Reflex Array

THE SENSOR WITH THE LIGHT BAND: MULTIFACETED AND ECONOMICAL

MultiTask photoelectric sensors

SICK
Sensor Intelligence.

The sensor with the light band:
multifaceted and economical

Product description

The Reflex Array is unique. The Multi-Task photoelectric sensor detects the leading edge of small, flat, transparent, or uneven objects within its light band, regardless of position. Perforated objects are reliably detected without multiple adjustments. This considerably reduces installation costs and speeds up commissioning. The Reflex Array therefore offers major cost benefits over conventional solutions, which use several individual photoelectric sensors or a small light grid. The Reflex Array is available in four variants with varying detection heights and minimum object sizes.

At a glance

- Detects objects > 12 mm within a 50 mm light array, regardless of position
- Sensing range for detection from 0 m to max. 4.5 m
- Minimum distance of 0.5 m between sensor and reflector for all variants
- PinPoint technology for intense red light
- Automatic adjustment of the switching threshold when there is contamination

Your benefits

- Reduces the installation work required by up to 50% compared to light grids or multiple photoelectric sensors
- Detects objects > 12 mm within a 50 mm light array, regardless of position Three other variants are available for other objects.
- PinPoint technology and optical alignment procedure enables simple and quick commissioning
- Continuous Threshold Adjustment (CTA) ensures less downtime

Additional information

→ **www.mysick.com/en/Reflex_Array**

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

Sensor principle	Reflex Array
Dimensions (W x H x D)	24.6 mm x 80 mm x 54.2 mm
Housing design (light emission)	Rectangular
Sensing range max.	0 m ... 4.5 m [1] 0 m ... 2 m [2] (depending on type)
Sensing range	0 m ... 4.5 m [1] 0 m ... 2 m [2] (depending on type)
Type of light	Visible red light
Light source [3]	PinPoint LED
Distance sensor to reflector	0.5 m ... 4.5 m (depending on type)
Sensitivity adjustment	Teach-in button
Special design	Light band

[1] PL80A.

[2] PL40A.

[3] Average service life 100,000 h at Ta = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Residual ripple [2]	≤ 5 V_{pp}
Power consumption [3]	≤ 35 mA
Switching output	PNP or NPN
Switching mode	Light/dark-switching
Switching function	Complementary
Signal voltage PNP HIGH / LOW	Ca. V_S - 2,5 V / 0 V
Signal voltage NPN HIGH / LOW	Ca. V_S / < 2.5 V
Output current $I_{max.}$	≤ 100 mA
Response time [4]	≤ 2.5 ms
Switching frequency [5]	200 Hz
Connection type	Cable, 2 m, PVC [6] Connector Cable with plug, 270 mm, PVC [6] (depending on type)
Circuit protection	A [7], B [8], C [9]
Protection class [10]	II
Weight	130 g
Housing material	Plastic ABS
Optics material	PMMA
Enclosure rating	IP 67
Ambient operating temperature	–30 °C ... +60 °C
Ambient storage temperature	–40 °C ... +75 °C
UL File-No.	UL No. NRKH.E181493 & cUL No. NRKH7.E181493

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

[2] May not exceed or fall short of V_S.

[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] B = inputs and output reverse-polarity protected.

[9] C = interference suppression.

[10] Reference voltage 50 V DC.

