

HL18-M5B3AB

SureSense

HYBRID PHOTOELECTRIC SENSORS





Ordering information

Туре	Part no.
HL18-M5B3AB	1082055

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

Illustration may differ



Detailed technical data

Features

Device version	Standard
Sensor/ detection principle	Photoelectric retro-reflective sensor, Dual lens
Dimensions (W x H x D)	16.2 mm x 45.5 mm x 34.4 mm
Housing design (light emission)	Hybrid
Thread diameter (housing)	M18
Mounting system type	M18, nose / side (24.1 25.4 mm)
Housing color	Blue
Sensing range max.	0.03 m 6.5 m ¹⁾
Sensing range	0.03 m 5 m ¹⁾
Type of light	Visible red light
Light source	PinPoint LED ²⁾
Light spot size (distance)	130 mm x 260 mm (6.5 m)
Wave length	631 nm
Adjustment	
Potentiometer, right	Sensitivity
Potentiometer, left	None
Special features	-

¹⁾ Reflector PL80A.

 $^{^{2)}}$ Average service life: 100,000 h at TU = +25 °C.

Mechanics/electronics

Supply voitage 21.6 V DC 250 V DC., 96 V AC 250 V AC. 1 Current consumption 10 mA 21 Switching output MOSFET Switching mode Dark switching Switching output detail WOSFET, Dark switching Output current Imax. \$100 mA Response time \$0.5 ms 31 Switching frequency 1,000 Hz 41 Connection type Cable with connector, Micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross-section 0,2 mm² Circuit protection A,51 mg B 6) D 71 B Protection class II 89 Weight 18 g Polarisation filter ✓ Housing material Plastic, VISTAL® Optics material Plastic, VISTAL® Optics material Mounting nut (1x), M18, plastic, black, flat Emclosure rating Mounting nut (2x), M18, plastic, black, flat EMC Kn 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A), it may cause radio interference if used in a residential area. Ambient operating temperature <th></th> <th></th>		
Switching output Switching output detail Switching output detail Output current I _{max} . Response time Switching frequency Connection type Cable material Circuit protection Protection class II S Weight Housing material Optics material Optics material Picstic, PIMMA Enclosure rating I Mounting nut (1x), M18, plastic, black, flat EMC EMC EMC EMC EMC EMC EMC EM	Supply voltage	21.6 V DC 250 V DC, 96 V AC 250 V AC ¹⁾
Switching mode Switching output detail Switching output Q1 Switching output Q1 MOSFET, Dark switching Output current I _{max.} ≤ 100 mA Response time ≤ 0.5 ms ³) Switching frequency 1,000 Hz ⁴) Connection type Cable with connector, Micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross-section 0.2 mm² Circuit protection A 5 B B B B B B D 7 D 7) Protection class III 8) Weight 18g Weight 18g Polarisation filter ✓ Housing material Plastic, VISTAL® Optics material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EMC CN Switching Switching Switching Switching Switch the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A), It may cause radio interference if used in a residential area.) Ambient operating temperature → 40 ° C +70 ° C	Current consumption	10 mA ²⁾
Switching output detail Switching output Q1 MOSFET, Dark switching Output current I _{max} . \$ 100 mA Response time \$ 0.5 ms 3	Switching output	MOSFET
Output current I _{max} . \$ 100 mA Response time \$ 0.5 ms ³) Switching frequency 1,000 Hz ⁴) Connection type Cable with connector, Micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross-section 0,2 mm² Circuit protection A 5 B 6 B 6 D 7 D 7 D 7 D 7 D 7 D 7 D 7 D 7 D 7 D	Switching mode	Dark switching
Output current I _{max.} ≤ 100 mA Response time ≤ 0.5 ms ³) Switching frequency 1,000 Hz ⁴) Connection type Cable with connector, Micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross-section 0.2 mm² Circuit protection A ⁵) B €) D ⁻) B €) D ⁻) B €) Veight 18 g Polarisation filter ✓ Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Switching output detail	
