GL6-P4212

G6

MINIATURE PHOTOELECTRIC SENSORS

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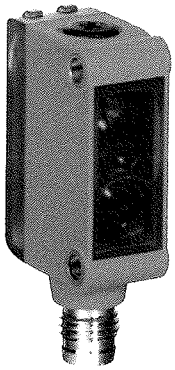


Illustration may differ

Ordering information

Type	Part no.
GL6-P4212	1062110

Included in delivery: P250 (1), BEF-W100-A (1)

Other models and accessories ⇨ www.sick.com/G6

Detailed technical data

Features

Sensor/ detection principle	Photoelectric retro-reflective sensor, Dual lens
Dimensions (W x H x D)	12 mm x 31.5 mm x 21 mm
Housing design (light emission)	Rectangular
Sensing range max.	≤ 6 m [1]
Sensing range	≤ 5 m [1]
Type of light	Visible red light
Light source	PinPoint LED [2]
Light spot size (distance)	Ø 8 mm (350 mm)
Wave length	650 nm
Adjustment	Potentiometer, 270°

[1] Reflector PL80A.
[2] Average service life: 100,000 h at T_U = +25 °C.

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC [1]
Ripple	± 10 % [2]

[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below U_V tolerances.
[3] Without load.
[4] At Uv > 24 V, IA max. = 50 mA.
[5] Signal transit time with resistive load.
[6] With light/dark ratio 1:1.
[7] A = V_S connections reverse-polarity protected.
[8] B = inputs and output reverse-polarity protected.
[9] D = outputs overcurrent and short-circuit protected.
[10] Temperature stability following adjustment +/-10 °C.

Power consumption	30 mA [3]
Switching output	PNP 1.4
Switching mode	Light/dark switching
Switching mode selector	Selectable via light/dark selector
Signal voltage PNP HIGH/LOW	V_S - (≤ 3 V) / approx. 0 V
Output current $I_{max.}$	≤ 100 mA [4]
Response time	< 625 µs [5]
Switching frequency	1,000 Hz [6] 1.5
Connection type	Male connector M8, 4-pin 1.6
Circuit protection	A [7] B [8] D [9]
Protection class	III
Weight	20 g
Polarisation filter	✓
Housing material	Plastic, ABS/PC
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Reflector P250, Stainless steel mounting bracket (1.4301/304) BEF-W100-A
Ambient operating temperature	–25 °C ... +55 °C [10]
Ambient storage temperature	–40 °C ... +70 °C
UL File No.	NRKH.E348498 & NRKH7.E348498

[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below U_V tolerances.
[3] Without load.
[4] At Uv > 24 V, IA max. = 50 mA.
[5] Signal transit time with resistive load.
[6] With light/dark ratio 1:1.
[7] A = V_S connections reverse-polarity protected.
[8] B = inputs and output reverse-polarity protected.
[9] D = outputs overcurrent and short-circuit protected.
[10] Temperature stability following adjustment +/-10 °C.

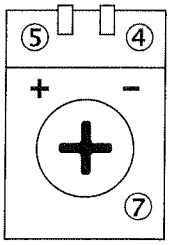
Classifications

ECl@ss 5.0	27270902
ECl@ss 5.1.4	27270902
ECl@ss 6.0	27270902
ECl@ss 6.2	27270902
ECl@ss 7.0	27270902
ECl@ss 8.0	27270902
ECl@ss 8.1	27270902
ECl@ss 9.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717

UNSPSC 16.0901 39121528

Adjustments possible

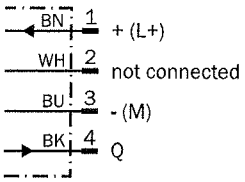
Adjustment possibility



④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑦ Sensitivity control: potentiometer

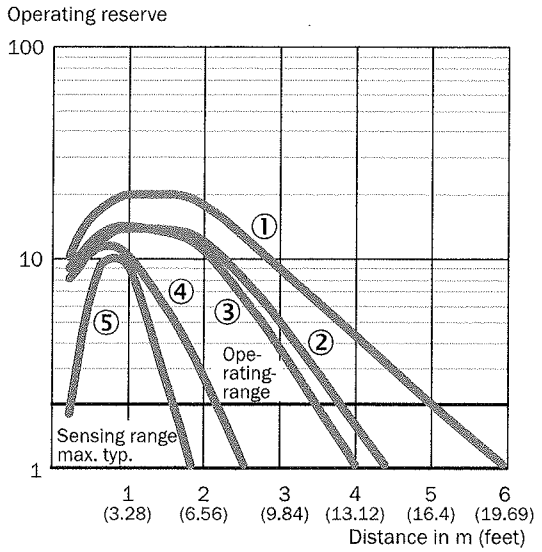
Connection diagram

Cd-066



Characteristic curve

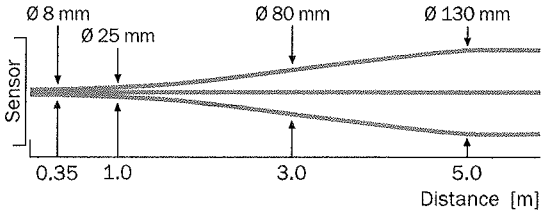
GL6



① Reflector PL80A
② Reflector PL40A
③ Reflector P250
④ Reflector PL20A
⑤ Reflective tape REF-IRF-56

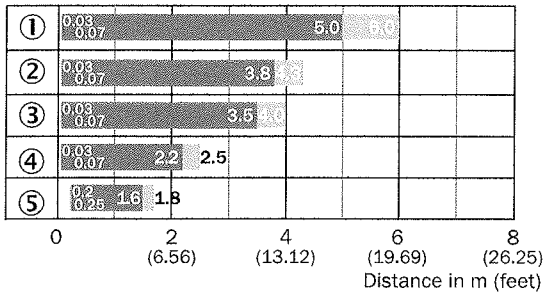
Light spot size

GL6, GL6G



Sensing range diagram

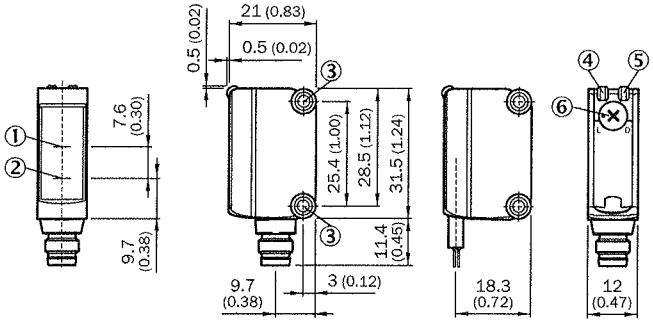
GL6, GL6G



Sensing range Sensing range max.

① Reflector PL80A
② Reflector PL40A
③ Reflector P250
④ Reflector PL20A
⑤ Reflective tape REF-IRF-56

Dimensional drawing (Dimensions in mm (inch))



① Optical axis, receiver
② Optical axis, sender
③ Mounting holes M3
④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑥ Light/ dark rotary switch: L = light switching, D = dark switching

Recommended accessories

Other models and accessories → www.sick.com/G6

Brief description	Type	Part no.
Universal bar clamp systems		
 Clamp bar to fix G6 and W16 sensors on rods of 10 mm, clamp-on design up to 4 mm wall thickness, aluminum (clamp bar), stainless steel (bracket), clamp bar mounting and clamp function, mounting bracket, mounting hardware	BEF-KHS-ISG6	2075080

GL10-P4212

G10

SMALL PHOTOELECTRIC SENSORS

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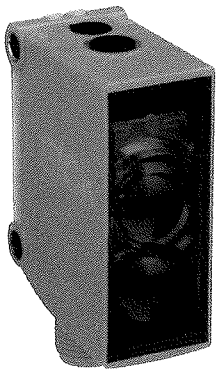


Illustration may differ

Ordering information

Type	Part no.
GL10-P4212	1065887

Included in delivery: P250 (1), BEF-G10DC01 (1)

Other models and accessories → www.sick.com/G10

Detailed technical data

Features

Sensor/ detection principle	Photoelectric retro-reflective sensor, Dual lens
Dimensions (W x H x D)	20 mm x 50 mm x 39 mm
Housing design (light emission)	Rectangular
Sensing range max.	0.08 m ... 15 m [1] 0.08 m ... 12 m [2]
Sensing range	0.15 m ... 12 m [1] 0.15 m ... 10 m [2]
Type of light	Visible red light
Light source	PinPoint LED [3]
Light spot size (distance)	Ø 58 mm (5 m)
Wave length	625 nm
Adjustment	Potentiometer, 270°

[1] Reflector PL80A.

[2] Reflector P250.