Ordering information

Reflex Array

- **Minimum distance sensor - Reflector**: 0.5 m

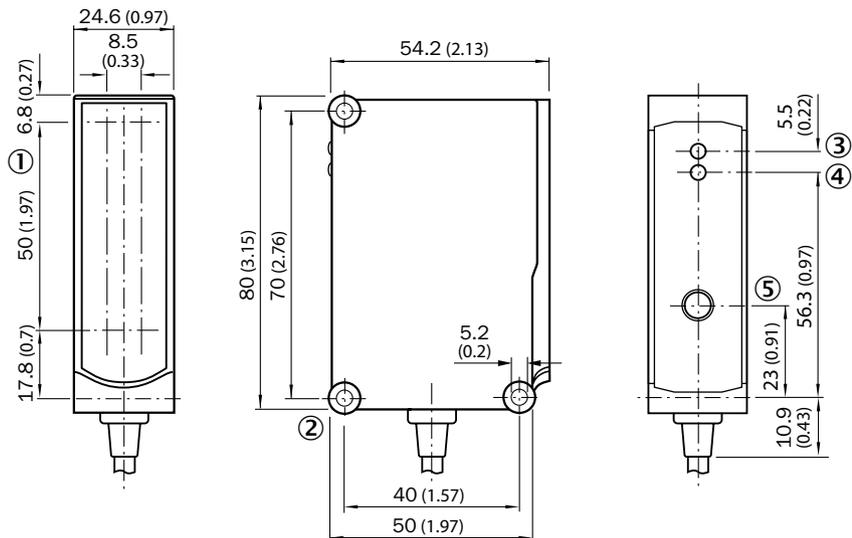| Sensing range max.	Detection height	Minimum object size	Connection	Switching output	Connection diagram	Type	Part no.
0 m ... 4.5 m [1] 0 m ... 2 m [2]	50 mm	≥ 12 mm	Cable with plug, M12, 4-pin	PNP	Cd-083	WL27-3P3402S13	1046538
				NPN	Cd-083	WL27-3N3402S23	1072772
			Connector M12, 4-pin	PNP	Cd-083	WL27-3P2402S18	1051577
			Cable, 4-wire	PNP	Cd-094	WL27-3P1102S16	1050825
				NPN	Cd-094	WL27-3N1102S25	1072979
		≥ 16 mm	Cable with plug, M12, 4-pin	PNP	Cd-083	WL27-3P3402S15	1048230
0 m ... 3.5 m [1]	45 mm	≥ 10 mm	Cable with plug, M12, 4-pin	PNP	Cd-083	WL27-3P3402S19	1056382
0 m ... 4.5 m [1]	30 mm	≥ 8 mm	Cable with plug, M12, 4-pin	PNP	Cd-083	WL27-3P3402S20	1060755
0 m ... 1.5 m [2]	24 mm	≥ 5 mm	Cable with plug, M12, 4-pin	PNP	Cd-083	WL27-3P3402S17	1051529
				NPN	Cd-083	WL27-3N3402S24	1072773
			Cable, 4-wire	NPN	Cd-094	WL27-3N1102S26	1072981

[1] PL80A.

[2] PL40A.

Dimensional drawing

dimensions in mm (inch)

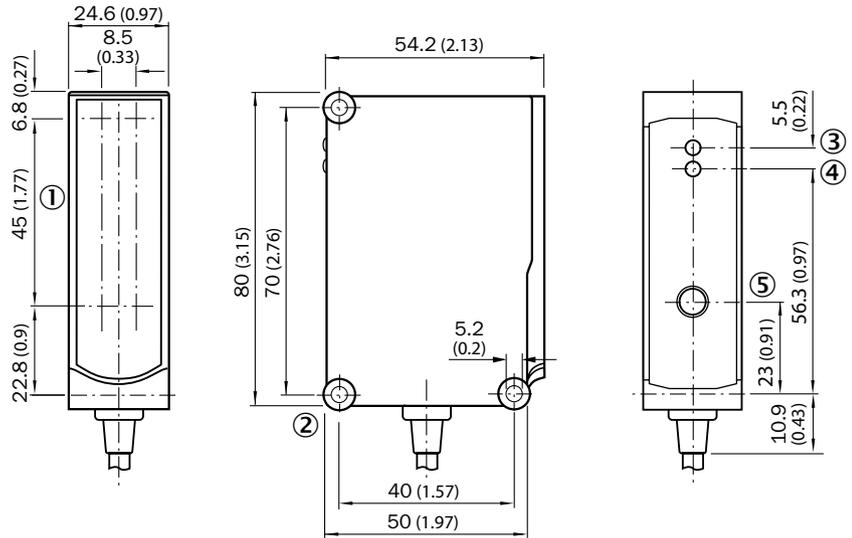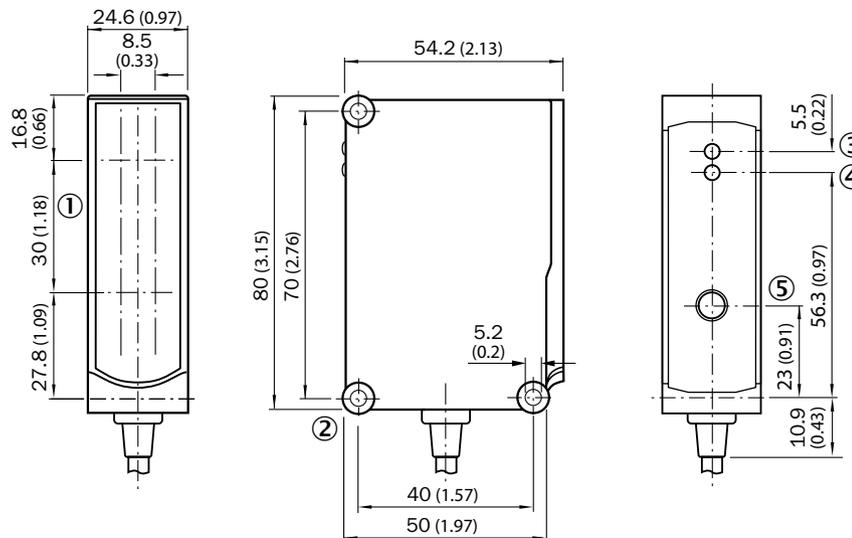**WL27-3P3402S13/WL27-3P3402S16/WL27-3P3402S15/WL27-3N3402S23/WL27-3N1102S25**
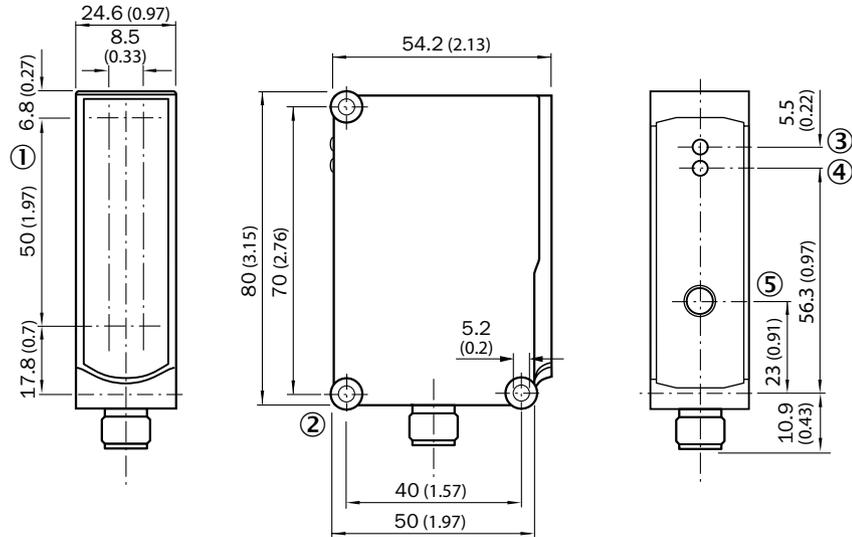
① Opening of light band
② Mounting hole ø 5.2 mm
③ Status indicator LED green: power on
④ Status indicator LED, yellow:
 Status of received light beam
⑤ Sensitivity adjustment (Teach-in-button)

