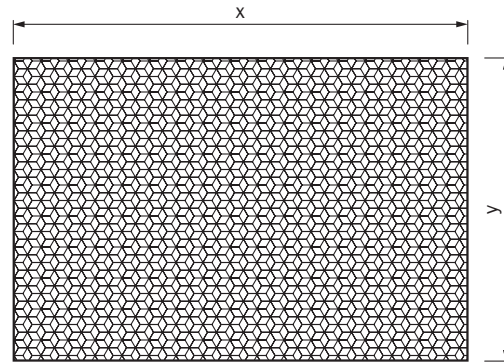


**PL80A**



All dimensions in mm (inch)

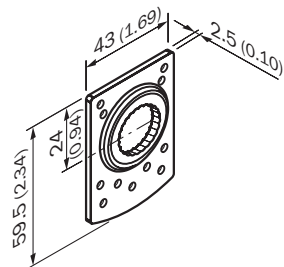
**REF-DG-K**



- ① X = 74.9 cm
- ② Y = 91.4 cm

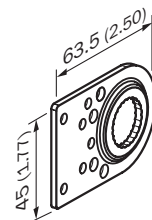
Dimensional drawings Terminal and alignment brackets

**BEF-KHS-N02**



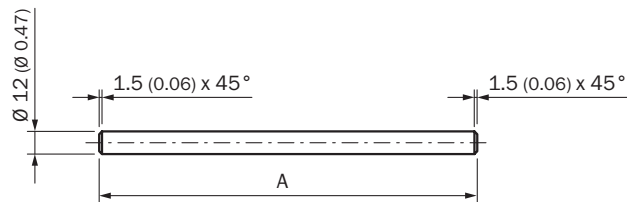
All dimensions in mm (inch)

**BEF-KHS-N08**



All dimensions in mm (inch)

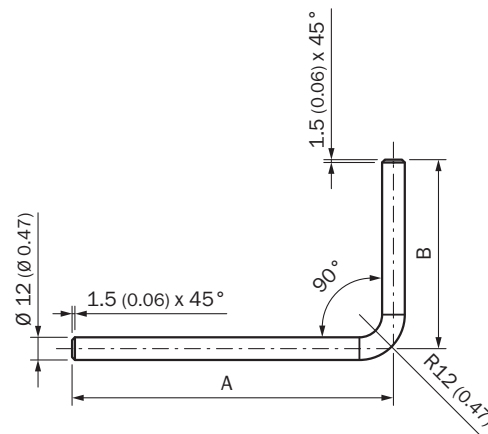
**BEF-MS12G-A**  
**BEF-MS12G-B**



All dimensions in mm (inch)

- ① A = 200 mm (BEF-MS12G-A)
- ② A = 300 mm (BEF-MS12G-B)

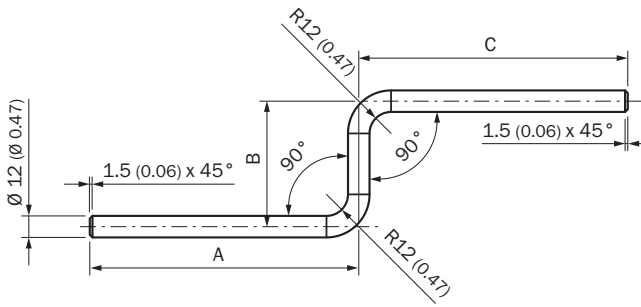
**BEF-MS12L-A**  
**BEF-MS12L-B**



All dimensions in mm (inch)

- ① A = 150 mm, B = 150 mm (BEF-MS12L-A)
- ② A = 250 mm, B = 250 mm (BEF-MS12L-B)

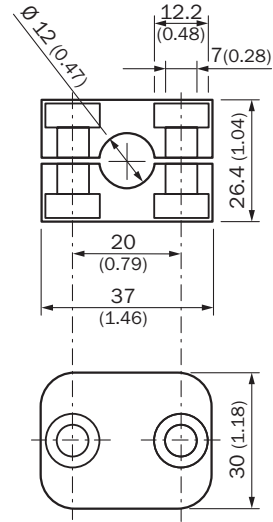
**BEF-MS12Z-A**  
**BEF-MS12Z-B**



All dimensions in mm (inch)