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

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC [1]
Ripple	± 5 V_{pp} [2]
Power consumption	20 mA
Switching output	PNP
Switching mode	Light/dark switching
Switching mode selector	Selectable via light/dark selector
Output current $I_{max.}$	≤ 100 mA
Response time	≤ 500 µs [3]
Switching frequency	1,000 Hz [4]
Connection type	Male connector M12, 4-pin
Circuit protection	A [5] B [6] C [7] D [8]
Protection class	III
Weight	35 g
Polarisation filter	✓
Housing material	Plastic, ABS/PMMA
Enclosure rating	IP67
Items supplied	Mounting bracket BEF-G10DC01, Reflector P250
EMC	EN 60947-5-2
Ambient operating temperature	–30 °C ... +60 °C
Ambient storage temperature	–40 °C ... +70 °C
UL File No.	NRKH.E348498 & NRKH7.E348498
More standards	UL325 [9]

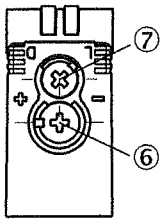
[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below U_V tolerances.
[3] Signal transit time with resistive load.
[4] With light/dark ratio 1:1.
[5] A = V_S connections reverse-polarity protected.
[6] B = inputs and output reverse-polarity protected.
[7] C = interference suppression.
[8] D = outputs overcurrent and short-circuit protected.
[9] Complies with the UL325 standard when used with sturdy protection hood (e.g. BEF-G10WSG, 2071960).

Classifications

ECl@ss 5.0	27270902
ECl@ss 5.1.4	27270902
ECl@ss 6.0	27270902
ECl@ss 6.2	27270902
ECl@ss 7.0	27270902
ECl@ss 8.0	27270902
ECl@ss 8.1	27270902

ECl@ss 9.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
UNSPSC 16.0901	39121528

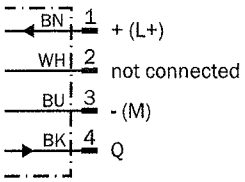
Adjustments possible



⑥ Adjustment of sensing range
⑦ Light/dark selector

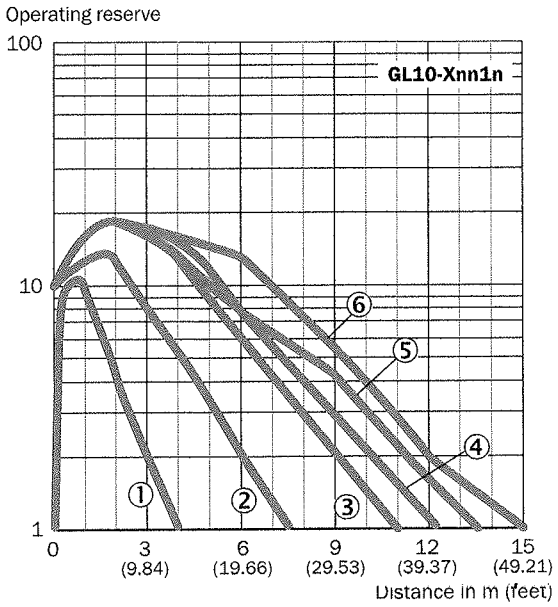
Connection diagram

Cd-066



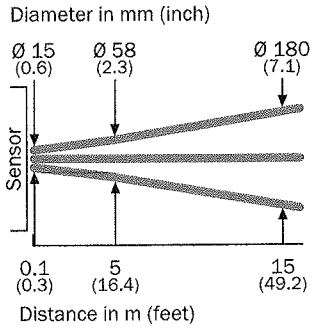
Characteristic curve

GL10



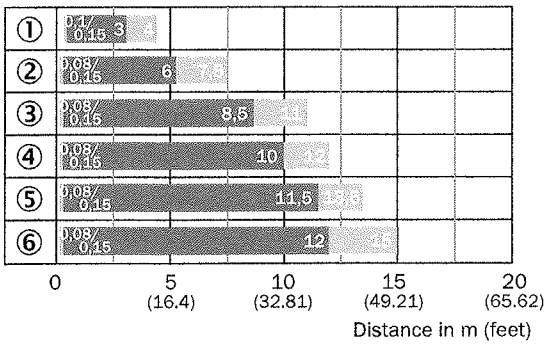
Light spot size

GL10, AC/DC



Sensing range diagram

GL10

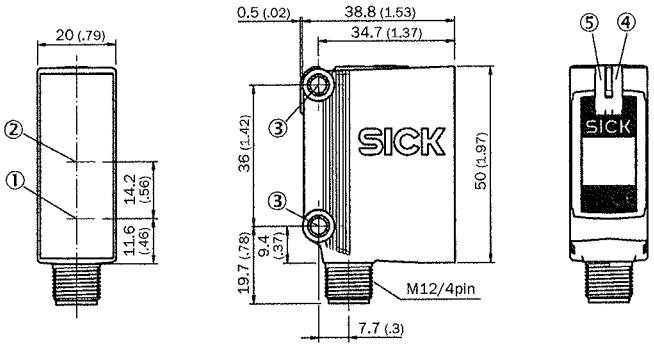


Sensing range Sensing range max.

① Reflective tape REF-IRF-56
② Reflector PL20A
③ Reflector PL30A
④ Reflector P250
⑤ Reflector PL40A
⑥ Reflector PL80A

Dimensional drawing (Dimensions in mm (inch))

GTE10, GL10, GL10G, DC, connector



① Center of optical axis, sender
② Center of optical axis, receiver
③ Mounting hole, Ø 4.2 mm
④ LED indicator yellow: Status of received light beam
⑤ LED indicator green: power on

Recommended accessories

Other models and accessories → www.sick.com/G10

	Brief description	Type	Part no.
Universal bar clamp systems			
	Clamp bar to fix G10 sensors on rods of 10 mm, clamp-on design up to 4 mm wall thickness, aluminum (clamp bar), stainless steel (bracket), clamp bar mounting and clamp function, mounting bracket, mounting hardware	BEF-KHS-ISG10	2073756

IME18-08BPSZC0S

IME

INDUCTIVE PROXIMITY SENSORS

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Ordering information

Type	Part no.
IME18-08BPSZC0S	1040966

Included in delivery: BEF-MU-M18 (1)

Other models and accessories → www.sick.com/IME

Detailed technical data

Features

Housing	Cylindrical thread design
Housing	Standard
Thread size	M18 x 1
Diameter	Ø 18 mm
Sensing range S_n	8 mm
Safe sensing range S_a	6.48 mm
Installation type	Flush
Switching frequency	1,000 Hz
Connection type	Male connector M12, 4-pin
Switching output	PNP
Output function	NO
Electrical wiring	DC 3-wire
Enclosure rating	IP67 [1]

[1] According to EN 60529.

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC
Ripple	≤ 10 %
Voltage drop	≤ 2 V [1]
Current consumption	10 mA [2]
Time delay before availability	≤ 100 ms
Hysteresis	5 % ... 15 %

[1] At I_a max.
[2] Without load.
[3] Ub and Ta constant.
[4] Of Sr.

Reproducibility	≤ 2 % [3) 4)]
Temperature drift (of S_r)	± 10 %
EMC	According to EN 60947-5-2
Continuous current I_a	≤ 200 mA
Short-circuit protection	✓
Reverse polarity protection	✓
Power-up pulse protection	✓
Shock and vibration resistance	30 g, 11 ms/10 Hz ... 55 Hz, 1 mm
Ambient operating temperature	–25 °C ... +75 °C
Housing material	Metal, Nickel-plated brass
Sensing face material	Plastic, PA 66
Housing length	69 mm
Thread length	52 mm
Tightening torque, max.	≤ 40 Nm
UL File No.	NRKH.E181493

[1)] At I_a max.
[2)] Without load.
[3)] Ub and Ta constant.
[4)] Of Sr.

Reduction factors

Note	The values are reference values which may vary
St37 steel (Fe)	1
Stainless steel (V2A, 304)	Approx. 0.8
Aluminum (Al)	Approx. 0.45
Copper (Cu)	Approx. 0.4
Brass (Br)	Approx. 0.4

Installation note

Remark	Associated graphic see "Installation"
B	36 mm
C	18 mm
D	24 mm
F	64 mm

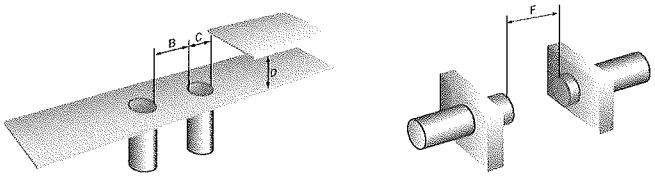
Classifications

ECl@ss 5.0	27270101
ECl@ss 5.1.4	27270101
ECl@ss 6.0	27270101
ECl@ss 6.2	27270101
ECl@ss 7.0	27270101
ECl@ss 8.0	27270101
ECl@ss 8.1	27270101
ECl@ss 9.0	27270101

