



# HL18-P4B3BA

SureSense

HYBRID PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
HL18-P4B3BA	1078478

Other models and accessories → [www.sick.com/SureSense](http://www.sick.com/SureSense)

## Detailed technical data

### Features

<b>Device type</b>	Photoelectric sensors	
<b>Sensor/ detection principle</b>	Photoelectric retro-reflective sensor, Dual lens	
<b>Dimensions (W x H x D)</b>	16.2 mm x 45.5 mm x 31.8 mm	
<b>Housing design (light emission)</b>	Hybrid	
<b>Thread diameter (housing)</b>	M18	
<b>Housing color</b>	Blue	
<b>Sensing range max.</b>	0.03 m ... 6.5 m <sup>1)</sup>	
<b>Sensing range</b>	0.03 m ... 5 m <sup>1)</sup>	
<b>Type of light</b>	Visible red light	
<b>Light source</b>	PinPoint LED <sup>2)</sup>	
<b>Light spot size (distance)</b>	130 mm x 260 mm (6.5 m)	
<b>Wave length</b>	631 nm	
<b>Adjustment</b>		
	Potentiometer, right	None
	Potentiometer, left	None
<b>Special features</b>	Signal strength light bar	

<sup>1)</sup> Reflector PL80A.

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Ripple</b>	$< 5 V_{pp}^{1)}$
<b>Current consumption</b>	$\leq 20 \text{ mA}^{2)}$
<b>Switching output</b>	PNP
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Switching output detail</b>	
Switching output Q1	PNP, Light switching
Switching output Q2	PNP, Dark switching
<b>Output current <math>I_{\max}</math></b>	$\leq 100 \text{ mA}$
<b>Response time</b>	$\leq 0.5 \text{ ms}^{3)}$
<b>Switching frequency</b>	$1,000 \text{ Hz}^{4)}$
<b>Connection type</b>	Cable with M12 male connector, 4-pin, 150 mm
<b>Cable material</b>	PVC
<b>Conductor cross-section</b>	$0.2 \text{ mm}^2$
<b>Circuit protection</b>	A <sup>5)</sup> B <sup>6)</sup> D <sup>7)</sup>
<b>Protection class</b>	III
<b>Weight</b>	18 g
<b>Polarisation filter</b>	✓
<b>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67 IP69K
<b>Items supplied</b>	Mounting nut (1x), M18, plastic, black, flat
<b>Electromagnetic compatibility (EMC)</b>	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.)
<b>Ambient operating temperature</b>	$-40 \text{ °C} \dots +70 \text{ °C}$
<b>Ambient temperature, storage</b>	$-40 \text{ °C} \dots +75 \text{ °C}$
<b>UL File No.</b>	E189383

<sup>1)</sup> May not exceed or fall below  $U_V$  tolerances.

<sup>2)</sup> Without signal strength light bar and load.

<sup>3)</sup> Signal transit time with resistive load.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>6)</sup> B = inputs and output reverse-polarity protected.

<sup>7)</sup> D = outputs overcurrent and short-circuit protected.

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	730.1 years
<b>DC<sub>avg</sub></b>	0 %

Classifications

<b>ECl@ss 5.0</b>	27270902
<b>ECl@ss 5.1.4</b>	27270902
<b>ECl@ss 6.0</b>	27270902
<b>ECl@ss 6.2</b>	27270902
<b>ECl@ss 7.0</b>	27270902
<b>ECl@ss 8.0</b>	27270902
<b>ECl@ss 8.1</b>	27270902
<b>ECl@ss 9.0</b>	27270902
<b>ECl@ss 10.0</b>	27270902
<b>ECl@ss 11.0</b>	27270902
<b>ETIM 5.0</b>	EC002717
<b>ETIM 6.0</b>	EC002717
<b>ETIM 7.0</b>	EC002717
<b>ETIM 8.0</b>	EC002717
<b>UNSPSC 16.0901</b>	39121528

Connection/pin assignment

<b>Connection type</b>	Cable with M12 male connector, 4-pin, 150 mm
<b>Connection type Detail</b>	
Cable material	PVC
Conductor cross-section	0.2 mm <sup>2</sup>
<b>PIN assignment</b>	
BN 1	+ (L+)
WH 2	Q <sub>2</sub>
BU 3	- (M)
BK 4	Q <sub>1</sub>

**Dimensional drawing** (Dimensions in mm (inch))

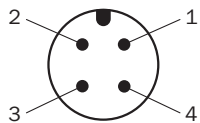


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ M3 mounting hole
- ④ Snap Connection for flush ring (sold seperatly)
- ⑤ Potentiometer (if selected) or LED Indicators

