



# HSE18-P4A1BA

H18 Sure Sense

HYBRID PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
HSE18-P4A1BA	1074762

Other models and accessories → [www.sick.com/H18\\_Sure\\_Sense](http://www.sick.com/H18_Sure_Sense)

Illustration may differ



### Detailed technical data

#### Features

<b>Functional principle</b>	Through-beam photoelectric sensor	
<b>Dimensions (W x H x D)</b>	16.2 mm x 48.5 mm x 31.8 mm	
<b>Housing design (light emission)</b>	Hybrid	
<b>Thread diameter (housing)</b>	M18	
<b>Mounting system type</b>	M18, head/side (24.1 ... 25.4 mm)	
<b>Housing color</b>	Blue	
<b>Sensing range max.</b>	0 m ... 20 m	
<b>Sensing range</b>	0 m ... 15 m	
<b>Type of light</b>	Infrared light	
<b>Light source</b>	LED <sup>1)</sup>	
<b>Light spot size (distance)</b>	1,400 mm (10 m)	
<b>Wave length</b>	850 nm	
<b>Adjustment</b>		
	Potentiometer, right	None
	Potentiometer, left	None
<b>Special features</b>	Signal strength light bar	

<sup>1)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

#### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
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- <sup>1)</sup> May not exceed or fall below U<sub>v</sub> 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<sub>S</sub> connections reverse-polarity protected.
- <sup>6)</sup> B = inputs and output reverse-polarity protected.
- <sup>7)</sup> D = outputs overcurrent and short-circuit protected.

<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>1)</sup>
<b>Current consumption</b>	≤ 20 mA <sup>2)</sup>
<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 I<sub>max.</sub></b>	≤ 100 mA
<b>Response time</b>	≤ 0.5 ms <sup>3)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>4)</sup>
<b>Connection type</b>	Male connector M12, 4-pin
<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>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67 IP69K
<b>Items supplied</b>	Fastening 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 °C ... +70 °C
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C
<b>UL File No.</b>	E189383

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## Classifications

<b>ECLASS 5.0</b>	27270901
<b>ECLASS 5.1.4</b>	27270901
<b>ECLASS 6.0</b>	27270901
<b>ECLASS 6.2</b>	27270901
<b>ECLASS 7.0</b>	27270901
<b>ECLASS 8.0</b>	27270901
<b>ECLASS 8.1</b>	27270901
<b>ECLASS 9.0</b>	27270901

<b>ECLASS 10.0</b>	27270901
<b>ECLASS 11.0</b>	27270901
<b>ECLASS 12.0</b>	27270901
<b>ETIM 5.0</b>	EC002716
<b>ETIM 6.0</b>	EC002716
<b>ETIM 7.0</b>	EC002716
<b>ETIM 8.0</b>	EC002716
<b>UNSPSC 16.0901</b>	39121528

### Connection/Pin assignment

<b>Connection type</b>	Male connector M12, 4-pin								
<b>Pin assignment<sub>sender</sub></b>	<table border="0"> <tr> <td>BN 1</td> <td>+ (L+)</td> </tr> <tr> <td>WH 2</td> <td>Not connected</td> </tr> <tr> <td>BU 3</td> <td>- (M)</td> </tr> <tr> <td>BK 4</td> <td>Test<sub>IN</sub></td> </tr> </table>	BN 1	+ (L+)	WH 2	Not connected	BU 3	- (M)	BK 4	Test <sub>IN</sub>
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<b>Pin assignment<sub>receiver</sub></b>	<table border="0"> <tr> <td>BN 1</td> <td>+ (L+)</td> </tr> <tr> <td>WH 2</td> <td>Q<sub>2</sub></td> </tr> <tr> <td>BU 3</td> <td>- (M)</td> </tr> <tr> <td>BK 4</td> <td>Q<sub>1</sub></td> </tr> </table>	BN 1	+ (L+)	WH 2	Q <sub>2</sub>	BU 3	- (M)	BK 4	Q <sub>1</sub>
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WH 2	Q <sub>2</sub>								
BU 3	- (M)								
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**Dimensional drawing** (Dimensions in mm (inch))

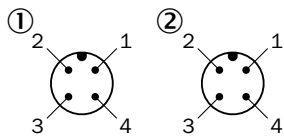


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ M3 mounting hole
- ④ Snap Connection for flush ring (sold separately)
- ⑤ Potentiometer (if selected) or LED Indicators

