

Simple, economical and reliable



Product description

The W23-2 family is widely used due its economical price structure and ease of installation. Standard sensor types as proximity and retro-reflective are offered in their simplified versions. The W23-2 type has become one of the most widely used photoelectric sensors, particularly in handling and warehouse systems. Users appreciate its three key qualities – simplicity, tamper-proofing and reliability.

This family also offers special versions, including a retro-reflective variant for detection of plastic wrapped pallets. Laser and PinPoint background suppression variants for detection of small targets further enhance the product offering.

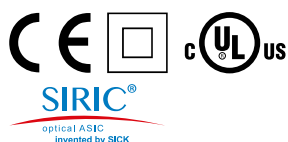
A wide range of accessories is available for mechanical and electrical integration in systems.

At a glance

- Energetic photoelectric sensor with easy teach-in
- Photoelectric proximity sensors with background suppression
- Intense red emitting LED with consistent light spot on PinPoint models
- Retro-reflective versions provided with and without adjustment
- Teach-in pushbutton on energetic proximity versions for quick, repeatable commissioning
- Cable or M12 connection

Your benefits

- Teach-in pushbutton option for quick commissioning
- Easy alignment with PinPoint LED and laser technology
- 360° LEDs provide device status indication from multiple angles



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→ www.mysick.com/en/W23-2

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

	WT23-2	WTE23-2	WL23-2
Sensor principle	Photoelectric proximity sensor		Photoelectric retro-reflective sensor
Detection principle	Background suppression	Energetic	Standard optics
Dimensions (W x H x D)	24.6 mm x 80.6 mm x 54 mm		
Housing design (light emission)	Rectangular		
Sensing range max.	50 mm ... 1,000 mm ¹⁾ (depending on type)	50 mm ... 2,300 mm ¹⁾	0.1 m ... 12 m ²⁾ (depending on type)
Sensing range	100 mm ... 1,000 mm (depending on type)	30 mm ... 2,000 mm	0.3 m ... 9 m ²⁾ (depending on type)
Type of light	Infrared light/visible red light (depending on type)	Infrared light	Visible red light
Light source	LED ³⁾		LED ³⁾ /PinPoint LED ³⁾ (depending on type)
Wave length	Infrared light	880 nm	
	Visible red light	660 nm	660 nm
Adjustment	Potentiometer	Single teach-in button	–

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

²⁾ PL80A.

³⁾ Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	WT23-2	WTE23-2	WL23-2
Supply voltage ¹⁾	10 V DC ... 30 V DC		
Ripple ²⁾	≤ 5 V _{pp}		
Power consumption	≤ 35 mA ^{3)/} ≤ 30 mA ³⁾ (depending on type)	≤ 35 mA ³⁾	
Output type	PNP/NPN (depending on type)		
Output function	Complementary		
Switching mode	Light/dark-switching		
Signal voltage PNP HIGH/LOW	Approx. V _S – 2.5 V / 0 V		
Signal voltage NPN HIGH/LOW	Approx. V _S / < 2.5 V		
Output current I _{max}	≤ 100 mA		
Response time	≤ 2.5 ms ⁴⁾		≤ 2.5 ms ^{4)/} ≤ 3.5 ms ⁴⁾ (depending on type)
Switching frequency	200 Hz ⁵⁾		200 Hz ^{5)/} ± 150 Hz ⁵⁾ (depending on type)
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 Cable with connector, M12, 270 mm ⁶⁾ (depending on type)		
Circuit protection	A ⁷⁾ , C ⁸⁾ , D ⁹⁾		
Protection class ¹⁰⁾	II		
Weight			
Connector M12, 4-pin	100 g		
Cable with connector M12, 4-pin	120 g	–	120 g
Cable, 4-wire	–		180 g
Polarisation filter	–		✓

	WT23-2	WTE23-2	WL23-2
Housing material	ABS		
Optics material	PMMA		
Enclosure rating	IP 67		
Ambient operating temperature	-25 °C ... +60 °C		
Ambient storage temperature	-40 °C ... +70 °C		

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

²⁾ May not exceed or fall short of V_s tolerances.

³⁾ Without load.

⁴⁾ Signal transit time with resistive load.

⁵⁾ With light/dark ratio 1:1.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ C = interference suppression.

⁹⁾ D = outputs overcurrent and short-circuit protected.

¹⁰⁾ Reference voltage: 50 V DC.