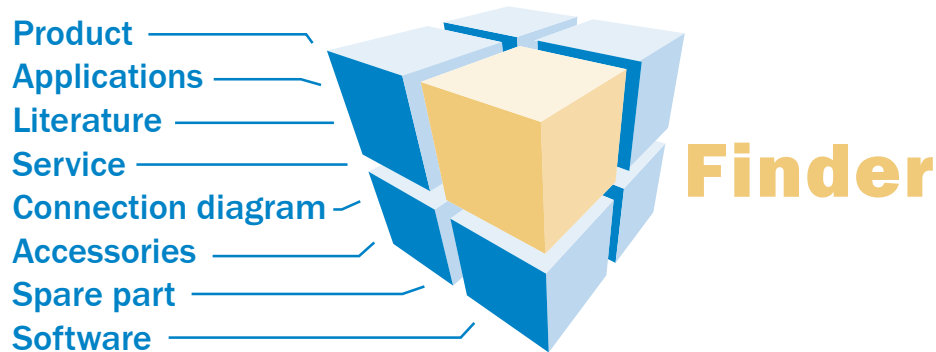
- ① A = 150 mm, B = 70 mm, C = 150 mm (BEF-MS12Z-A)
- ② A = 150 mm, B = 70 mm, C = 250 mm (BEF-MS12Z-B)

**BEF-RMC-D12**



All dimensions in mm (inch)

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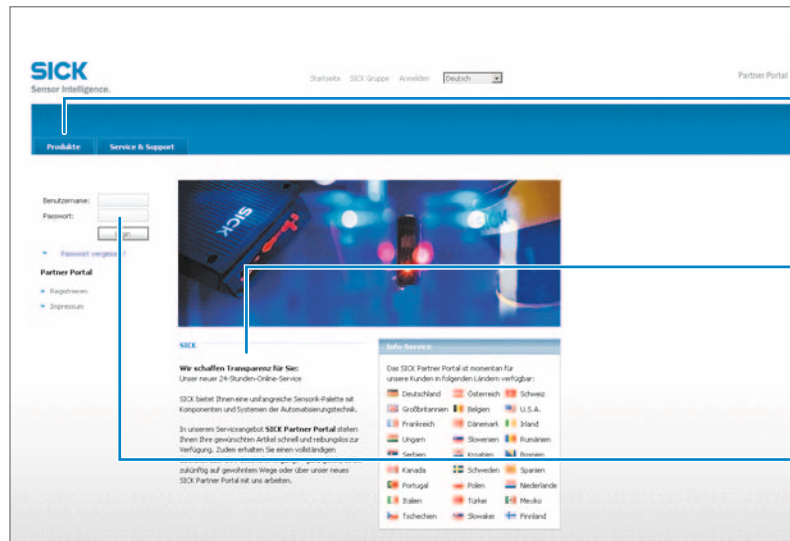
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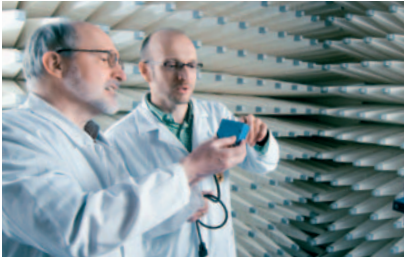
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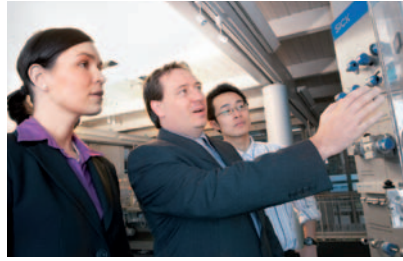
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## SICK at a glance



### Leading technologies

With a staff of more than 5,000 and over 50 subsidiaries and representations worldwide, SICK is one of the leading and most successful manufacturers of sensor technology. The power of innovation and solution competency have made SICK the global market leader. No matter what the project and industry may be, talking with an expert from SICK will provide you with an ideal basis for your plans – there is no need to settle for anything less than the best.



### 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
- Automatic identification with bar code and RFID readers
- Laser measurement technology for detecting the volume, position and contour of people and objects
- Complete system solutions for analysis and flow measurement of gases and liquids



### Comprehensive services

- SICK LifeTime Services – for safety and productivity
- Application centers in Europe, Asia and North America for the development of system solutions under real-world conditions
- E-Business Partner Portal [www.mysick.com](http://www.mysick.com) – price and availability of products, requests for quotation and online orders

Worldwide presence with subsidiaries in the following countries:

Australia  
Belgium/Luxembourg  
Brasil  
Česká Republika  
Canada  
China  
Danmark  
Deutschland  
España  
France  
Great Britain  
India  
Israel  
Italia  
Japan

México  
Nederland  
Norge  
Österreich  
Polska  
România  
Russia  
Schweiz  
Singapore  
Slovenija  
South Africa  
South Korea  
Suomi  
Sverige  
Taiwan  
Türkiye  
United Arab Emirates  
USA

Please find detailed addresses and additional representatives and agencies in all major industrial nations at [www.sick.com](http://www.sick.com)