



# HSE18-F4A1BG

H18 Sure Sense

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
HSE18-F4A1BG	1080331

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
	Potentiometer, left
	Sensitivity
	Off delay, adjustable: 0 ... 2 s
<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 fall below or exceed U<sub>V</sub> tolerances.
- <sup>2)</sup> Without signal strength light bar and load.
- <sup>3)</sup> Pin 4 and pin 2: This switching output must not be connected to another output.
- <sup>4)</sup> Signal transit time with resistive load.
- <sup>5)</sup> With light/dark ratio 1:1.
- <sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.
- <sup>7)</sup> B = inputs and output reverse-polarity protected.
- <sup>8)</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>	Push-pull: PNP/NPN
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Switching output detail</b>	
Switching output Q1	Push-pull: PNP/NPN, Light switching <sup>3)</sup>
Switching output Q2	Push-pull: PNP/NPN, Dark switching <sup>3)</sup>
<b>Output current I<sub>max.</sub></b>	≤ 100 mA
<b>Response time</b>	≤ 0.5 ms <sup>4)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>5)</sup>
<b>Time functions</b>	Off delay
<b>Connection type</b>	Male connector M12, 4-pin
<b>Cable material</b>	Plastic, PVC
<b>Circuit protection</b>	A <sup>6)</sup> B <sup>7)</sup> D <sup>8)</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

1) May not fall below or exceed U<sub>y</sub> tolerances.

2) Without signal strength light bar and load.

3) Pin 4 and pin 2: This switching output must not be connected to another output.

4) Signal transit time with resistive load.

5) With light/dark ratio 1:1.

6) A = V<sub>S</sub> connections reverse-polarity protected.

7) B = inputs and output reverse-polarity protected.

8) D = outputs overcurrent and short-circuit protected.

## Connection type/pinouts

<b>Connection type</b>	Male connector M12, 4-pin
<b>Connection type Detail</b>	
Cable material	Plastic
<b>Pinouts</b> <small>Sender</small>	

	BN 1	+ (L+)
	WH 2	Not connected
	BU 3	- (M)
	BK 4	Test <sub>IN</sub>
<b>Pinouts Receiver</b>		
	BN 1	+ (L+)
	WH 2	Q <sub>2</sub>
	BU 3	- (M)
	BK 4	Q <sub>1</sub>

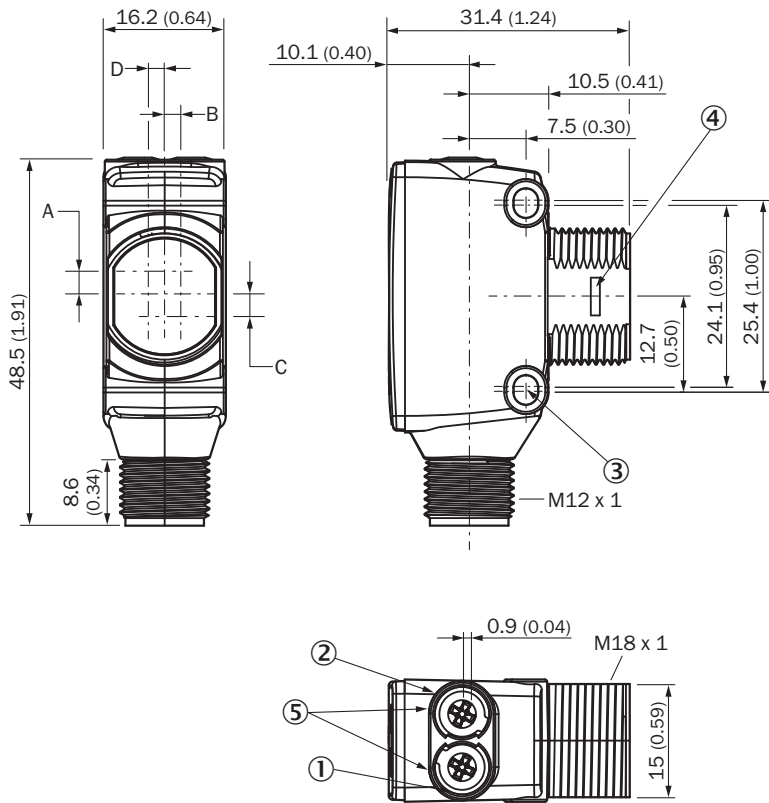
### Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓

### 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

**Dimensional drawing**

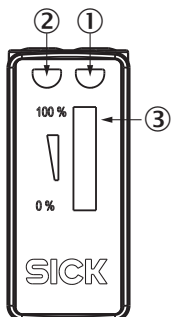


Dimensions in mm (inch)

- 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

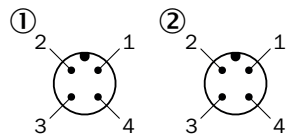
Dimensions in mm (inch)	Receiver		Sender	
	A	B	C	D
HTB18 / HTF18	- 1.1 (0.04)	1.1 (0.04)	4.7 (0.19)	0.6 (0.02)
HTE18 / HL18 / HSE18	2.5 (0.1)	0.0 (0.0)	4.0 (0.16)	0.0 (0.0)
HTB18L / HTF18L / HL18L / HSE18L	2.5 (0.1)	0.0 (0.0)	3.5 (0.14)	0.0 (0.0)