Ordering information

Other models available at www.mysick.com/en/W23-2

WT23-2

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** background suppression
- **Switching mode:** light/dark-switching
- **Adjustment:** potentiometer

Type of light	Light source	Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Type	Part no.
Infrared light	LED	50 mm ... 1,000 mm	Ø 50 mm (800 mm)	PNP	Connector M12, 4-pin	Cd-083	WT23-2P2421	1027778
				NPN	Connector M12, 4-pin	Cd-101	WT23-2K2421	1028068
Visible red light	LED	50 mm ... 800 mm	Ø 30 mm (800 mm)	PNP	Connector M12, 4-pin	Cd-083	WT23-2N2421	1028073
					Cable with connector M12, 4-pin, 270 mm, PVC	Cd-083	WT23-2P2441	1027779
						Cd-083	WT23-2P3441	1028066

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

WTE23-2

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** energetic
- **Type of light:** visible red light
- **Switching mode:** light/dark-switching
- **Adjustment:** single teach-in button

Light source	Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Type	Part no.
LED	50 mm ... 2,300 mm	Ø 160 mm (2,000 mm)	PNP	Connector M12, 4-pin	Cd-083	WTE23-2P2412	1027781
			NPN	Connector M12, 4-pin	Cd-083	WTE23-2N2412	1027782

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

WL23-2

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** standard optics
- **Type of light:** visible red light
- **Switching mode:** light/dark-switching

Light source	Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Type	Part no.
LED	0.1 m ... 10 m	Ø 45 mm (2.7 m)	PNP	Cable, 4-wire, 2 m, PVC	Cd-094	WL23-2P1130	1027784
				Connector M12, 4-pin	Cd-083	WL23-2P2430	1027785
				Cable with connector M12, 4-pin, 270 mm, PVC	Cd-083	WL23-2P3430	1027786
			NPN	Connector M12, 4-pin	Cd-083	WL23-2N2430	1027787
PinPoint LED	0.1 m ... 12 m	Ø 45 mm (2.7 m)	PNP	Connector M12, 4-pin	Cd-083	WL23-2P2460	1044165

¹⁾ PL80A.

WL23-2, detecting objects wrapped in film

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** standard optics
- **Type of light:** visible red light
- **Switching mode:** light/dark-switching

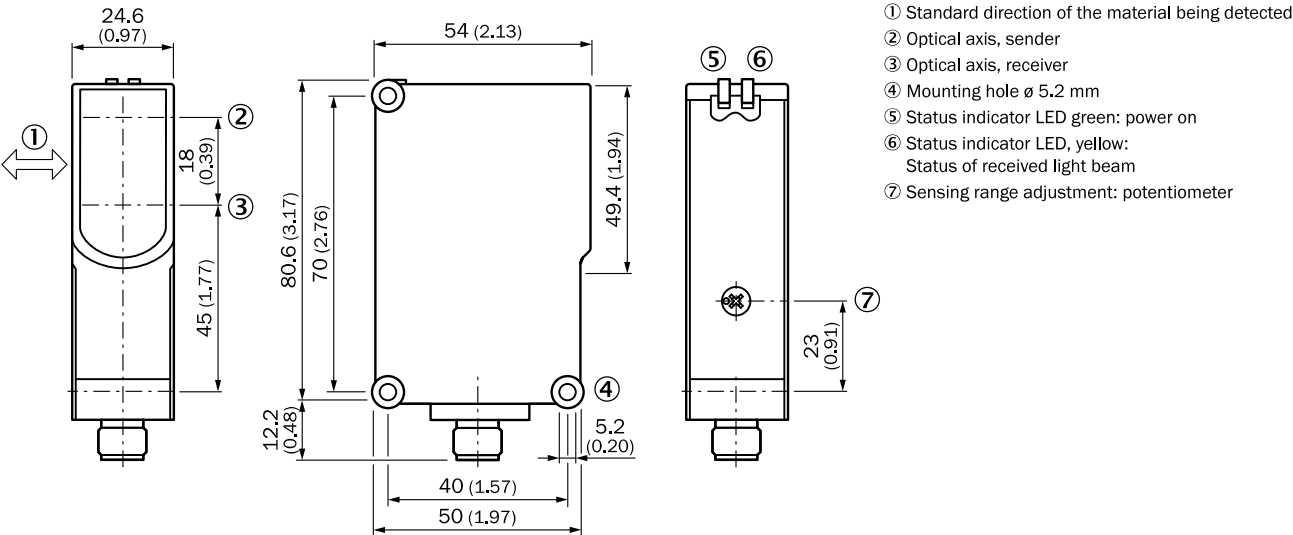
Light source	Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Type	Part no.
LED	0.1 m ... 4 m	Ø 45 mm (2.7 m)	PNP	Connector M12, 4-pin	Cd-083	WL23-2P2430S01	1041159

¹⁾ PL80A.