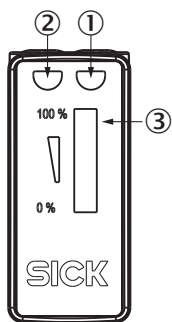
Dimensions in mm (inch)	Receiver		Sender	
	A	B	C	D
<b>HTB18 / HTF18</b>	- 1.1 (0.04)	1.1 (0.04)	4.7 (0.19)	0.6 (0.02)
<b>HTE18 / HL18 / HSE18</b>	2.5 (0.1)	0.0 (0.0)	4.0 (0.16)	0.0 (0.0)
<b>HTB18L / HTF18L / HL18L / HSE18L</b>	2.5 (0.1)	0.0 (0.0)	3.5 (0.14)	0.0 (0.0)

**Connection type**

See table: **Connection/Pin assignment**



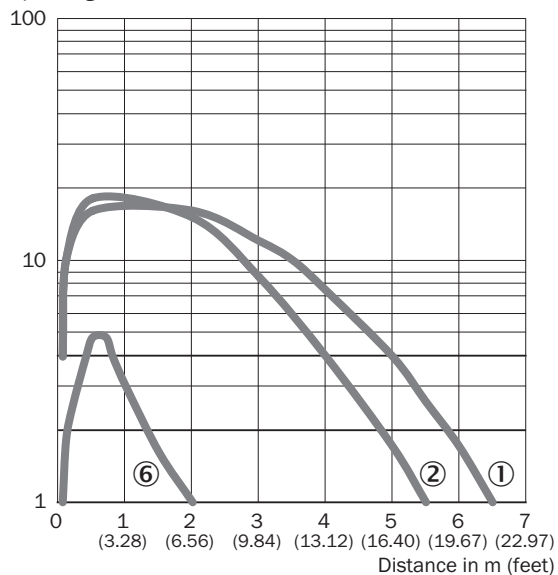
Adjustments possible



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

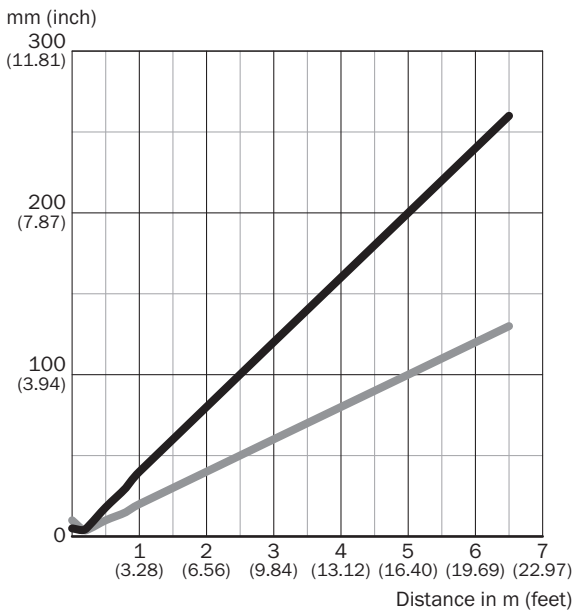
Characteristic curve

Operating reserve



- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflective tape IREF6000 (REF-IRF-56)

**Light spot size**

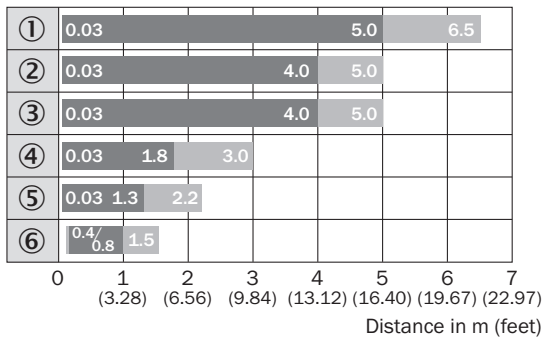


**Dimensions in mm (inch)**

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

— Horizontal  
— Vertical

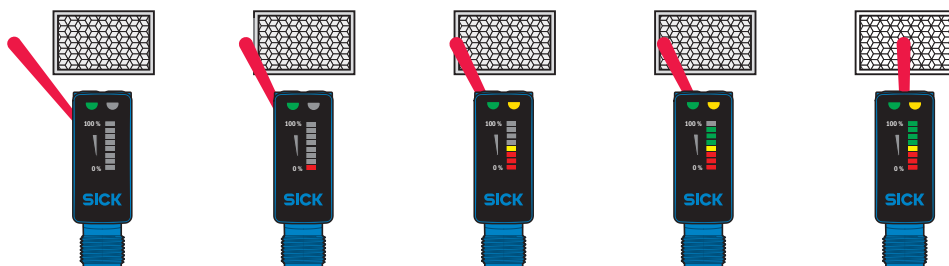
**Sensing range diagram**



■ Sensing range      ■ Sensing range max.





- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflector P250
- ④ Reflector PL30A, PL31A
- ⑤ Reflector PL20A
- ⑥ Reflective tape IREF6000 (REF-IRF-56)

## Functions



## Recommended accessories

Other models and accessories → [www.sick.com/SureSense](http://www.sick.com/SureSense)

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
<b>Plug connectors and cables</b>			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded	STE-1204-G	6009932
<b>Reflectors</b>			
	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](http://www.sick.com)