ETIM 5.0	EC002714
ETIM 6.0	EC002714
UNSPSC 16.0901	39122230

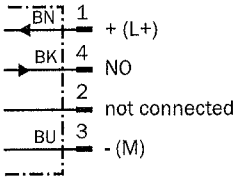
Installation note

Flush installation



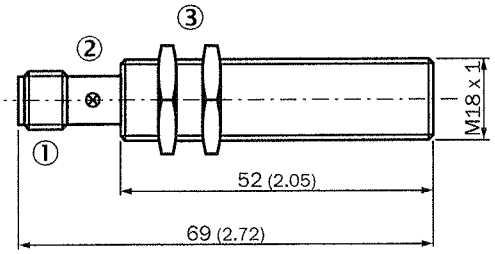
Connection diagram

Cd-007

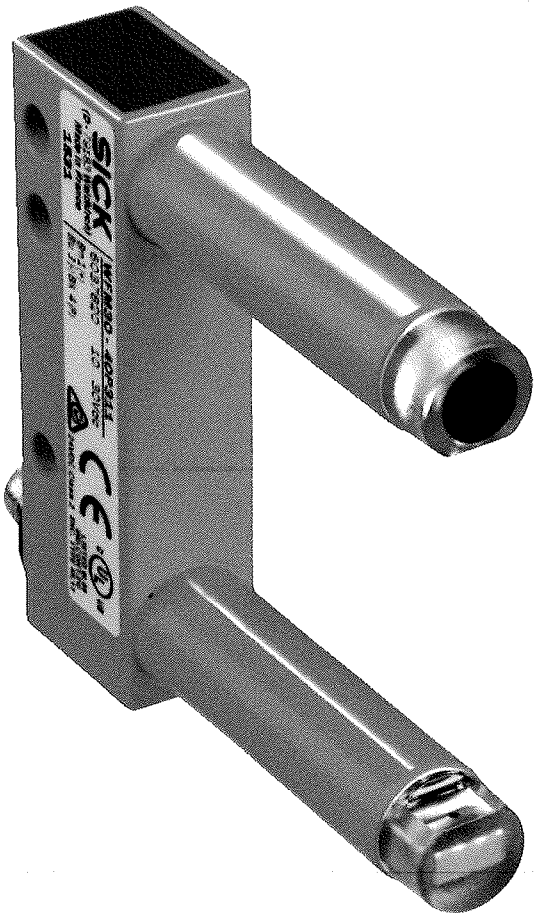


Dimensional drawing (Dimensions in mm (inch))

IME18 Standard, connector, flush



① Connection
② Indication LED
③ Fastening nuts (2x); width across 24, metal



WFM30-40P311

WFM

FORK SENSORS

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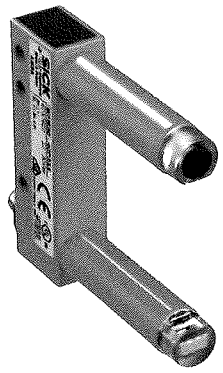


Illustration may differ

Ordering information

Type	Part no.
WFM30-40P311	6037820

Other models and accessories ⇒ www.sick.com/WFM

Detailed technical data

Features

Functional principle	Optical detection principle	A.1
Dimensions (W x H x D)	10 mm x 50 mm x 59.5 mm	
Housing design (light emission)	Fork shaped	
Fork width	30 mm	A.2
Fork depth	42 mm	A.3
Minimum detectable object (MDO)	0.8 mm	A.4
Light source	LED, visible red light	A.5
Adjustment	None	
Output function	Light switching	

Interfaces

IO-Link functions	–
Advanced functions	–
Fieldbus, industrial network	-
Type of fieldbus integration	-

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC [1]	A.6
Ripple	< 10 % [2]	
Power consumption	< 20 mA [3]	
Switching frequency	4 kHz [4]	A.7

[1] Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below U_V tolerances.
[3] Without load.
[4] With light/dark ratio 1:1.
[5] Signal transit time with resistive load.
[6] Reference voltage DC 50 V.
[7] Depending on fork width.

Response time	125 µs [5]
Stability of response time	± 15 µs
Switching output	PNP
Switching output (voltage)	PNP: HIGH = V_S – ≤ 1.5 V / LOW = 0 V NPN: HIGH = approx. V_S / LOW ≤ 1.5 V
Switching output	Light switching
Output current $I_{max.}$	100 mA
Initialization time	140 ms
Connection type	Connector M8, 3-pin
Ambient light immunity	Sunlight: ≤ 10,000 lx
Protection class	III [6]
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Enclosure rating	IP67
Weight	Approx. 80 g ... 190 g [7]
Housing material	Aluminum

[1] Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below U_V tolerances.
[3] Without load.
[4] With light/dark ratio 1:1.
[5] Signal transit time with resistive load.
[6] Reference voltage DC 50 V.
[7] Depending on fork width.

Ambient data

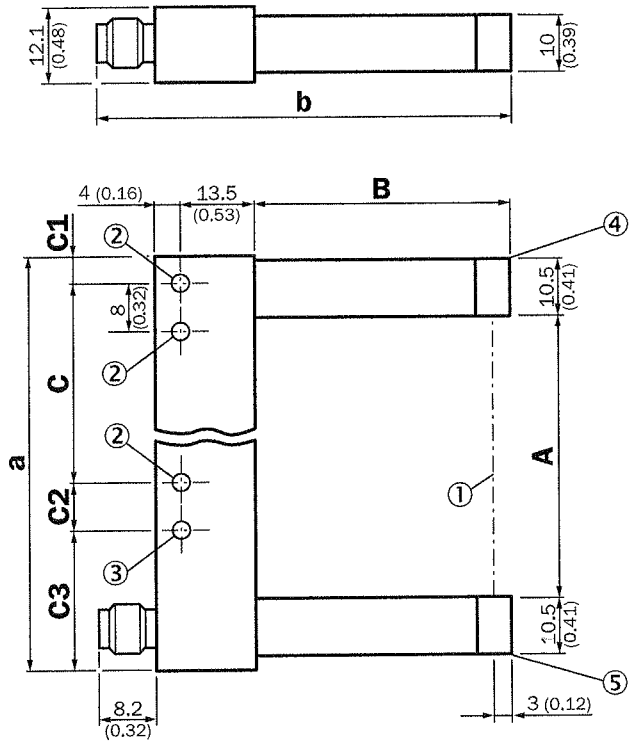
Ambient operating temperature	–10 °C ... +60 °C [1]
Ambient storage temperature	–40 °C ... +80 °C
Shock load	According to EN 60068-2-27
UL File No.	NRKH.E191603 & NRKH7.E191603

[1] Do not bend below 0 °C.

Classifications

ECl@ss 5.0	27270909
ECl@ss 5.1.4	27270909
ECl@ss 6.0	27270909
ECl@ss 6.2	27270909
ECl@ss 7.0	27270909
ECl@ss 8.0	27270909
ECl@ss 8.1	27270909
ECl@ss 9.0	27270909
ETIM 5.0	EC002720
ETIM 6.0	EC002720
UNSPSC 16.0901	39121528

Dimensional drawing (Dimensions in mm (inch))



Dimensions in mm (inch)

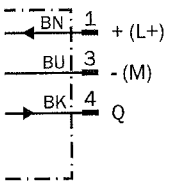
	A Fork width	B Fork depth	C	C1
WFM30	30 (1.18)	42 (1.65)	30 (1.18)	6.5 (0.26)
WFM50	50 (1.97)	60 (2.36)	40 (1.57)	6.5 (0.26)
WFM80	80 (3.15)	60 (2.36)	70 (2.76)	6.5 (0.26)
WFM120	120 (4.72)	124.3 (4.89)	100 (3.94)	17 (0.67)
WFM180	180 (7.09)	124.3 (4.89)	152 (5.98)	22 (0.87)

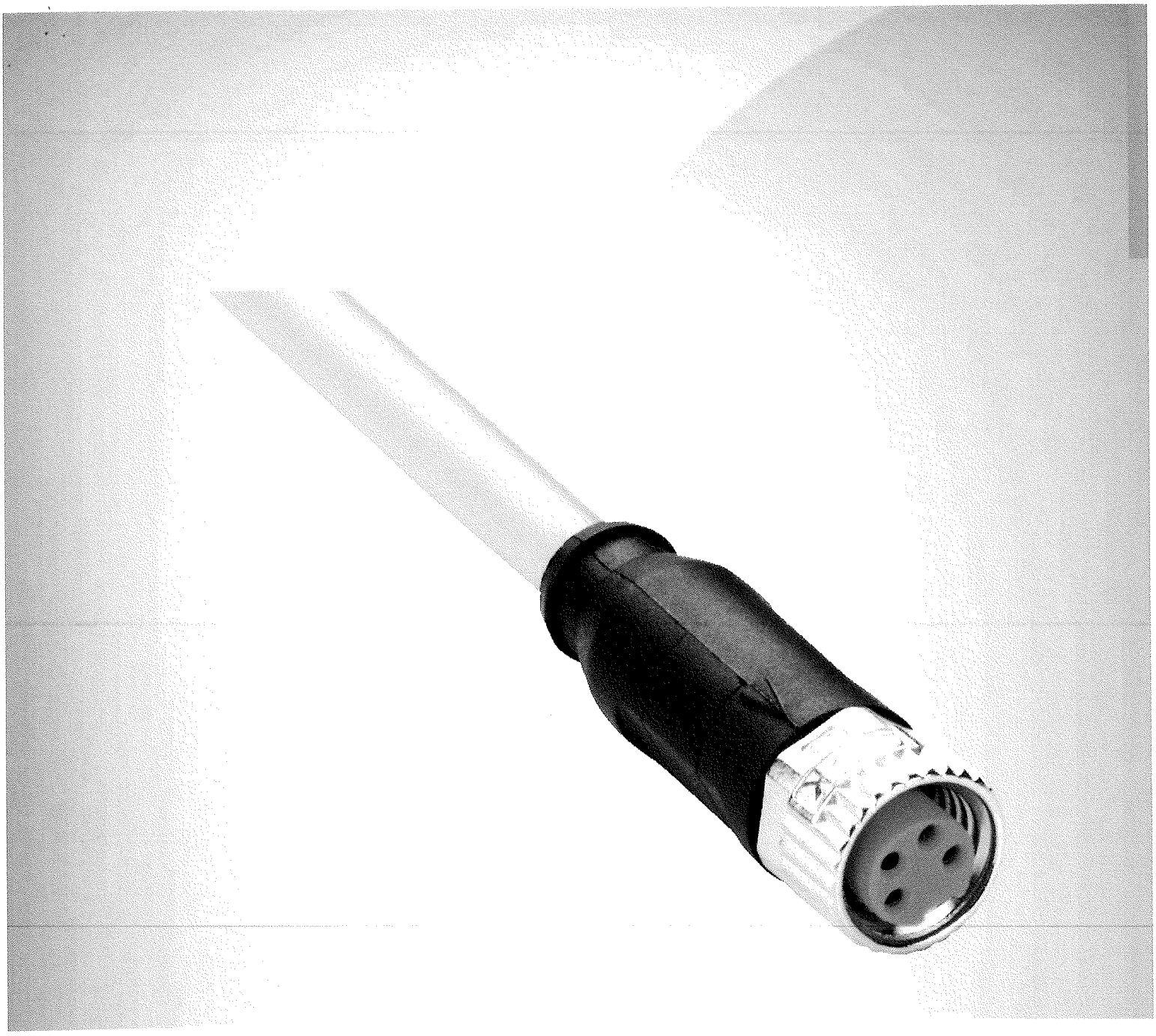
	C2	C3	a	b
WFM30	– (–)	– (–)	54 (2.13)	67.7 (2.67)
WFM50	8 (0.31)	19.5 (0.77)	74 (2.91)	85.7 (3.37)
WFM80	8 (0.31)	19.5 (0.77)	104 (4.09)	85.7 (3.37)
WFM120	10 (0.39)	17 (0.67)	144 (5.67)	150.2 (5.91)
WFM180	8 (0.31)	22 (0.87)	204 (8.03)	150.2 (5.91)