WL27-3P3402S18

① Opening of light band
② Mounting hole ø 5.2 mm
③ Status indicator LED green: power on
④ Status indicator LED, yellow:
Status of received light beam
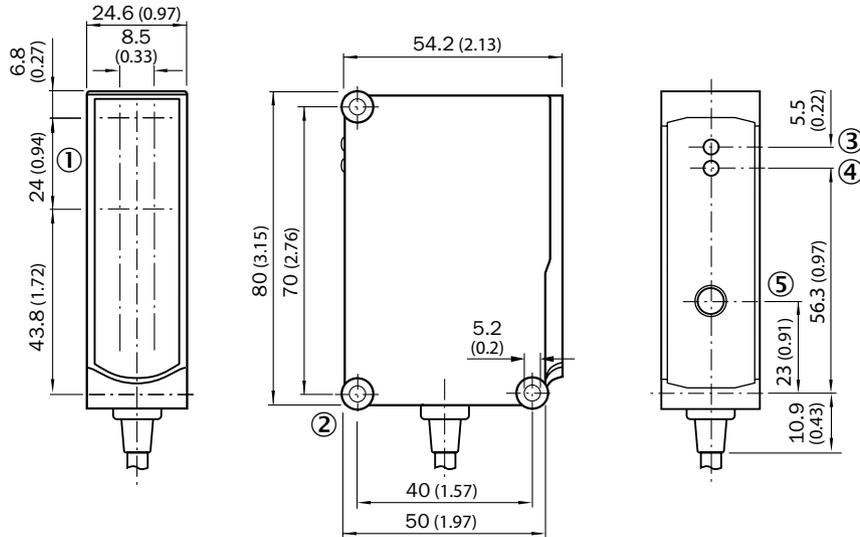⑤ Sensitivity adjustment (Teach-in-button)

WL27-3P3402S19

① Opening of light band
② Mounting hole ø 5.2 mm
③ Status indicator LED green: power on
④ Status indicator LED, yellow:
Status of received light beam
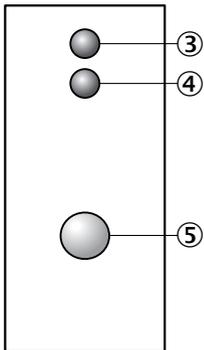⑤ Sensitivity adjustment (Teach-in-button)

WL27-3P3402S20

① Opening of light band
② Mounting hole ø 5.2 mm
③ Status indicator LED green: power on
④ Status indicator LED, yellow:
Status of received light beam
⑤ Sensitivity adjustment (Teach-in-button)