**Adjustments**



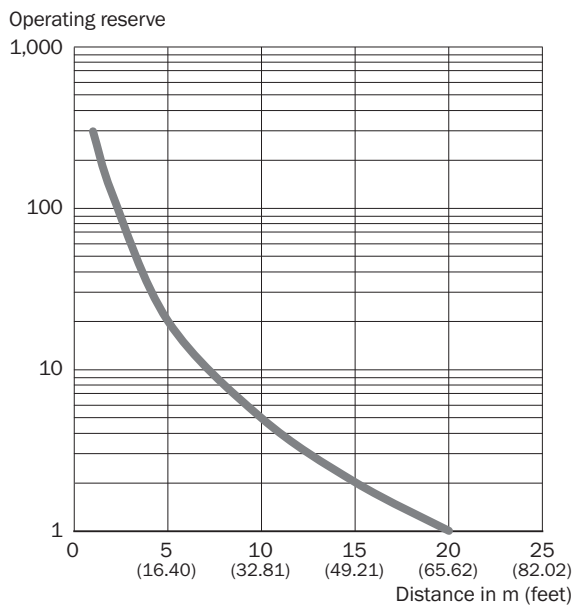
- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ Signal strength light bar

Pinouts, see table [Technical data: Connection type/pinouts](#)

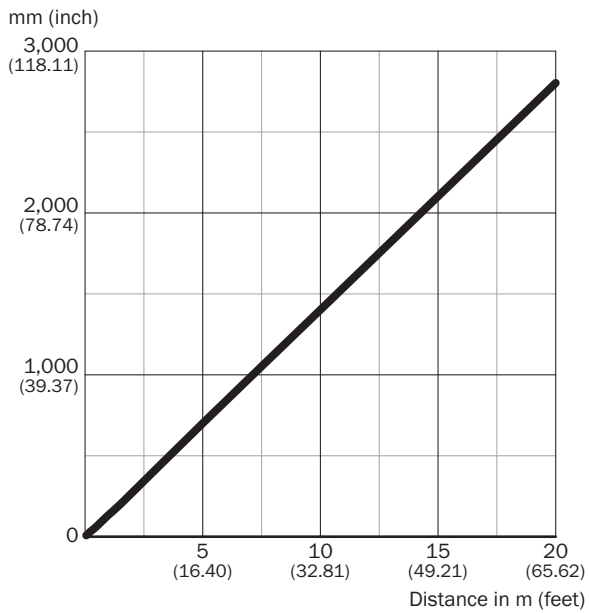


- ① sender
- ② receiver

### Characteristic curve Infrared light



### Light spot size Infrared light

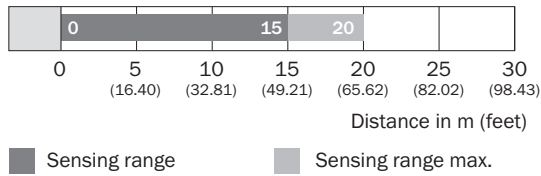


### Dimensions in mm (inch)

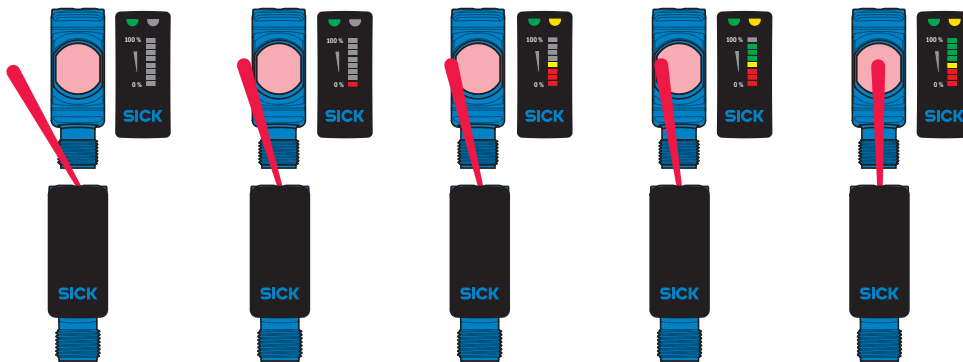
Sensing range	Diameter
0.5 m (1.64 feet)	65 (0.21)
1 m (3.28 feet)	135 (5.31)
5 m (16.40 feet)	700 (27.56)
20 m (65.62 feet)	2,800 (110.24)

— 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.
<b>Mounting systems</b>			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for M18 sensors</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Without mounting hardware</li> <li><b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li> </ul>	BEF-WN-M18	5308446
	<ul style="list-style-type: none"> <li><b>Description:</b> Plate N11N for universal clamp bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)</li> <li><b>Items supplied:</b> Universal clamp (5322627), mounting hardware</li> <li><b>Usable for:</b> DeltaPac, Glare, WTD20E</li> </ul>	BEF-KHS-N11N	2071081
<b>connectors and cables</b>			
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li><b>Description:</b> Unshielded</li> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</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
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A14-050UB3XLEAX	2095608

## 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)