① Optical axis
② Mounting hole, Ø 4.3 mm
③ WFM50/80/120/180
④ Transmitted light (red)
⑤ Function signal indicator (yellow), switching output

Connection diagram

Cd-045





YF8U14-050VA3XLEAX

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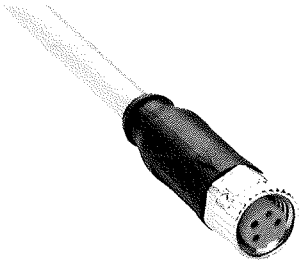
Sensor Intelligence.



Ordering information

Type	Part no.
YF8U14-050VA3XLEAX	2095889

Other models and accessories ⇒ www.sick.com/

c UL us LISTED Cl.2 Cable Assembly

Detailed technical data

Technical specifications

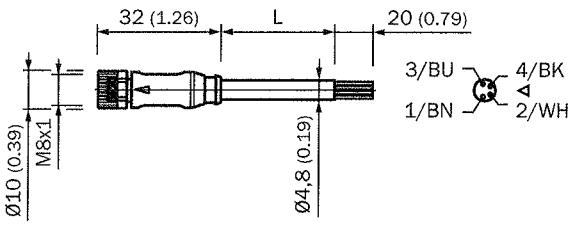
Accessory group	Plug connectors and cables	
Accessory family	Connecting cables	
Connection type head A	Female connector, M8, 4-pin, straight, A-coded	5.1
Connection type head B	Flying leads	5.2
Locking plug connector	Screw connection	
Connector material	TPU	
Connector color	Black	
Locking nut material	Zinc die-cast, nickel-plated	
Seal material	FKM	
Tightening torque	0.4 Nm	
Width across flats	9	
Cable	5 m, 4-wire, PVC	5.3
Jacket material	PVC	
Jacket color	Gray	
Cable diameter	4.8 mm	5.4
Conductor cross-section	0.25 mm²	
Shielding	Unshielded	
Bending radius		
Flexible use	> 10 x cable diameter	
Stationary position	> 5 x cable diameter	
Reference voltage	≤ 60 V DC	
Rated impulse voltage	1.5 kV	
Current loading	4 A	5.5
Signal type	Sensor/actuator cable	
Application	Zones with chemicals	
Authorizations	UL	
UL File No.	E335179	
Enclosure rating	IP65 / IP66K / IP67	

Ambient operating temperature	
Flexible use	-5 °C ... +80 °C
Stationary position	-30 °C ... +80 °C
Head	-25 °C ... +85 °C
Contamination rating	3
Overvoltage category	III

Classifications

ECl@ss 6.0	27279218
ECl@ss 7.0	27279218
ECl@ss 8.0	27279218
ECl@ss 9.0	27060311

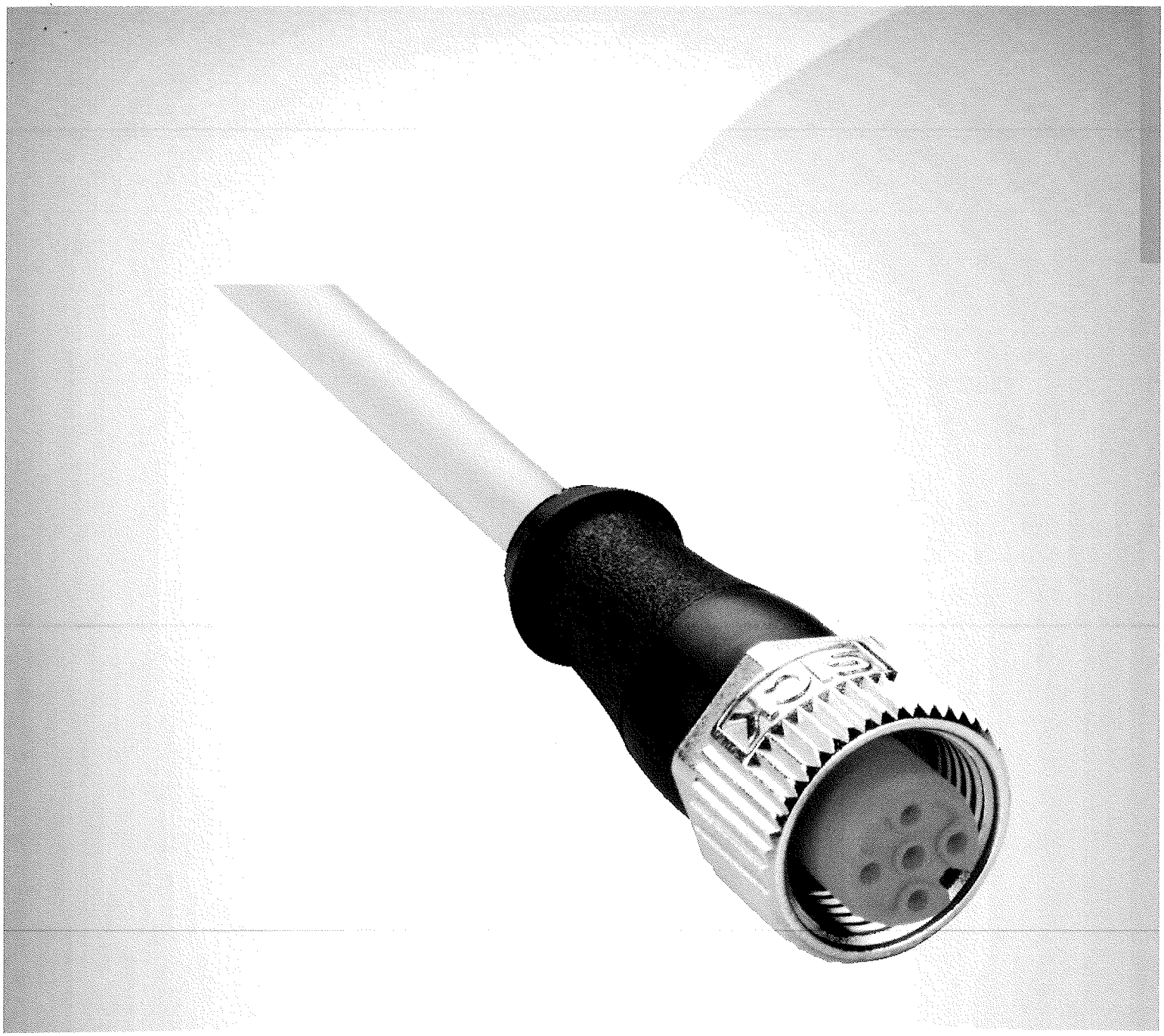
Dimensional drawing (Dimensions in mm (inch))



Recommended accessories

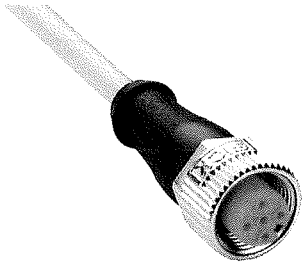
Other models and accessories ⇨ www.sick.com/