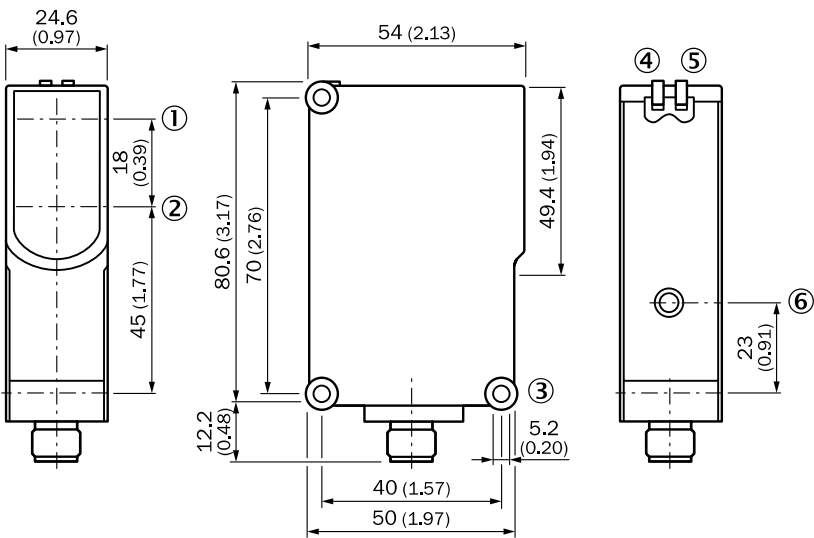
Dimensional drawings

Dimensions in mm (inch)

WT23-2, potentiometer

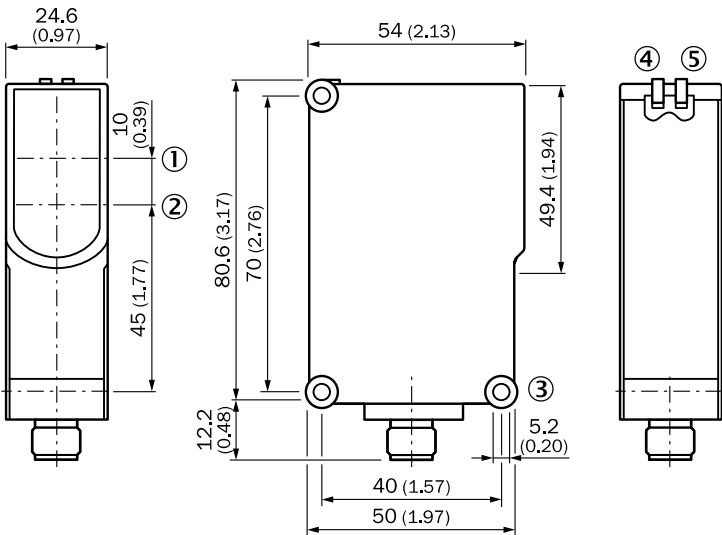


WTE23-2, single teach-in button



- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Mounting hole \varnothing 5.2 mm
- ④ Status indicator LED green: power on
- ⑤ Status indicator LED, yellow: Status of received light beam
- ⑥ Adjustment sensing range: single teach button

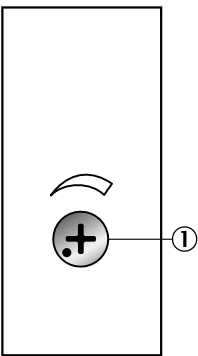
WL23-2



- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Mounting hole \varnothing 5.2 mm
- ④ Status indicator LED green: power on
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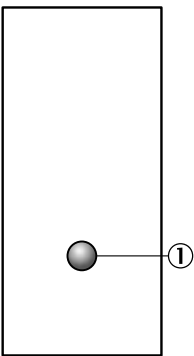
Adjustments

Potentiometer



① Sensing range adjustment: potentiometer

Single teach-in button



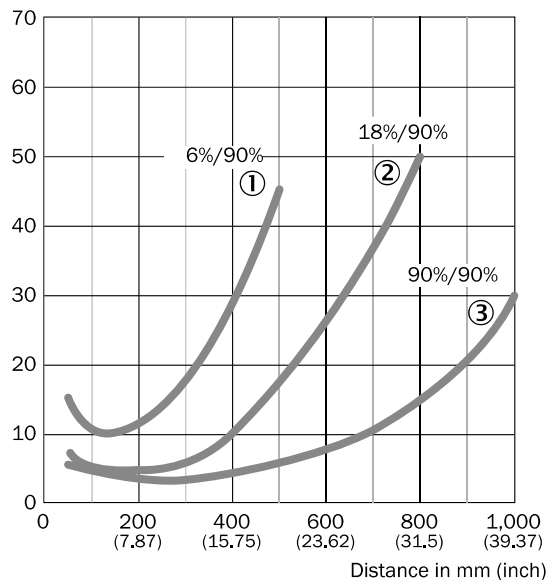
① Adjustment sensing range: single teach button

