

HL18-M5B3AA

H18 Sure Sense

HYBRID PHOTOELECTRIC SENSORS





Ordering information

Туре	Part no.
HL18-M5B3AA	1071046

Other models and accessories → www.sick.com/H18_Sure_Sense

Illustration may differ



Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	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, head/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	None
Potentiometer, left	None
Special features	-

¹⁾ Reflector PL80A.

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

Mechanics/electronics

Supply voltage 21.6 V DC 250 V DC, 96 V AC 250 V AC. ¹¹ Current consumption \$10 mA ² Switching output MOSFET Switching mode Dark switching Switching output detail MOSFET, Dark switching Output current Imax. \$100 mA Response time \$100 mA Switching frequency \$0.5 ms ³ Switching frequency Cable with male connector, micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross section 0.2 mm² Circuit protection 18 g Boil 0 7° Protection class II 8° Weight 18 g Polarisation filter ✓ Housing material Plastic, VISTAL® Optics material Ple57 [P69K] Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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. The companies with the Radio Safety Requirements (EMC) for the industrial sector (Radio Safety Class A). It may cause radio interference if used in a resi		
Switching output Switching mode Switching output detail Switching output detail Switching output detail Switching output Q1 MOSFET, Dark switching Output current I _{max} . \$ \(\text{100 mA} \) Response time \$ \(\text{5.5 ms}^{3} \) Switching frequency \$ \(\text{1,000 Hz}^{4} \) Connection type Cable with male connector, micro (1/2*-20), 4-pin, 150 mm PVC Conductor cross section O.2 mm² Circuit protection A \(\text{5} \) B \(\text{6} \) D \(\text{7} \) Protection class 8 Weight Plastic, VISTAL® Optics material Optics material Plastic, PMMA Enclosure rating P67 P69 tems supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 Ambient temperature, storage	Supply voltage	21.6 V DC 250 V DC, 96 V AC 250 V AC $^{1)}$
Switching mode Switching output detail Switching output Q1 MOSFET, Dark switching Output current I _{max} . Response time Switching frequency 1,000 Hz ⁴⁾ Connection type Cable material PVC Conductor cross section Circuit protection A ⁵⁾ B ⁶⁾ D ⁷⁾ Protection class II ⁸⁾ Weight 18 g Polarisation filter ✓ Housing material Optics material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (EMC) An ⁶ CR + CR	Current consumption	\leq 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 frequency 1,000 Hz 4) Connection type Cable with male connector, micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross section Circuit protection A 5) B 8 D 7' Protection class II 8) Weight 18 g Polarisation filter Housing material Optics material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (EMC) Ambient operating temperature A 0 * C +70 * C Ambient temperature, storage A 0 * C +70 * C Ambient temperature, storage A 6 max (1x) = 100 mm Ambient operating storage MOSFET, Dark switching MOSFET, Dark switching Ambient operating temperature A 100 mA MOSFET, Dark switching MOSFET, Dark switching And Dark switching And Dark switching Ambient operating temperature A 100 mA MOSFET, Dark switching And Dark switch And Dark switching And Dark switch And Dar	Switching output	MOSFET
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 male connector, micro (1/2°-20), 4-pin, 150 mm Cable material PVC Conductor cross section 0.2 mm² Circuit protection A ⁵) B ® D 7') Protection class II ®) Weight 18 g Polarisation filter ✓ Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating Plastic, PMMA Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 Ambient temperature, storage -40 °C +75 °C	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 male connector, micro (1/2*-20), 4-pin, 150 mm Cable material PVC Conductor cross section 0.2 mm² Circuit protection A ⁵)	Switching output detail	
Response time Switching frequency 1,000 Hz ⁴⁾ Connection type Cable with male 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 Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 Ambient temperature, storage	Switching output Q1	MOSFET, Dark switching
Switching frequency Connection type Cable with male connector, micro (1/2*-20), 4-pin, 150 mm PVC 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 Electromagnetic compatibility (EMC) Electroragnetic compatibility (EMC) A 5 B 6 D 7 Protection class II 8 Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating P67 IP69K Electromagnetic compatibility (EMC) Electroragnetic compatibility (EMC) Electroragnetic compatibility (EMC) Electroragnetic compatibility (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 Ambient temperature, storage	Output current I _{max.}	≤ 100 mA
Connection type Cable material PVC Conductor cross section 0.2 mm² Circuit protection A B Circuit protection B B B B B Circuit protection B B B B B B Circuit protection B B B B B B B B Circuit protection B B B B B B B B B B B B B B B B B B B	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 18 g Polarisation filter Housing material Optics material Plastic, VISTAL® Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Electromagnetic compatibility (EMC) EN 60947-5-2 (The sensor complies with the Radio Safety Requirements (EMC) for the industrial serial seria	Switching frequency	1,000 Hz ⁴⁾
Conductor cross section Circuit protection A 5 B 6 B C D 7 Protection class II 8 Weight Polarisation filter Housing material Optics material Plastic, VISTAL® Optics material Plef7 IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 Ambient temperature, storage	Connection type	Cable with male connector, micro (1/2"-20), 4-pin, 150 mm
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 Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 Ambient temperature, storage	Cable material	PVC
B 6) D 7) Protection class II 8) Weight 18 g Polarisation filter Housing material Optics material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 Ambient temperature, storage	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 Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 -40 °C +75 °C	Circuit protection	B ⁶⁾
Polarisation filter Housing material Plastic, VISTAL® Optics material Plastic, PMMA Enclosure rating IP67 IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 -40 °C +75 °C	Protection class	II ⁸⁾
Housing material Optics material Plastic, VISTAL® Plastic, PMMA IP67 IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 -40 °C +75 °C	Weight	18 g
Optics material Plastic, PMMA IP67 IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 -40 °C +75 °C	Polarisation filter	√
Enclosure rating IP67 IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 -40 °C +75 °C	Housing material	Plastic, VISTAL®
IP69K Items supplied Fastening nut (1x), M18, plastic, black, flat Electromagnetic compatibility (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 Ambient temperature, storage -40 °C +75 °C	Optics material	Plastic, PMMA
Electromagnetic compatibility (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 -40 °C +75 °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 -40 °C +75 °C	Items supplied	Fastening nut (1x), M18, plastic, black, flat
Ambient temperature, storage -40 °C +75 °C	Electromagnetic compatibility (EMC)	
, , ,	Ambient operating temperature	-40 °C +70 °C
UL File No. E189383	Ambient temperature, storage	-40 °C +75 °C
	UL File No.	E189383