Brief description	Type	Part no.
Other mounting accessories		
 1 piece, M8 mounting key set for SW9 with calibrated torque 0.4 Nm	TOOL-TW04M08AF09	5337207
Plug connectors and cables		
 Head A: female connector, M8, 4-pin, straight Head B: - Cable: unshielded	DOS-0804-G	6009974
 Head A: male connector, M8, 4-pin, straight Head B: - Cable: unshielded	STE-0804-G	6037323



YF2A14-050VB3XLEAX

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
YF2A14-050VB3XLEAX	2096235

Other models and accessories → www.sick.com/

Detailed technical data

Technical specifications

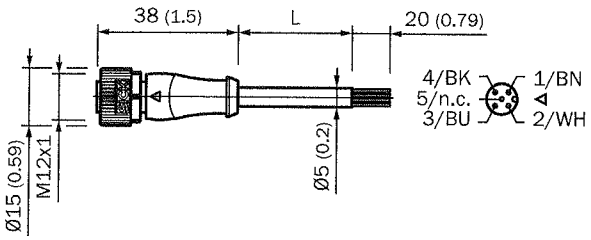
Accessory group	Plug connectors and cables
Accessory family	Connecting cables
Connection type head A	Female connector, M12, 4-pin, straight, A-coded
Connection type head B	Flying leads
Locking plug connector	Screw connection
Connector material	TPU
Connector color	Black
Locking nut material	Zinc die-cast, nickel-plated
Seal material	FKM
Tightening torque	0.6 Nm
Width across flats	13
Cable	5 m, 4-wire, PVC
Jacket material	PVC
Jacket color	Gray
Cable diameter	5 mm
Conductor cross-section	0.34 mm²
Shielding	Unshielded
Bending radius	
Flexible use	> 10 x cable diameter
Stationary position	> 5 x cable diameter
Reference voltage	≤ 250 V DC
Rated impulse voltage	2.5 kV
Current loading	4 A
Signal type	Sensor/actuator cable
Application	Zones with chemicals
Authorizations	CE UL
UL File No.	E335179
Enclosure rating	IP65 / IP66K / IP67

Ambient operating temperature	
Flexible use	–5 °C ... +80 °C
Stationary position	–30 °C ... +80 °C
Head	–25 °C ... +85 °C
Contamination rating	3
Overvoltage category	III

Classifications

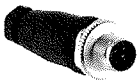
ECl@ss 6.0	27279218
ECl@ss 7.0	27279218
ECl@ss 8.0	27279218
ECl@ss 9.0	27060311

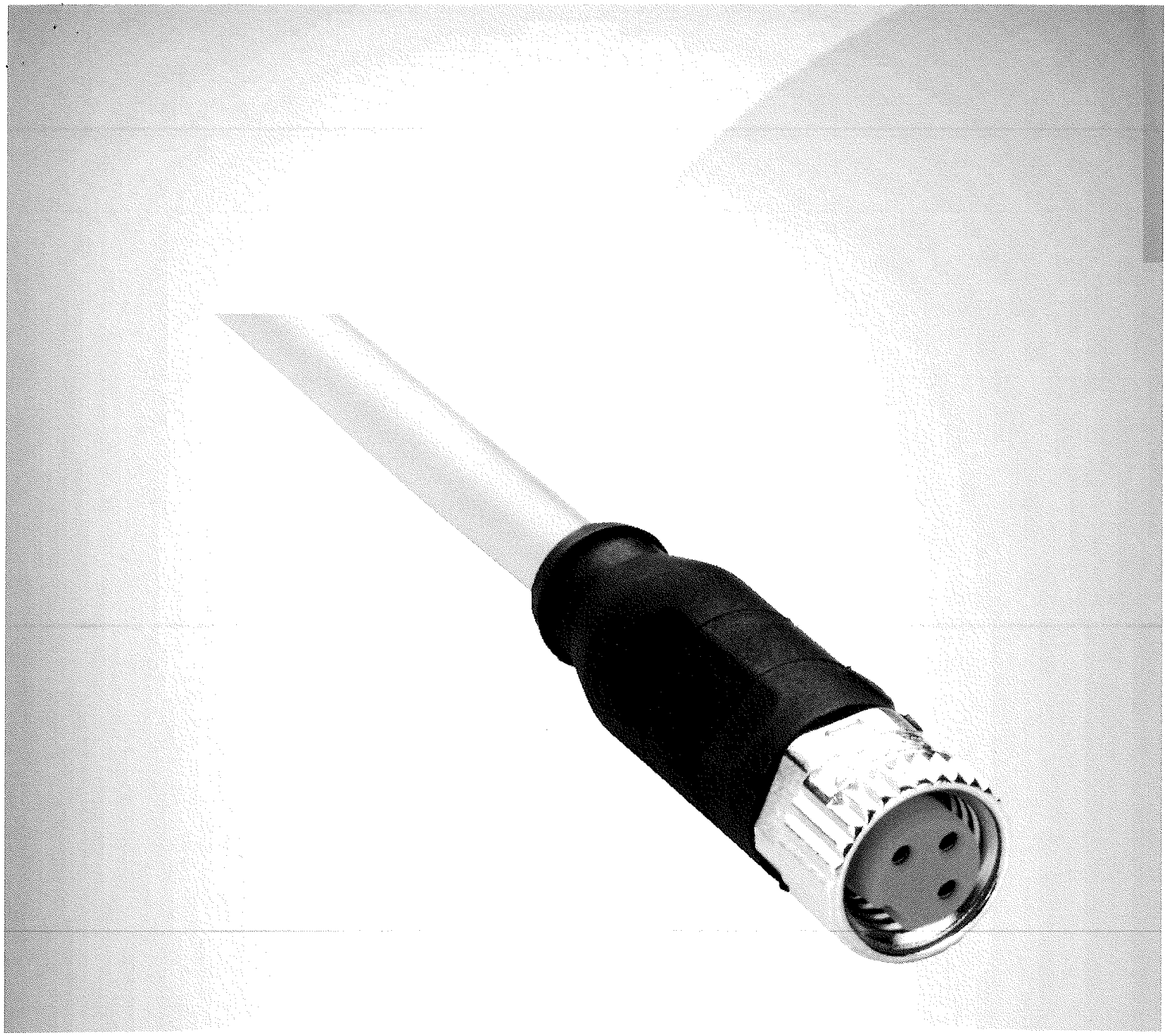
Dimensional drawing (Dimensions in mm (inch))



Recommended accessories

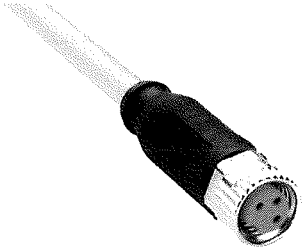
Other models and accessories ➡ www.sick.com/

	Brief description	Type	Part no.
Other mounting accessories			
	1 piece, M12 mounting key set for SW13 with calibrated torque 0.6 Nm	TOOL-TW06M12AF13	5337208
Plug connectors and cables			
	Head A: female connector, M12, 5-pin, straight Cable: unshielded	DOS-1205-G	6009719
	Head A: male connector, M12, 5-pin, straight Cable: unshielded For field bus technology	STE-1205-G	6022083



YF8U13-050VA1XLEAX

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
YF8U13-050VA1XLEAX	2095884

Other models and accessories → www.sick.com/

c UL us LISTED CYJV Cable Assembly

Detailed technical data

Technical specifications

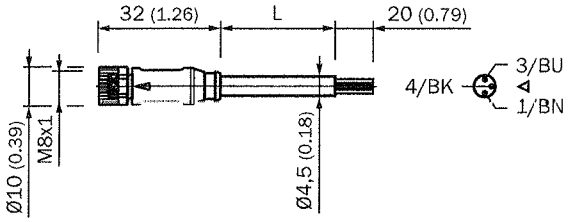
Accessory group	Plug connectors and cables	
Accessory family	Connecting cables	
Connection type head A	Female connector, M8, 3-pin, straight, A-coded	1.1
Connection type head B	Flying leads	1.2
Locking plug connector	Screw connection	
Connector material	TPU	
Connector color	Black	
Locking nut material	Zinc die-cast, nickel-plated	
Seal material	FKM	
Tightening torque	0.4 Nm	
Width across flats	9	
Cable	5 m, 3-wire, PVC	1.3
Jacket material	PVC	
Jacket color	Gray	
Cable diameter	4.5 mm	1.4
Conductor cross-section	0.25 mm²	
Shielding	Unshielded	
Bending radius		
Flexible use	> 10 x cable diameter	
Stationary position	> 5 x cable diameter	
Reference voltage	≤ 60 V DC	
Rated impulse voltage	1.5 kV	
Current loading	4 A	1.5
Signal type	Sensor/actuator cable	
Application	Zones with chemicals	
Authorizations	UL	
UL File No.	E335179	
Enclosure rating	IP65 / IP66K / IP67	
Ambient operating temperature		

Flexible use	-5 °C ... +80 °C
Stationary position	-30 °C ... +80 °C
Head	-25 °C ... +85 °C
Contamination rating	3
Overvoltage category	III

Classifications

ECl@ss 6.0	27279218
ECl@ss 7.0	27279218
ECl@ss 8.0	27279218
ECl@ss 9.0	27060311

Dimensional drawing (Dimensions in mm (inch))