Characteristic curves

Black-white shift

WT23-2, infrared

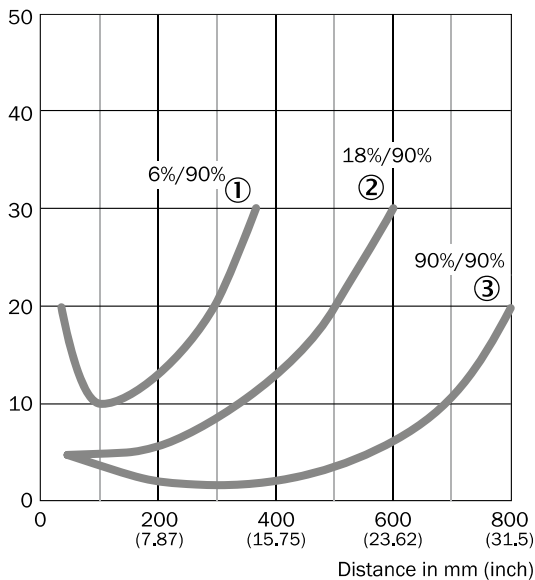
% of sensing range



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

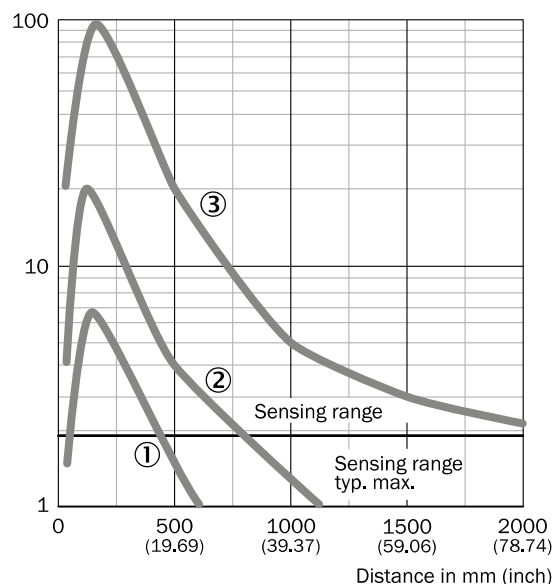
WT23-2, redlight

% of sensing range



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

WT23-2, energetic

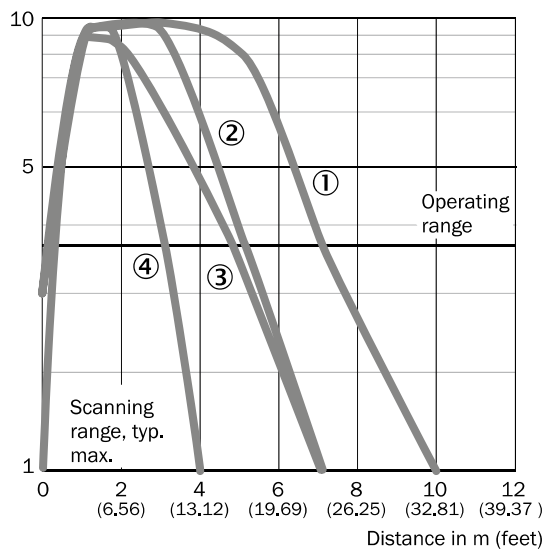


- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

Operating reserve

WL23-2

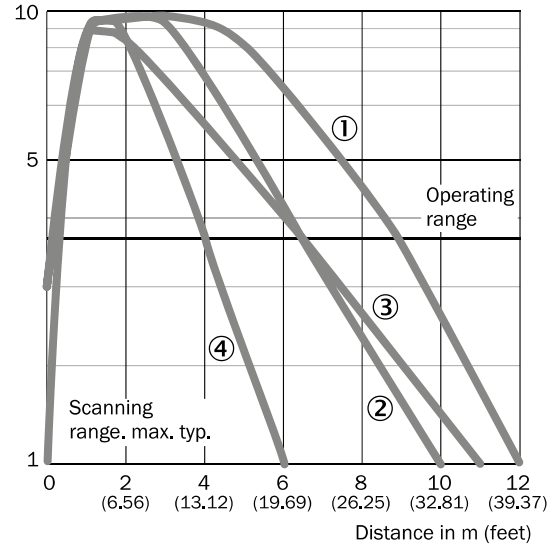
Operating reserve



- ① PL80A
- ② PL40A
- ③ C110A
- ④ PL20A

WL23-2, PinPoint

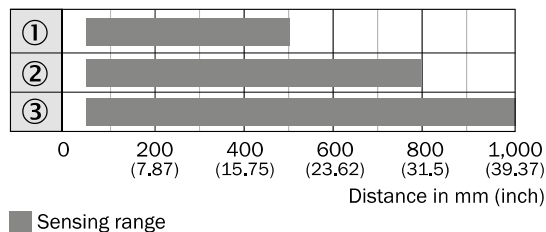
Operating reserve



- ① PL80A
- ② PL40A
- ③ C110A
- ④ PL20A

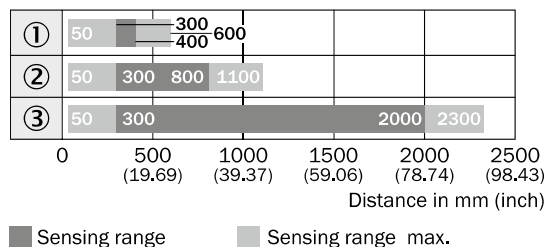
Bar diagrams

WT23-2, infrared



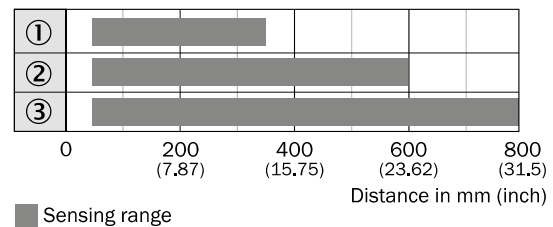
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

WT23-2, energetic



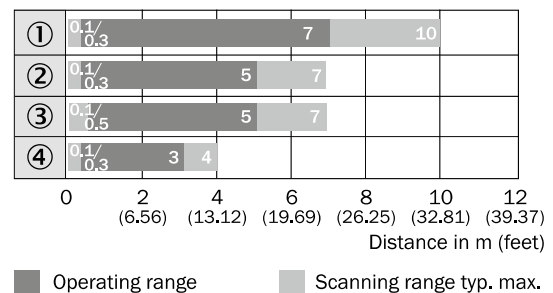
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

WT23-2, redlight



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

WL23-2



- ① PL80A
- ② PL40A
- ③ C110A
- ④ PL20A




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Connection diagram

Recommended accessories

Mounting brackets/plates



Mounting brackets

Figure	Material	Description	Model name	Part no.
	Steel, zinc coated	Mounting bracket with hinged arm	BEF-WN-MULTI	2064469
		Mounting bracket	BEF-WN-W23	2019085
		Mounting bracket with hinged arm	BEF-WN-W27	2009122


Plug connectors and cables

Connecting cable (female connector-open)