WL27-3P3402S17/WL27-3N3402S24/WL27-3N1102S26

① Opening of light band
② Mounting hole ø 5.2 mm
③ Status indicator LED green: power on
④ Status indicator LED, yellow:
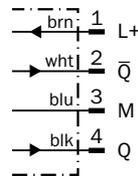   Status of received light beam
⑤ Sensitivity adjustment (Teach-in-button)

Adjustments
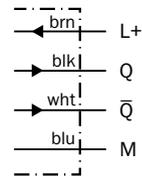
③ Status indicator LED green: power on
④ Status indicator LED, yellow: Status of received light beam
⑤ Sensitivity adjustment (Teach-in-button)

Connection diagram

Cd-083

brn	1	L+
wht	2	Q̄
blu	3	M
blk	4	Q

Cd-094

brn	L+
blk	Q
wht	Q̄
blu	M

Recommended accessories

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

Mounting brackets/plates

Mounting brackets

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

Plug connectors and cables

Connecting cable (female connector-open)

Figure	Connection type head A	Connection type head B	Connecting cable	Cable material	Model name	Part no.
	Female connector, M12, 4-pin, straight	Cable	2 m, 4-pole	PVC	DOL-1204-G02M	6009382
			10 m, 4-pole	PVC	DOL-1204-G10M	6010543
	Female connector, M12, 4-pin, angled, with 3 LED's	Cable	2 m, 4-pole	PVC	DOL-1204-L02M	6027945
			10 m, 4-pole	PVC	DOL-1204-L10M	6027946
	Female connector, M12, 4-pin, angled	Cable	2 m, 4-pole	PVC	DOL-1204-W02M	6009383
			10 m, 4-pole	PVC	DOL-1204-W10M	6010541

Female connector (ready to assemble)

Figure	Connection type head A	Connection type head B	Model name	Part no.
	Female connector, M12, 4-pin, straight	-	DOS-1204-G	6007302
	Female connector, M12, 4-pin, angled	-	DOS-1204-W	6007303

Male connector (ready to assemble)

Figure	Connection type head A	Connection type head B	Model name	Part no.
	Connector, M12, 4-pin, straight	-	STE-1204-G	6009932
	Connector, M12, 4-pin, angled	-	STE-1204-W	6022084

Reflectors

Angular

Figure	Material	Description	Model name	Part no.
		Reflector, rectangular, screw connection, 47 mm x 47 mm	P250	5304812
	PMMA/ABS	Reflector, rectangular, screw connection, 37 mm x 56 mm	PL40A	1012720
		Reflector, rectangular, screw connection, 47 mm x 47 mm	PL80A	1003865

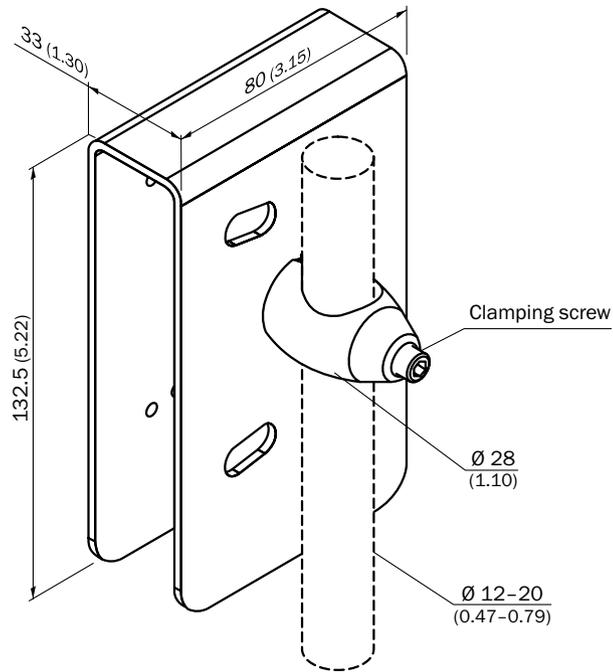## Terminal and alignment brackets

Universal bar clamp systems

Figure	Material	Description	Model name	Part no.
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N04 with thread screws included (W27-3, P250, PL40A, PL80A)	BEF-KHS-N04	2051610
		Plate N07 with thread screws included (P250, PL40A)	BEF-KHS-N07	2051613
	Steel, zinc coated	Mounting bar, straight, 200 mm	BEF-MS12G-A	4056054
		Mounting bar, straight, 300 mm	BEF-MS12G-B	4056055
		Mounting bar, L-shaped, 150 mm x 150 mm	BEF-MS12L-A	4056052
		Mounting bar, L-shaped, 250 x 250 mm	BEF-MS12L-B	4056053
		Mounting bar, Z-shaped, 150 mm x 70 mm x 150 mm	BEF-MS12Z-A	4056056
		Mounting bar, Z-shaped, 150 mm x 70 mm x 250 mm	BEF-MS12Z-B	4056057
	Aluminum	Bar clamp for bar diameter of 12 mm (fixing the mounting rod)	BEF-RMC-D12	5321878