Recommended accessories

Other models and accessories → www.sick.com/

Brief description	Type	Part no.
Other mounting accessories		
 1 piece, M8 mounting key set for SW9 with calibrated torque 0.4 Nm	TOOL-TW04M08AF09	5337207
Plug connectors and cables		
 Head A: female connector, M8, 3-pin, straight Head B: - Cable: unshielded	DOS-0803-G	7902077
 Head A: male connector, M8, 3-pin, straight Head B: - Cable: unshielded	STE-0803-G	6037322

Devices raised mounting

Emergency-stop pushbutton, foolproof EN IEC 60947-5-5, complete

Application as per DIN EN ISO 13850 and EN 60204-1

	Front protection	Switching action	Mushroom had cap	Illumination	Terminals	Contacts	Ø 32 mm Typ-Nr.	Component layout	Mounting dimensions	Technical drawing	Circuit drawing	⚖
Emergency-stop pushbutton, foolproof EN IEC 60947-5-5, complete Position indication ring black Twist to unlock clockwise	IP 65	MA	Plastic red	without	FR	1 NC	**84-5020.0040**	2	2	15	8	0.036
						1 NC + 1 NO	**84-5030.0040**	2	2	15	9	0.036
						2 NC	**84-5040.0040**	2	2	15	10	0.036
					PT 2.8 s	1 NC	**84-5020.0020**	1	2	15	8	0.028
						1 NC + 1 NO	**84-5030.0020**	1	2	15	9	0.028
			8.3	8.A		2 NC	**84-5040.0020**	1	2	15	10	0.028
Position indication ring black Twist to unlock clockwise LED operating voltage: 5 ... 30 VDC Current consumption: 9.7 ...12.4 mA	IP 65	MA	Plastic red	LED red	FR	1 NC 8.1	**84-5021.2B40**	2	2	15	11	0.036
						1 NC + 1 NO	**84-5031.2B40**	2	2	15	12	0.036
						2 NC	**84-5041.2B40**	2	2	15	13	0.036
					PT 2.8 s	1 NC	**84-5021.2B20**	1	2	15	11	0.028
						1 NC + 1 NO	**84-5031.2B20**	1	2	15	12	0.028
						2 NC	**84-5041.2B20**	1	2	15	13	0.028
Position indication ring green Twist to unlock clockwise	IP 65	MA	Plastic red	without	FR	1 NC	**84-5120.0040**	2	2	15	8	0.036
						1 NC + 1 NO	**84-5130.0040**	2	2	15	9	0.036
						2 NC	**84-5140.0040**	2	2	15	10	0.036
					PT 2.8 s	1 NC	**84-5120.0020**	1	2	15	8	0.028
						1 NC + 1 NO	**84-5130.0020**	1	2	15	9	0.028
						2 NC	**84-5140.0020**	1	2	15	10	0.028
Position indication ring green Twist to unlock clockwise LED operating voltage: 5 ... 30 VDC Current consumption: 9.7 ... 12.4 mA	IP 65	MA	Plastic red	LED red	FR	1 NC	**84-5121.2B40**	2	2	15	11	0.036
						1 NC + 1 NO	**84-5131.2B40**	2	2	15	12	0.036
						2 NC	**84-5141.2B40**	2	2	15	13	0.036
					PT 2.8 s	1 NC	**84-5121.2B20**	1	2	15	10	0.028
						1 NC + 1 NO	**84-5131.2B20**	1	2	15	12	0.028
						2 NC	**84-5141.2B20**	1	2	15	13	0.028

Standard version:
Flat ribbon-cable length 300 mm; Plug-in terminal 2.8 x 0.5 mm.
Other options on request:
Customisation of flat ribbon-cable and connectors.
Switching action: MA = Maintained action
Terminals: FR = Flat ribbon cable, PT 2.8 s = Plug-in terminal 2.8 mm (solderable)
Contacts: NC = Normally closed, NO = Normally open
Component layout from page 28, Mounting dimensions from page 29, Technical drawing from page 30, Circuit drawing from page 37

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Technical Data

Emergency-stop

Switching system

The double-break switching system can be supplied for the following switching functions:
1 Normally closed, 2 Normally closed, 1 Normally closed + 1 Normally open.
The Normally closed contacts have forced opening according to EN IEC 60947-5-1

Material

Connection cable
Polyvinylchloride (PVC), operating temperature up to +65 °C

Mushroom-head cap
Polybutylenterephthalate (PBT), as per UL 94 V0 (red items)

Actuator housing
Polyamide (PA 66), as per UL 94 V0, Flat ribbon cable-cover
Polyamide (PA 6.6), as per UL 94 V0

Material of contact
Silver alloy gold plated

Mechanical characteristics

Front panel thickness
Standard 1 ... 4 mm
with E-stop protective shroud Typ-Nr. 84-902 1 ... 3 mm

Mounting hole 8.3
22.5 mm dia. as per EN IEC 60947-5-1 with anti-twist device

Terminals
Soldering terminals 2.8 x 0.5 mm (solderable), CuSn6 tin-plated
Flat ribbon cable 2-, 4-, or 6-poles 0.35 mm² (AWG 22)

Tightening torque
Fixing nut 80 Ncm

Actuating force
22 N ±4 N

Actuating travel
approx. 4 mm to release the internal operation part

Mechanical lifetime
≥50.000 cycles of operations

Electrical characteristics

Standards
The devices comply with : EN IEC 60947-5-1, EN IEC 60947-5-5 (Emergency-stop), DIN EN ISO 13850, EN IEC 60204

Illumination 8.4
LED red with pole reversal, constant current source

Operation Voltage	5 VDC ... 30 VDC
Current consumption	9.7 mA ... 12.4 mA

Rated Operational Voltage U_e
250 VAC, as per EN IEC 60947-1

Rated Insulation Voltage U_i
250 V, as per EN IEC 60947-1

Rated Impulse Withstand Voltage U_{imp}
2.5 kV, as per EN IEC 60947-1

Contact resistance
New state ≤ 50 mΩ, as per DIN IEC 60512-2-3

Isolation resistance
$>10^{11}$ Ω between the opend contats at 500 VDC, as per DIN IEC 60512-2-10

Electrical life
≥50 000 cycles of operations (inductive cosϕ 0.4), as per EN IEC 60947-5-1

Voltage	120 VAC	240 VAC	125 VDC	250 VDC
Current	3 A	1.5 A	0.55 A	0.27 A

Reduced load ≥50'000 cycles of operations (resistive)

Voltage	1 VAC/DC	42 VAC/DC
Current	100 mA	200 mA

Conventional free air thermal current I_{th}
5 A, as per EN IEC 60947-5-1
the maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values.

Switch rating
Switch rating AC with silver contact (gold plated), service category AC-15, as per EN IEC 60947-5-1

Voltage	120 VAC	240 VAC
Current	3 A	1.5 A

8.5

Switch rating DC for silver contact (gold plated), service category DC-13, as per EN IEC 60947-5-1 (inductive)

	Voltage	12 VDC	24 VDC	48 VDC	60 VDC	125 VDC	250 VDC
8.6	Current $_{Plug}$	5 A	4 A	2.1 A	1.7 A	0.55 A	0.27 A
8.7	Current $_{Cable}$	3 A	3 A	2.1 A	1.7 A	0.55 A	0.27 A
8.8							

Recommended minimum operational data
Silver contacts (gold plated)

Voltage	1 VAC/DC
Current	1 mA

Electric strength
500 VAC, 50 Hz, 1 min, as per DIN IEC 60512-2

Rated conditional short-circuit current
1000 A, type of short-circuit unit 6 A gG, as per EN IEC 60947-5-1

Protection class
Class II, as per EN IEC 60947-5

Overvoltage category
II, as per EN IEC 60947-1

Degree of pollution
3, as per EN IEC 60947-1

Environmental conditions

Storage temperature
-25 °C ... +80 °C

Operating temperature
-25 °C ... +65 °C

Front protection
IP 65, as per EN IEC 60529

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Technical Data

Shock resistance
(semi-sinusoidal)
max. 150 m/s², pulse width 11 ms, 3-axis, as per EN IEC 60068-2-27

Vibration resistance
(sinusoidal)
max. 50 m/s² at 10 Hz ... 500 Hz, 10 cycles, 3-axis, as per EN IEC 60068-2-6

Climate resistance
Damp heat, cyclic
96 hours, +25 °C / 97 %, +55 °C / 93 % relative humidity, as per EN IEC 60068-2-30

Damp heat, steady
56 days, +40 °C / 93 % relative humidity, as per EN IEC 60068-2-78

Dry heat
96 hours, +70 °C, as per EN IEC 60068-2-2

Low temperature
96 hours, -40 °C, as per EN IEC 60068-2-1

Saline mist
96 Stunden, +35 °C in chemical solution NaCl, as per EN IEC 60068-2-11

Approvals

Approbations
SEV
UL

Declaration of conformity
CE
RoHS

Switching element illuminated pushbutton

Switching system

Short-travel switching system with 2 independent contact points and tactile operation.
Guarantees reliable switching even of very light loads.
Fitted with 1 normally open contact.