- Cable material: PVC
- Connector material: TPU



Figure	Connection type head A	Connection type head B	Connecting cable	Enclosure rating	Model name	Part no.
	Female connector, M12, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-1204-G02M	6009382
			5 m, 4-wire	IP 67	DOL-1204-G05M	6009866
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-1204-W02M	6009383
			5 m, 4-wire	IP 67	DOL-1204-W05M	6009867

Universal bar clamp systems

Figure	Material	Description	Model name	Part no.
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N04 for universal clamp bracket	BEF-KHS-N04	2051610






Device protection (mechanical)

Protective housing/tubes

Figure	Material	Description	Model name	Part no.
	Zinc plated steel (protective housing), Diecast zinc (clamp)	Protective housing for universal clamp	BEF-SG-W27	2039601
	Steel, zinc coated	Weather hood for universal clamp bracket	OBW-KHS-M01	2023240

Reflectors


Angular

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Rectangular, screw connection, 47 mm x 47 mm	P250	5304812
		Rectangular, screw connection, 38 mm x 15 mm	PL20A	1012719
		Rectangular, screw connection, 56 mm x 28 mm	PL30A	1002314
		Rectangular, screw connection, 37 mm x 56 mm	PL40A	1012720
		Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865

Reflective tape

Figure	Description	Model name	Part no.
	Self-adhesive, 50 mm x 60 mm	REF-IRF-56	5314244

Round

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Round, screw connection	C110A	5304549

→ For additional accessories, please see page L-861