Dimensional drawing accessories

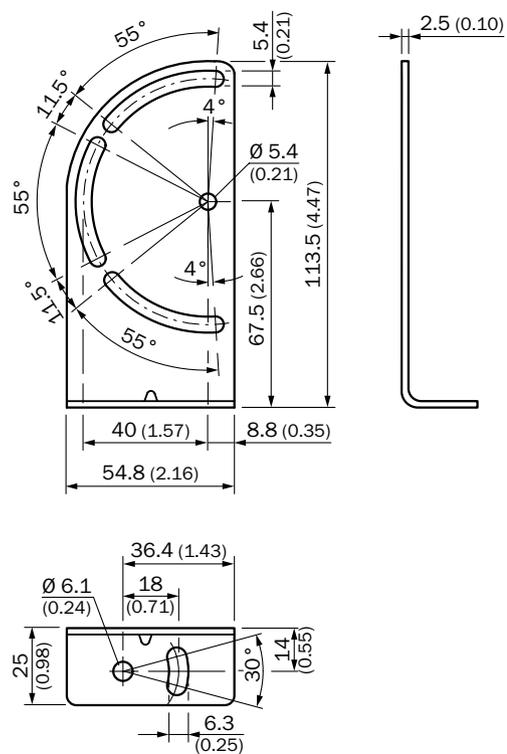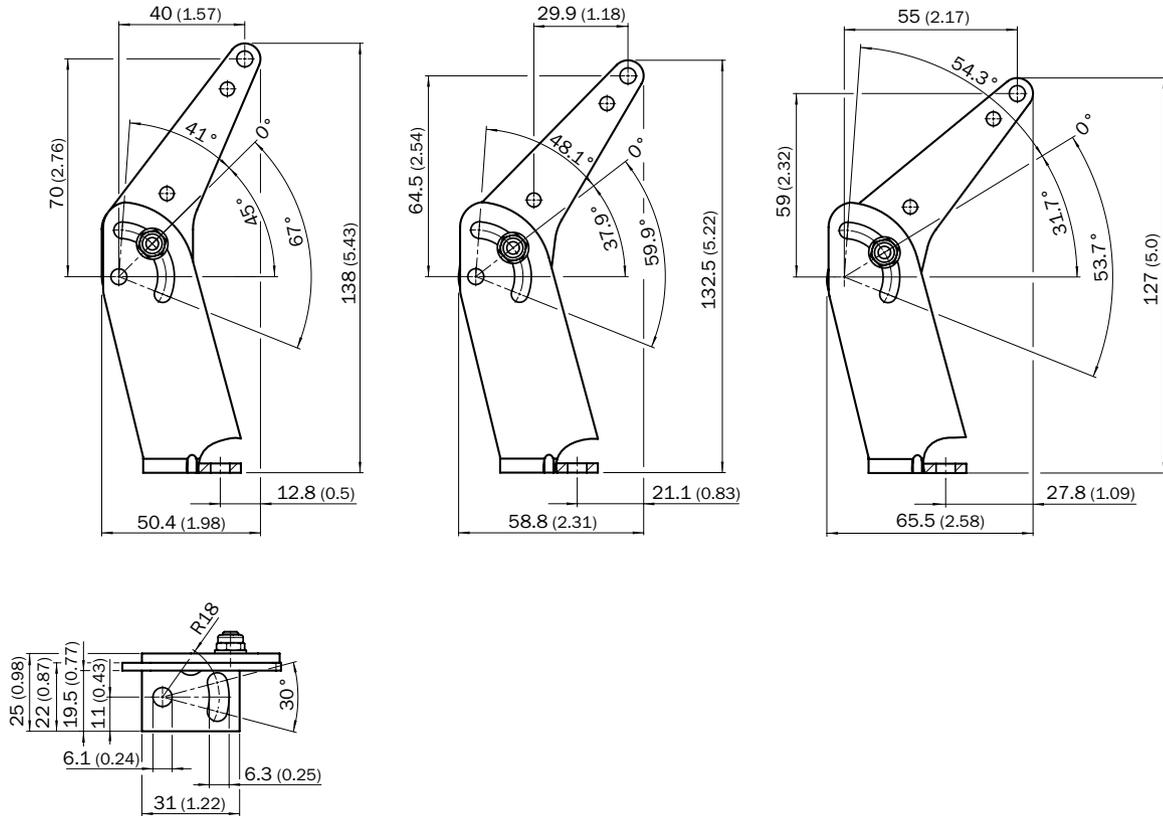Device protection (mechanical)

