



HL18BL-P3B5BAS21

H18 Sure Sense

HYBRID PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
HL18BL-P3B5BAS21	1100675

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

Detailed technical data

Features

Specialty	Co-label w/ customer logo (Customer PN 1287559, douglas-machine.com), Z18 M18 nut 4040270 instead of the standard H18 M18 nut
Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	Dual lens
Dimensions (W x H x D)	16.2 mm x 50.1 mm x 31.4 mm
Housing design (light emission)	Hybrid
Thread diameter (housing)	M18
Mounting system type	M18, head/M18, base/side (24.1 ... 25.4 mm)
Housing color	Blue
Sensing range max.	0.1 m ... 12 m ¹⁾
Sensing range	0.1 m ... 10 m ¹⁾
Type of light	Visible red light
Light source	Laser ^{2) 3)}
Light spot size (distance)	2 mm (2 m)
Wave length	655 nm
Laser class	I
Adjustment	
	Potentiometer, right None
	Potentiometer, left None

¹⁾ Reflector PL80A.

²⁾ Average service life: 50,000 h at T_U = +25 °C.

³⁾ CLASS 1 LASER PRODUCT EN60825-1:2014, IEC60825-1:2014, Maximum pulse power < 2,5 mW, Pulse length: 4 μs, Wavelength: 650 ... 670 nm, Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

Special applications	Detecting small objects
Special features	Signal strength light bar

¹⁾ Reflector PL80A.

²⁾ Average service life: 50,000 h at $T_U = +25\text{ °C}$.

³⁾ CLASS 1 LASER PRODUCT EN60825-1:2014, IEC60825-1:2014, Maximum pulse power < 2,5 mW, Pulse length: 4 μ s, Wavelength: 650 ... 670 nm, Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC
Ripple	< 5 V _{pp} ¹⁾
Current consumption	≤ 20 mA ²⁾
Switching output	PNP
Output function	Complementary
Switching mode	Light/dark switching
Switching output detail	
Switching output Q1	PNP, Light switching
Switching output Q2	PNP, Dark switching
Output current I_{max.}	≤ 100 mA
Response time	≤ 0.5 ms ³⁾
Switching frequency	1,000 Hz ⁴⁾
Connection type	Cable with M8 male connector, 4-pin, 150 mm
Cable material	PVC
Conductor cross section	0.2 mm ²
Circuit protection	A ⁵⁾ B ⁶⁾ D ⁷⁾
Protection class	III
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	-30 °C ... +55 °C ⁸⁾

¹⁾ May not exceed or fall below U_v tolerances.

²⁾ Without signal strength light bar and load.

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⁾ Below Ta = -10 °C, sensor must be turned on at Ta > -10 °C. Sensor cannot be turned on below Ta = -10 °C.

Ambient temperature, storage	-40 °C ... +70 °C
UL File No.	E189383

- 1) May not exceed or fall below U_v tolerances.
- 2) Without signal strength light bar and load.
- 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) Below $T_a = -10$ °C, sensor must be turned on at $T_a > -10$ °C. Sensor cannot be turned on below $T_a = -10$ °C.

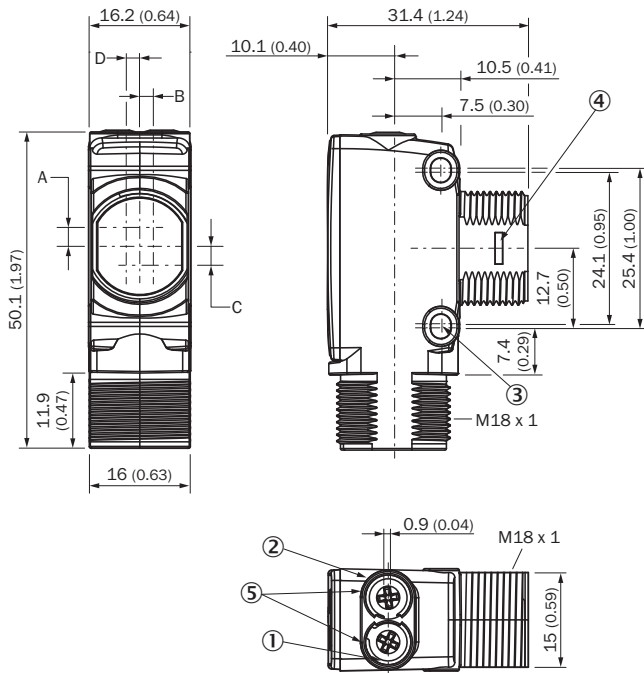
Classifications

ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
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/Pin assignment

Connection type	Cable with M8 male connector, 4-pin, 150 mm
Connection type Detail	
Conductor cross section	0.2 mm ²
Cable material	PVC
Pin assignment	
BN 1	+ (L+)
WH 2	Q ₂
BU 3	- (M)
BK 4	Q ₁

Dimensional drawing (Dimensions in mm (inch))

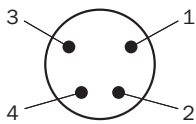


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ M3 mounting hole
- ④ Snap Connection for flush ring (sold seperatly)
- ⑤ Potentiometer (if selected) or LED Indicators

Dimensions in mm (inch)	Receiver		Sender	
	A	B	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)
HTB18L / HTF18L / HL18L / HSE18L	2.5 (0.1)	0.0 (0.0)	3.5 (0.14)	0.0 (0.0)