Response time ≤ 0.5 ms ³) Switching frequency 1,000 Hz ⁴) Connection type Cable with connector, Micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross-section 0.2 mm² Circuit protection A ⁵ b B ° c D ²) B ° c D ²) B ° c D ²) Protection class II ® Weight 18 g Polarisation filter ✓ Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Switching output Q1	MOSFET, Dark switching
Switching frequency 1,000 Hz ⁴⁾ Connection type Cable with connector, Micro (1/2"-20), 4-pin, 150 mm PVC Conductor cross-section 0.2 mm² Circuit protection A ⁵⁾ B ⁶⁾ D ⁷⁾ Protection class II ⁸⁾ Weight 18 g Polarisation filter Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature	Output current I _{max.}	≤ 100 mA
Connection type Cable material PVC Conductor cross-section Circuit protection Protection class 8 8 9 0 7 Polarisation filter Housing material Optics material Plastic, PMMA Enclosure rating PF67 P69K EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature Cable with connector, Micro (1/2*-20), 4-pin, 150 mm PVC Cable with connector, Micro (1/2*-20), 4-pin, 150 mm PVC PVC PVC A 5) B 6) B 6) D 7) Postection class 8 B 9 Conductor cross-section 8 B 9 Conductor cross-sec	Response time	$\leq 0.5 \text{ ms}^{3)}$
Cable material Conductor cross-section Circuit protection A 5 B 6 D 7 Protection class II 8 Weight Polarisation filter Housing material Optics material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Switching frequency	1,000 Hz ⁴⁾
Conductor cross-section Circuit protection A 5 B 6 D 7 D 7 D Protection class II 8 B 6 D 7 D 7 D Protection class Weight Polarisation filter Housing material Optics material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) 40 °C +70 °C	Connection type	Cable with connector, Micro (1/2"-20), 4-pin, 150 mm
Circuit protection A 5 B 6 D 7 7 Protection class II 8 Weight 18 g Polarisation filter Housing material Optics material Plastic, VISTAL® Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature	Cable material	PVC
B 6 0 D 7) Protection class II 8 9 Weight 18 g Polarisation filter ✓ Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature −40 °C +70 °C	Conductor cross-section	0.2 mm ²
Weight 18 g Polarisation filter Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature −40 °C +70 °C	Circuit protection	B ⁶⁾
Polarisation filter Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Protection class	II ⁸⁾
Housing material Plastic, VISTAL® Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Weight	18 g
Optics material Plastic, PMMA IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Polarisation filter	✓
Enclosure rating IP67 IP69K Items supplied Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Housing material	Plastic, VISTAL®
IP69K Mounting nut (1x), M18, plastic, black, flat EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Optics material	Plastic, PMMA
EMC EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Enclosure rating	
trial sector (Radio Safety Class A). It may cause radio interference if used in a residential area.) Ambient operating temperature -40 °C +70 °C	Items supplied	Mounting nut (1x), M18, plastic, black, flat
	EMC	
Ambient storage temperature -40 °C +75 °C	Ambient operating temperature	-40 °C +70 °C
	Ambient storage temperature	-40 °C +75 °C
UL File No. E189383	UL File No.	E189383

 $^{^{1)}}$ Above $\rm T_a$ = 60 °C, max. supply voltage = 120 V.

Safety-related parameters

MTTF _D	499.9 years
DC _{avg}	0%

Classifications

ECI@ss 5.0	27270902
ECI@ss 5.1.4	27270902

 $^{^{\}rm 2)}$ Without load. The output load and sensor must use the same power source.

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.

 $^{^{7)}}$ D = outputs overcurrent and short-circuit protected.

⁸⁾ Reference voltage: 250 V AC, overvoltage category 2.