 $^{^{1)}}$ From T_u 60 °C, max. supply voltage = 120 V.

Safety-related parameters

MTTF _D	499.9 years
DC _{avg}	0 %

Classifications

ECLASS 5.0	27270902
ECLASS 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.

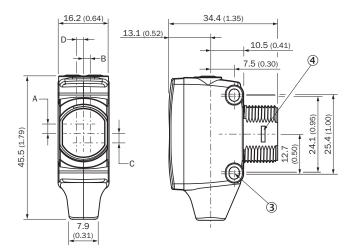
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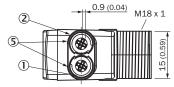
	0707000
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

Connection type/pinouts

Connection type	Cable with male connector, micro (1/2"-20), 4-pin, 150 mm
Connection type Detail	
Conductor cross section	0.2 mm ²
Cable material	PVC
Pinouts	
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

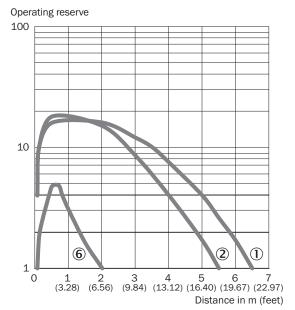
Dimensions in mm (inch)	Receiver		Sender	
	A	В	C	D
HTB18 / HTF18	- 1.1 (0.04)	1.1 (0.04)	4.7 (0.19)	0.6 (0.02)
HTE18 / HL18 / HSE18	2.5 (0.1)	0.0 (0.0)	4.0 (0.16)	0.0 (0.0)

Connection type

Pinouts, see Technical details: Connection type/pinouts

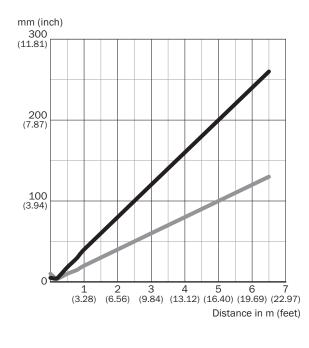


Characteristic curve



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

Light spot size

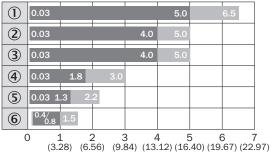


Dimensions in mm (inch)

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



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/H18_Sure_Sense

	Brief description	Туре	Part no.		
Mounting brad	Mounting brackets and plates				
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574		
Reflectors					
	Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250	5304812		

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	Brief description	Туре	Part no.
Others			
	 Connection type head A: Female connector, 1/2"-20, 4-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 2 m, 4-wire, PVC Description: Sensor/actuator cable Connection systems: Flying leads 	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."

WORLDWIDE PRESENCE:

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