Connection type

Connection type. see table: Connection/PIN assignment



Male connector, M8, 4-pin, uncoded

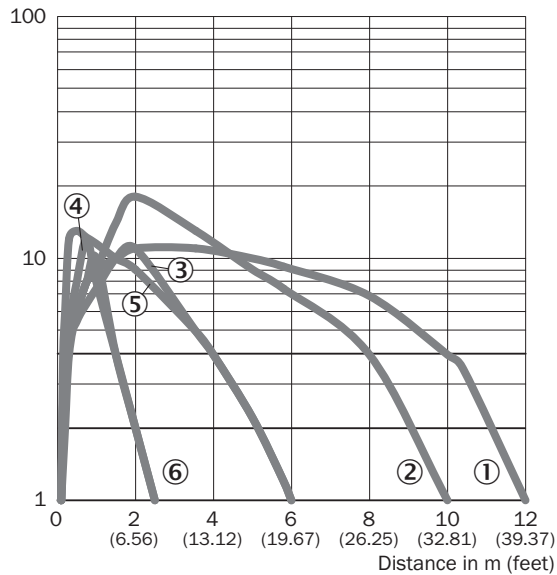
Adjustments possible



- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ Signal strength light bar

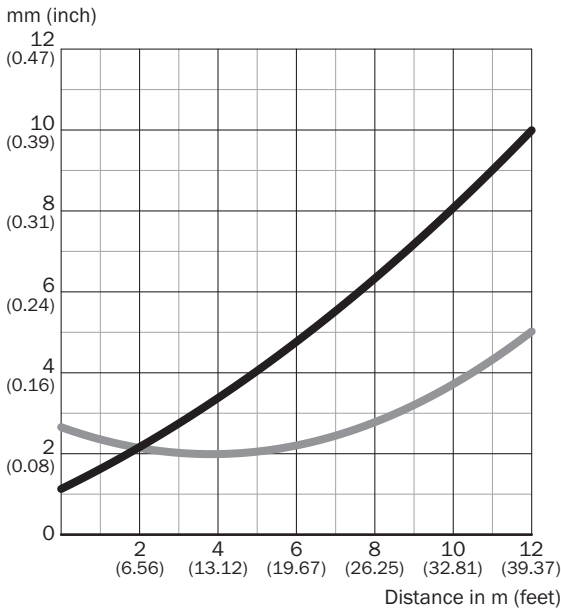
Characteristic curve

Operating reserve



- ① Reflector PL80A
- ② Reflector P250F
- ③ PL10F reflector
- ④ Reflector PL23 FT
- ⑤ Reflective tape REF-AC1000
- ⑥ Reflective tape IREF6000 (REF-IRF-56)

Light spot size

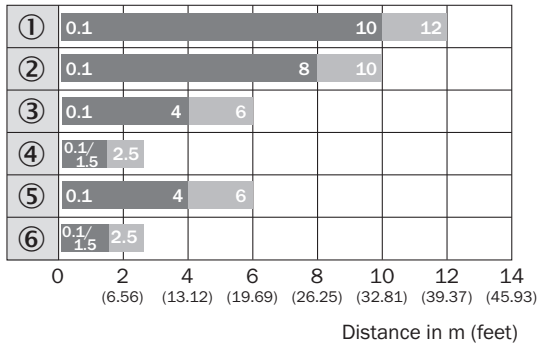


Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
0.2 m (0.57 feet)	1.2 (0.05)	2.65 (0.10)
0.75 m (2.46 feet)	1.8 (0.07)	2.3 (0.09)
5 m (16.40 feet)	4.0 (0.16)	2.2 (0.09)
12 m (39.37 feet)	10.0 (0.39)	5.0 (0.20)

Vertical
 Horizontal

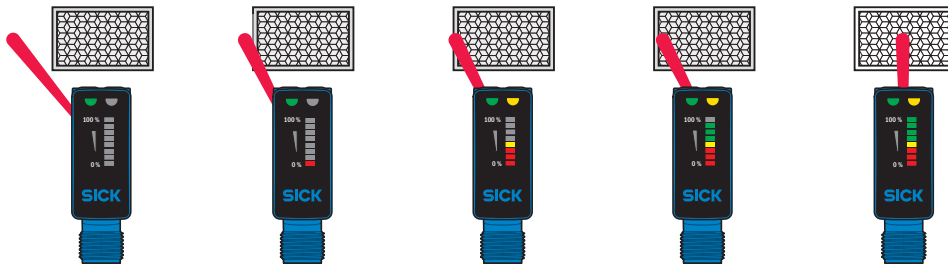
Sensing range diagram



Sensing range
 Sensing range max.





- ① Reflector PL80A
- ② Reflector P250F
- ③ PL10F reflector
- ④ Reflector PL23 FT
- ⑤ Reflective tape REF-AC1000
- ⑥ Reflective tape IREF6000 (REF-IRF-56)

Functions



Recommended accessories

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

	Brief description	Type	Part no.
Mounting brackets and plates			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
Plug connectors and cables			
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M8, 4-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 4-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals 	YF8U14-050VA3XLEAX	2095889
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M8, 4-pin, straight • Description: Unshielded • Connection systems: Screw-type terminals • Permitted cross-section: 0.14 mm² ... 0.5 mm² 	STE-0804-G	6037323
Reflectors			
	Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250	5304812

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:

Contacts and other locations –www.sick.com