Material

Connection cable
Polyvinylchloride (PVC), short-time heat-resistant up to 105 °C

Material of contact
Silver alloy gold plated

Switching element
Thermoplastic polyester (PET, PBT), as per UL 94 V0 and Polyacetale (POM), as per UL 94 HB

Mechanical characteristics

Terminals
Plug-in terminals 2.8 x 0.8 mm (solderable)
Flat ribbon cable 0.5 mm²
PCB terminal

Actuating force
4.0 N ±0.2 N (measured at the lens)

Actuating travel
~0.5 mm

Rebound time
≤1 ms

Resistance to heat of soldering
260 °C, 5 s (PCB assembly)
350 °C, 10 s (when using a soldering iron)
as per EN IEC 60068-2-20

Mechanical lifetime
≥1 million cycles of operations

Electrical characteristics

Illumination
Single-Chip or Multi-Chip LED, green, orange, red, yellow, white and blue

Operation Voltage	12 VDC	24 VDC
Current consumption	40 mA	20 mA

Contact resistance
Starting value (initial) ≤100 mΩ, as per DIN IEC 60512-2

Isolation resistance
≥1 G Ω between all terminals at 100 VDC, as per DIN IEC 60512-2

Electrical life
as per EN IEC 60512-5

5 million	cycles of operation	24 VAC, 50 mA at 480 Ω
5 million	cycles of operation	24 VAC, 100 mA at 240 Ω
2 million	cycles of operation	42 VAC, 50 mA at 840 Ω
2 million	cycles of operation	42 VAC, 100 mA at 420 Ω
300 000	cycles of operation	42 VAC, 100 mA at cosϕ 0,4
250 000	cycles of operation	42 VAC, 200 mA at cosϕ 0,395
1 million	cycles of operation	12 VDC, 250 mA at 48 Ω
1 million	cycles of operation	24 VDC, 50 mA at 480 Ω
1 million	cycles of operation	24 VDC, 100 mA at 240 Ω
5 million	cycles of operation	42 VDC, 25 mA at 1680 Ω
1.5 million	cycles of operation	42 VDC, 50 mA at 840 Ω
100 000	cycles of operation	42 VDC, 100 mA at 420 Ω
500 000	cycles of operation	24 VDC, 200 mA at L/R=30 ms
300 000	cycles of operation	42 VDC, 100 mA at L/R=30 ms
100 000	cycles of operation	42 VDC, 200 mA at L/R=30 ms

Switch rating

Voltage	50 mVAC/DC ... 42 VAC/DC
Current	10 uA ... 100 mA
Power	max. 2 W

Electric strength
500 VAC, 50 Hz, 1 min, as per DIN IEC 60512-2

Environmental conditions

Storage temperature
-40 °C ... +85 °C

Operating temperature
-25 °C ... +70 °C

Protection degree
For IP 67 back protection, cable version only, use Plug Typ-Nr. 84-900

eao

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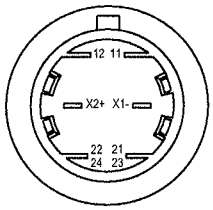
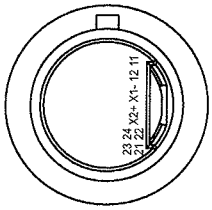
Drawings

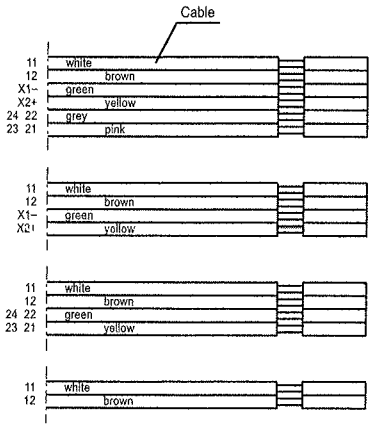
Component layout

1 Emergency-stop pushbutton, foolproof EN IEC 60947-5-5, complete page 7 | **Stop pushbutton grey, complete** page 8



2 Emergency-stop pushbutton, foolproof EN IEC 60947-5-5, complete page 7 | **Stop pushbutton grey, complete** page 8





	Terminals
1 NC + 1 NO	11 / 12 + 23 / 24
2 NC	11 / 12 + 21 / 22
Illumination	X1– / X2+

	Terminals
1 NC	11 / 12
Illumination	X1– / X2+

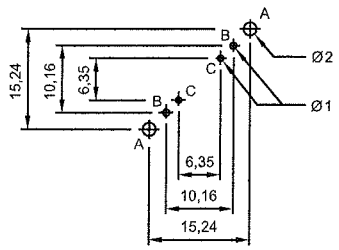
	Terminals
1 NC + 1 NO	11 / 12 + 23 / 24
2 NC	11 / 12 + 21 / 22

	Terminals
1 NC	11 / 12

3 Illumination element with PCB terminal page 19

Drilling plan (Elementside)

A Fixing holes for mounting flange
B Holes for LED
C Holes for centering pins



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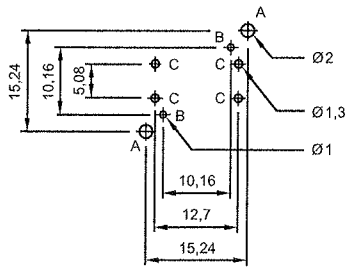
Drawings

4 Switching element illuminative with PCB terminal page 18

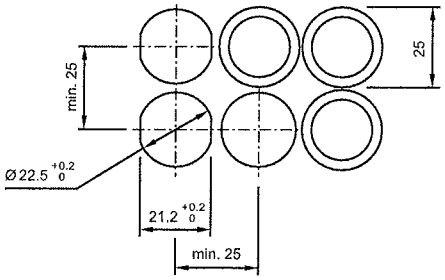
Drilling plan (Elementside)

A Fixing holes for mounting flange
B Fixing holes for LED
C Holes for contact pins
pad max. 2.5 mm dia.
through-connection recommended



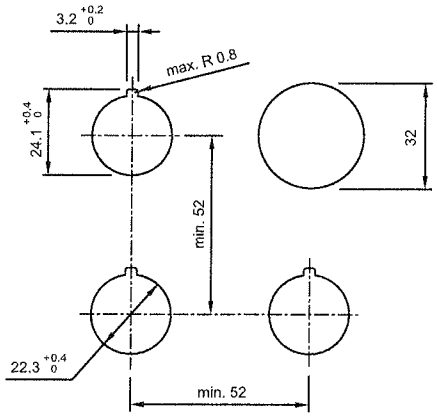
Mounting dimensions

1 Indicator actuator, flush mounting page 9 | **Illuminated pushbutton actuator, flush mounting** page 10



Hole spacing 31 mm min. by using blind plug 704.960.4

2 Emergency-stop pushbutton, foolproof EN IEC 60947-5-5, complete page / | **Stop pushbutton grey, complete** page 8



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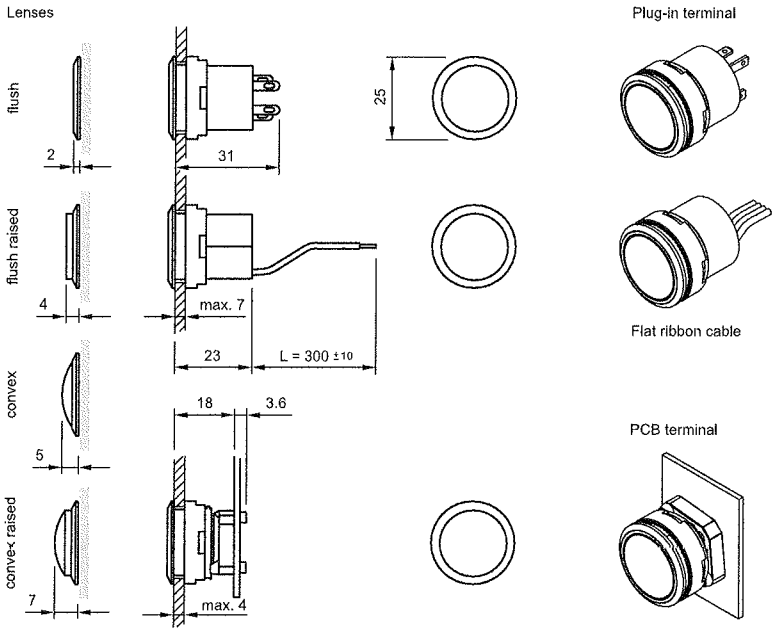
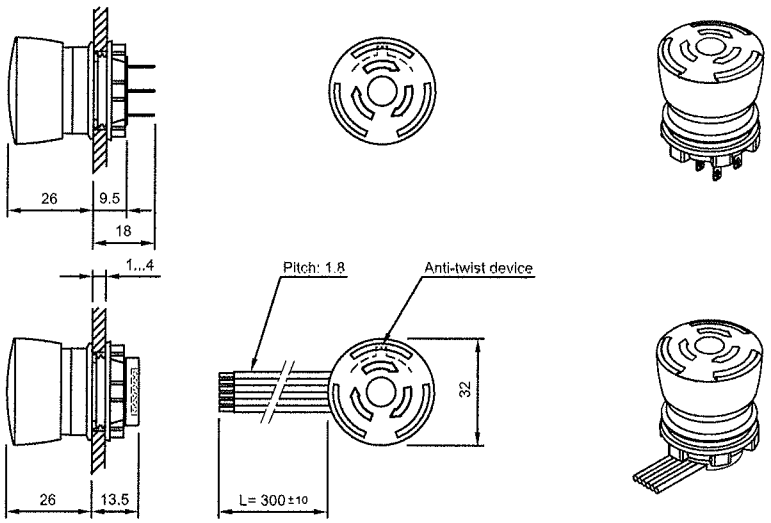
Drawings

14 Indicator actuator, flush mounting page 9 | **Illuminated pushbutton actuator, flush mounting** page 10



15 Emergency-stop pushbutton, foolproof EN IEC 60947-5-5, complete page 7 | **Stop pushbutton grey, complete** page 8



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STE-1204-W

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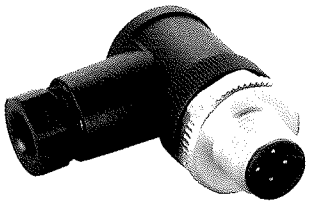
Sensor Intelligence.