Protective housing/tubes

BEF-SG-W27

33 (1.30)
80 (3.15)
132.5 (5.22)

Clamping screw

Ø 28 (1.10)

Ø 12–20 (0.47–0.79)

Mounting brackets/plates

Mounting brackets

BEF-WN-W23

55°
11.5°
55°
11.5°
55°
4°
4°
5.4 (0.21)
2.5 (0.10)
Ø 5.4 (0.21)
113.5 (4.47)
67.5 (2.66)
40 (1.57)
8.8 (0.35)
54.8 (2.16)

36.4 (1.43)
18 (0.71)
Ø 6.1 (0.24)
25 (0.98)
30°
14 (0.55)
6.3 (0.25)

BEF-WN-W27

40 (1.57) · 41° · 0° · 45° · 67° · 70 (2.76) · 138 (5.43) · 12.8 (0.5) · 50.4 (1.98)

29.9 (1.18) · 48.1° · 0° · 37.9° · 59.9° · 64.5 (2.54) · 132.5 (5.22) · 21.1 (0.83) · 58.8 (2.31)

55 (2.17) · 54.3° · 0° · 31.7° · 53.7° · 59 (2.32) · 127 (5.0) · 27.8 (1.09) · 65.5 (2.58)

R18 · 30° · 25 (0.98) · 22 (0.87) · 19.5 (0.77) · 11 (0.43) · 6.1 (0.24) · 6.3 (0.25) · 31 (1.22)

Plug connectors and cables

Connecting cable (female connector-open)

DOL-1204-GxxM

44 (1.73) · Ø 11 (0.43) · Ø 14.8 (0.58)

3/blu · 4/blk · 2/n.c. · 1/brn
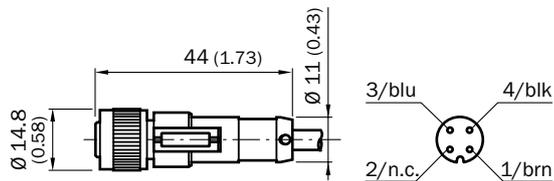
DOL-1204-LxxM/DOL-1204-WxxM

26.5 (1.04) · 12 (0.47) · M12 x 1 · 1.5 (0.06) · 14.5 (0.57) · 31 (1.22) · 12 (0.47) · *L* · max. Ø 6 (0.24) · Ø 8.8 (0.35) · Ø 10.5 (0.41)

3/blu · 4/blk · 2/wht · 1/brn
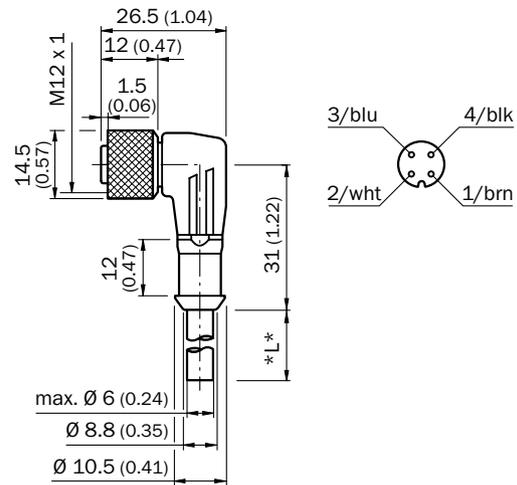
Female connector (ready to assemble)

DOS-1204-G

52.5 (2.07)
20 (0.79)
M12x1
3
4
2
1
cable diameter
3 to 6.5 mm
(0.12 to 0.26)

DOS-1204-W

35 (1.38)
Ø 20 (0.79)
M12x1
27.5 (1.08)
37.5 (1.48)
3
4
2
1
cable diameter
3 to 6.5 mm
(0.12 to 0.26)
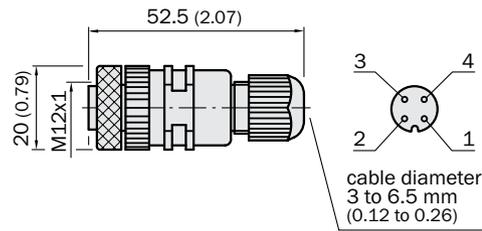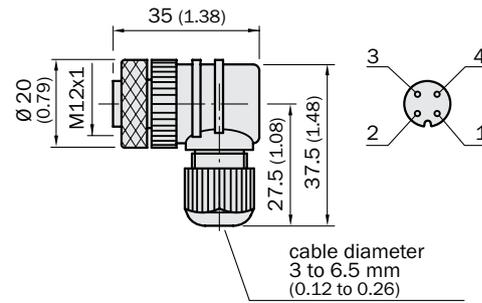
Male connector (ready to assemble)