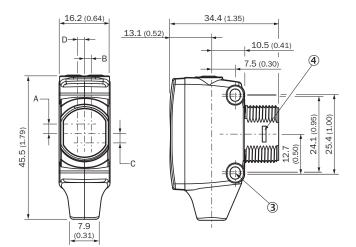
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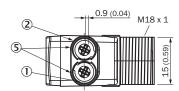
ECI@ss 6.0	27270902
ECI@ss 6.2	27270902
ECI@ss 7.0	27270902
ECI@ss 8.0	27270902
ECI@ss 8.1	27270902
ECI@ss 9.0	27270902
ECI@ss 10.0	27270902
ECI@ss 11.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
UNSPSC 16.0901	39121528

Connection/PIN assignment

Connection type	Cable with connector, Micro (1/2"-20), 4-pin, 150 mm
Connection type Detail	
Cable material	PVC
Conductor cross-section	0.2 mm ²
PIN assignment	
RD/BK 1	L1
RD/WH 2	N
RD 3	Q
GN/YE 4	Not connected

Dimensional drawing (Dimensions in mm (inch))





- 1 LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- 3 M3 mounting hole
- ④ Snap Connection for flush ring (sold seperatly)
- ⑤ Potentiometer (if selected) or LED Indicators

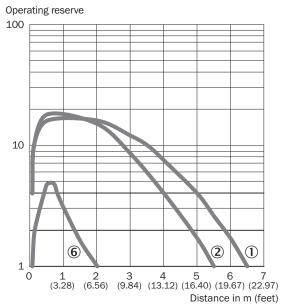
Dimensions in mm (inch)	Receiver		Sen	nder
	A	В	С	D
HTB18 / HTF18	- 1.1 (0.04)	1.1 (0.04)	4.7 (0.19)	0.6 (0.02)
HTE18 / HL18 / HSE18	2.5 (0.1)	0.0 (0.0)	4.0 (0.16)	0.0 (0.0)

Connection type

See table: Connection/PIN assignment

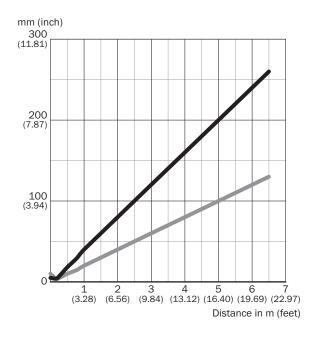


Characteristic curve



- ① Reflector PL80A
- ② Reflector PL40A
- ® Reflective tape IREF6000 (REF-IRF-56)

Light spot size

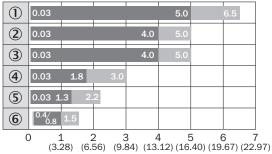


Dimensions in mm (inch)

Sensing range	Horizontal	Vertical
0.5 m	18	10
(1.64 feet)	(0.71)	(0.39)
1 m	40	20
(3.28 feet)	(1.57)	(0.79)
5 m	200	100
(16.40 feet)	(7.87)	(3.94)
6.5 m	260	130
(21.33 feet)	(10.24)	(5.12)

Horizontal
Vertical

Sensing range diagram



2) (16.40) (19.67) (22.97) Distance in m (feet)

Sensing range

Sensing range max.

- ① Reflector PL80A
- ② Reflector PL40A
- 3 Reflector P250
- ④ Reflector PL30A, PL31A
- ⑤ Reflector PL20A
- ® Reflective tape IREF6000 (REF-IRF-56)

Functions











Recommended accessories

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

	Brief description	Туре	Part no.			
Mounting brad	Mounting brackets and plates					
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574			
Reflectors	Reflectors					
	Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250	5304812			
Plug connectors and cables						
	Head A: female connector, 1/2"-20, 4-pin, straight Head B: Flying leads Cable: Sensor/actuator cable, PVC, 2 m	KA24-SIF22	7023591			

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. 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 a wide range of 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 complete 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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