Ordering information

Type	Part no.
STE-1204-W	6022084

Other models and accessories ⇒ www.sick.com/

Detailed technical data

Technical specifications

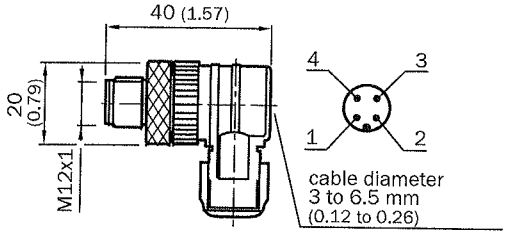
Accessory group	Plug connectors and cables	
Accessory family	Field-attachable connectors	
Connection type head A	Male connector, M12, 4-pin, angled	9.1
Connection type head B	-	9.2
Connection type	Screw-type terminals	9.3
Connector material	PBT	
Connector color	Black	
Locking nut material	CuZn	
Tightening torque	0.6 Nm	
Shielding	Unshielded	
Permitted cable diameter	4 mm ... 6 mm	
Permitted cross-section	≤ 0.75 mm²	
Reference voltage	≤ 250 V	
Current loading	4 A	9.4
Authorizations	UL	
UL File No.	E335179	
Enclosure rating	IP67	
Ambient operating temperature		
Head	-40 °C ... +85 °C	

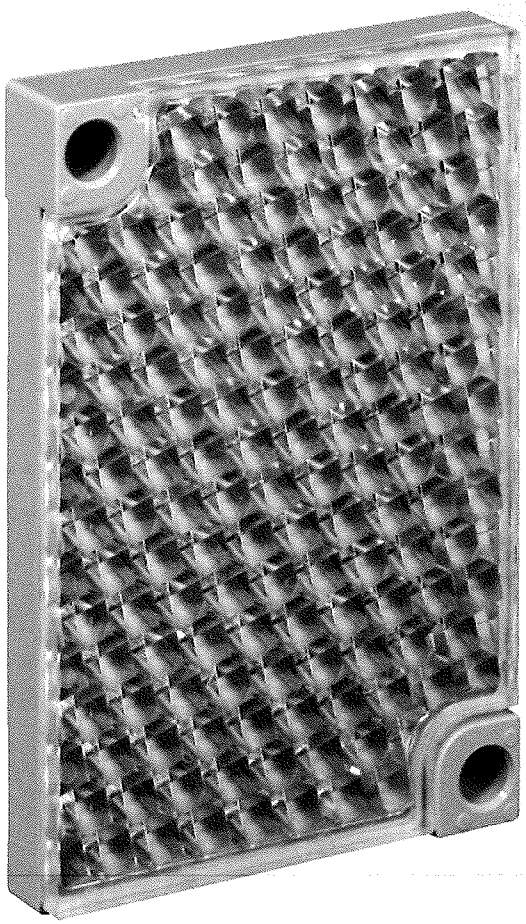
Classifications

ECl@ss 5.0	27279290
ECl@ss 5.1.4	27279290
ECl@ss 6.0	27279221
ECl@ss 6.2	27279221
ECl@ss 7.0	27440104
ECl@ss 8.0	27440104
ECl@ss 8.1	27440104
ECl@ss 9.0	27440102
ETIM 5.0	EC002635
ETIM 6.0	EC002635

UNSPSC 16.0901 39121421

Dimensional drawing (Dimensions in mm (inch))





PL40A

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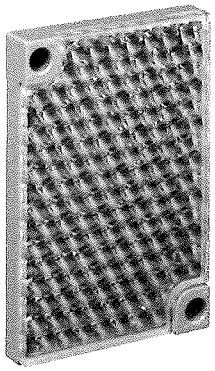


Ordering information

Type	Part no.
PL40A	1012720

Other models and accessories → www.sick.com/

Detailed technical data

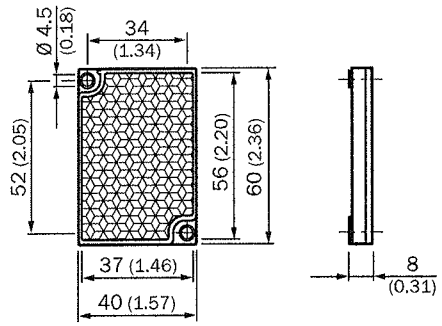
Technical specifications

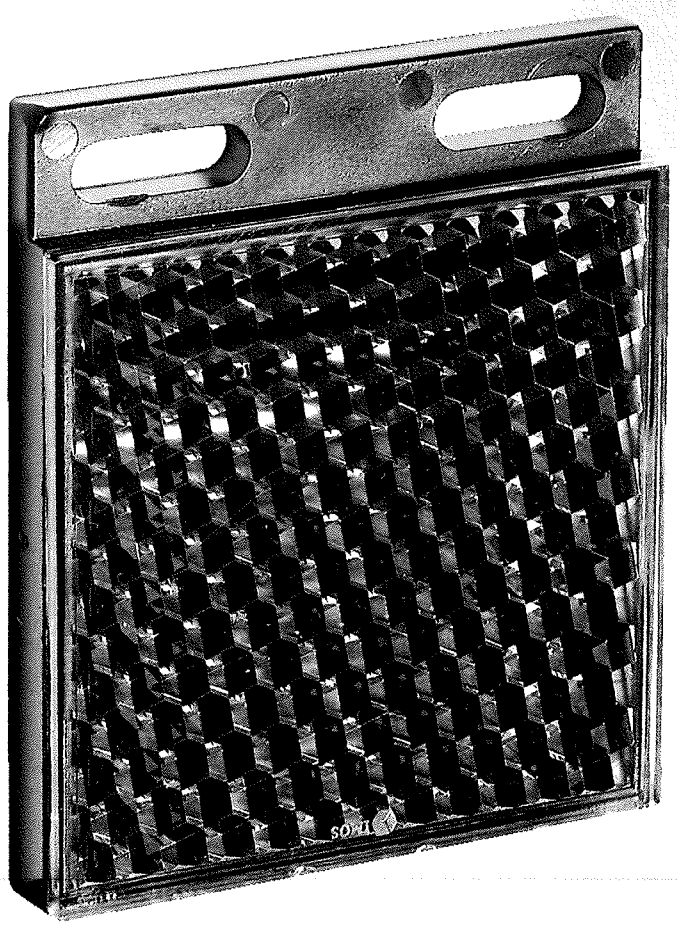
Accessory group	Reflectors
Accessory family	Angular
Description	Rectangular, screw connection
Mounting system type	Screw-on, 2 hole mounting
Ambient operating temperature	–20 °C ... +65 °C
Reflective area	37 mm x 56 mm
Material	PMMA/ABS

Classifications

ECl@ss 5.0	27279203
ECl@ss 5.1.4	27279203
ECl@ss 6.0	27279203
ECl@ss 6.2	27279203
ECl@ss 7.0	27279203
ECl@ss 8.0	27279203
ECl@ss 8.1	27279203
ECl@ss 9.0	27273601
ETIM 5.0	EC002467
ETIM 6.0	EC002467
UNSPSC 16.0901	39111827

Dimensional drawing (Dimensions in mm (inch))





P250

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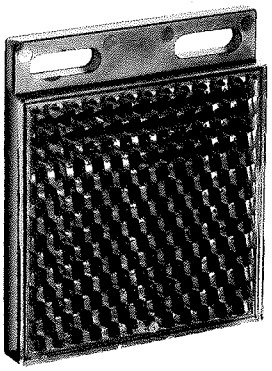

Ordering information

Type	Part no.
P250	5304812

Other models and accessories → www.sick.com/

Detailed technical data

Technical specifications

Accessory group	Reflectors
Accessory family	Angular
Description	Rectangular, screw connection
Mounting system type	Screw-on, 2 hole mounting
Ambient operating temperature	–20 °C ... +65 °C
Reflective area	47 mm x 47 mm
Material	PMMA/ABS

Classifications

ECl@ss 5.0	27279203
ECl@ss 5.1.4	27279203
ECl@ss 6.0	27279203
ECl@ss 6.2	27279203
ECl@ss 7.0	27279203
ECl@ss 8.0	27279203
ECl@ss 8.1	27279203
ECl@ss 9.0	27273601
ETIM 5.0	EC002467
ETIM 6.0	EC002467
UNSPSC 16.0901	39111827

Dimensional drawing (Dimensions in mm (inch))