STE-1204-G
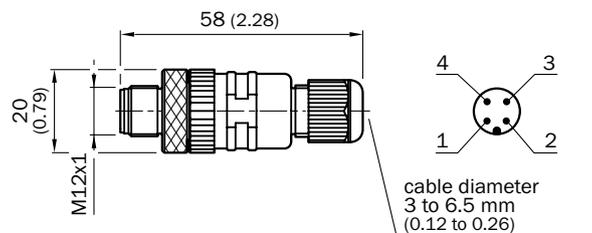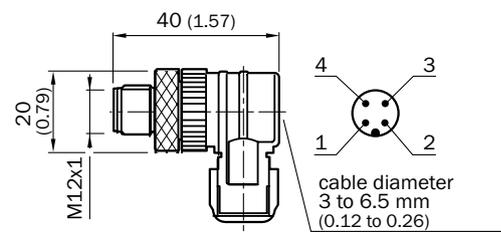
58 (2.28)
20 (0.79)
M12x1
4
3
1
2
cable diameter
3 to 6.5 mm
(0.12 to 0.26)

STE-1204-W

40 (1.57)
20 (0.79)
M12x1
4
3
1
2
cable diameter
3 to 6.5 mm
(0.12 to 0.26)

Reflectors

Angular

P250

51 (2.01)
47 (1.85)
51 (2.01)
5 (0.20)
47 (1.85)
4.5 (0.18)
61 (2.40)
10 (0.39)
20 (0.79)
10 (0.39)
8 (0.31)
3.5 (0.14)

PL40A

Ø 4.5 (0.18)
34 (1.34)
52 (2.05)
56 (2.20)
60 (2.36)
37 (1.46)
40 (1.57)
8 (0.31)

PL80A

84 (3.31)
2.5 (0.10)
68 (2.68)
71 (2.80)
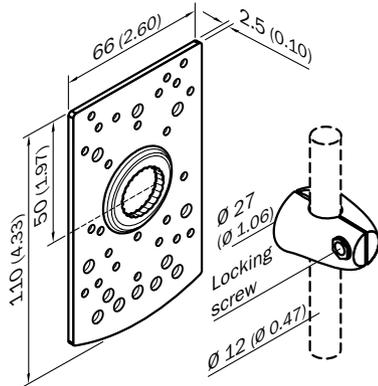80 (3.15)
84 (3.31)
4.5 (0.18)
8 (0.31)
80 (3.15)
8.5 (0.33)
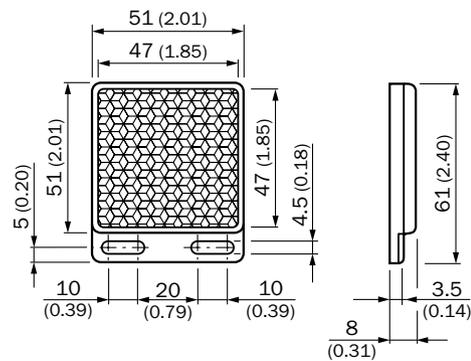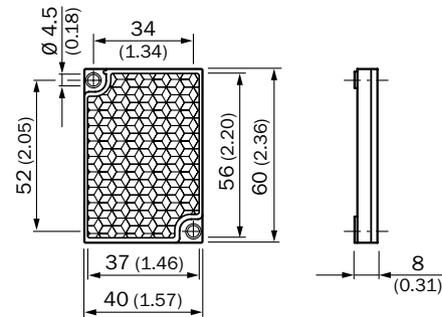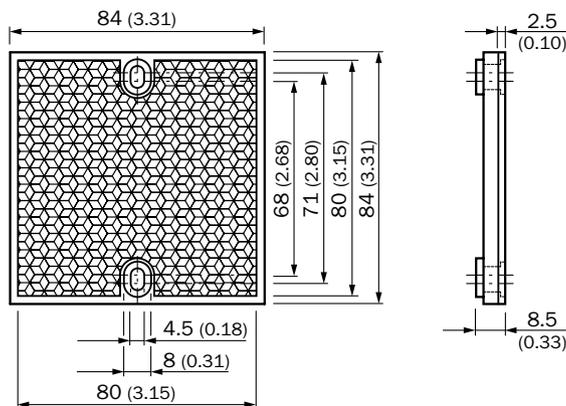
Terminal and alignment brackets
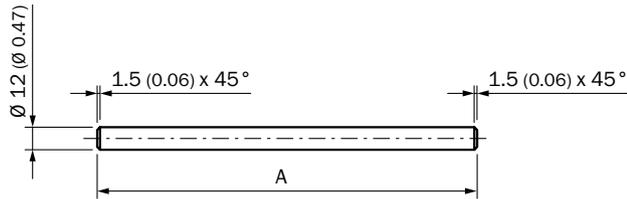
Universal bar clamp systems