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**



- ① Sender
- ② Receiver

### Adjustments possible

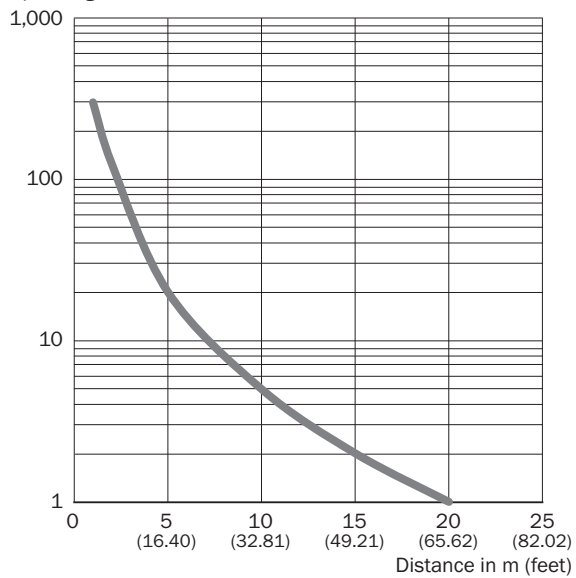


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ Signal strength light bar

### Characteristic curve

Infrared light

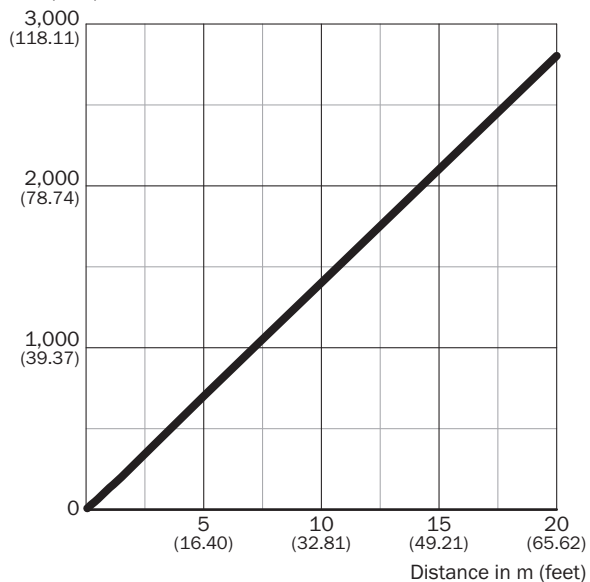
Operating reserve



### Light spot size

Infrared light

mm (inch)

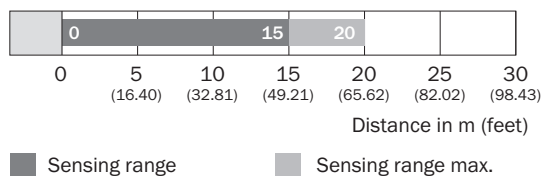


### Dimensions in mm (inch)

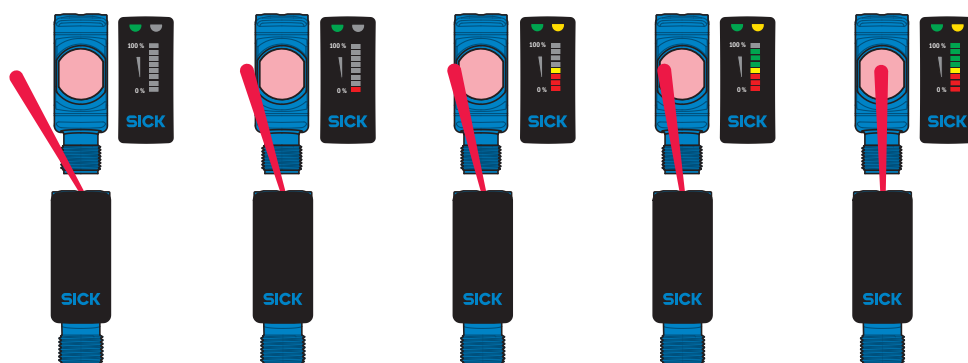
Sensing range	Diameter
<b>0.5 m</b> (1.64 feet)	65 (0.21)
<b>1 m</b> (3.28 feet)	135 (5.31)
<b>5 m</b> (16.40 feet)	700 (27.56)
<b>20 m</b> (65.62 feet)	2,800 (110.24)

— Diameter

### Sensing range diagram





### Functions



### Recommended accessories

Other models and accessories → [www.sick.com/H18\\_Sure\\_Sense](http://www.sick.com/H18_Sure_Sense)

	Brief description	Type	Part no.
Plug connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>	STE-1204-G	6009932



## 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)