BEF-KHS-N04

BEF-KHS-N07
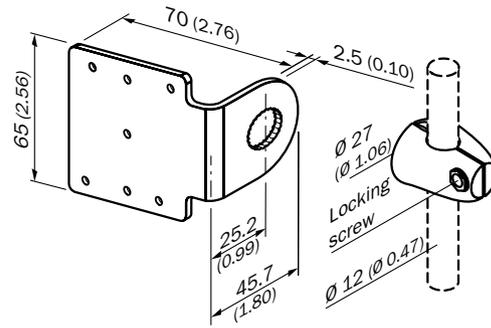
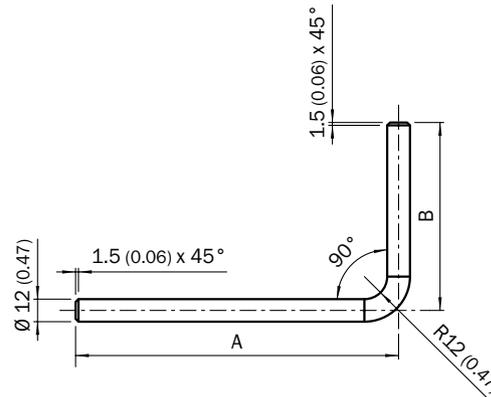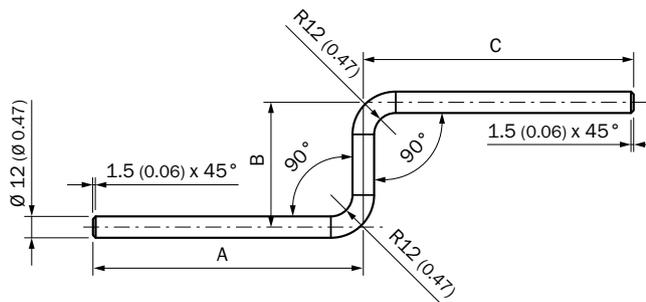#### BEF-MS12G-A/BEF-MS12G-B

① BEF-MS12G-(N)A: A = 200 mm
② BEF-MS12G-(N)B: A = 300 mm
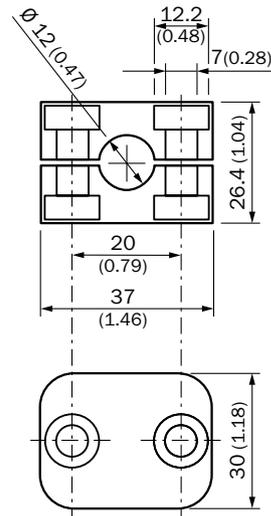
BEF-MS12L-A/BEF-MS12L-B

① BEF-MS12L-(N)A: A = 200 mm, B = 150 mm
② BEF-MS12L-(N)B: A = 250 mm, B = 250 mm
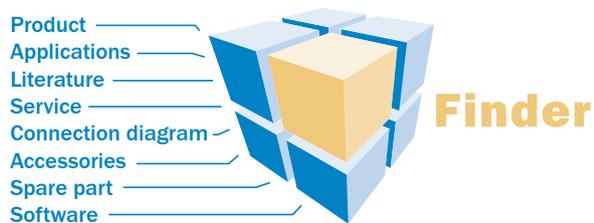
BEF-MS12Z-A/BEF-MS12Z-B

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

BEF-RMC-D12

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SUPPORT
SICK LifeTime Services
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CHECK

Consulting & Design
Globally available experts for cost-effective solutions

Product & System Support
Fast and reliable, by telephone or on location

Verification & Optimization
Checks and recommendations for increased availability

Upgrade & Retrofits
Uncovers new potential for machines and systems

Training & Education
Employee qualification for increased competitiveness

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 6,500 employees and over 50 subsidiaries and equity investments as well as numerous representative offices worldwide, we are always close to our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

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Australia, Austria, Belgium/Luxembourg, Brazil, Czech Republic, Canada, China, Denmark, Finland, France, Germany, Great Britain, Hungary, India, Israel, Italy, Japan, Mexico, Netherlands, Norway, Poland, Romania, Russia, Singapore, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, United Arab Emirates, USA

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Sensor Intelligence.