



# HSE18-A1G2BA

H18 Sure Sense

HYBRID PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type         | Part no. |
|--------------|----------|
| HSE18-A1G2BA | 1071744  |

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

Detailed technical data

Features

|                                        |                                   |
|----------------------------------------|-----------------------------------|
| <b>Functional principle</b>            | Through-beam photoelectric sensor |
| <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>Mounting system type</b>            | M18, head/side (24.1 ... 25.4 mm) |
| <b>Housing color</b>                   | Blue                              |
| <b>Sensing range max.</b>              | 0 m ... 25 m                      |
| <b>Sensing range</b>                   | 0 m ... 20 m                      |
| <b>Type of light</b>                   | Visible red light                 |
| <b>Light source</b>                    | PinPoint LED <sup>1)</sup>        |
| <b>Light spot size (distance)</b>      | 400 mm x 200 mm (10 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> 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, NPN                                                                                                                                                                                     |
| <b>Switching mode</b>                        | Dark switching                                                                                                                                                                               |
| <b>Switching output detail</b>               |                                                                                                                                                                                              |
| Switching output Q1                          | PNP, Dark switching                                                                                                                                                                          |
| Switching output Q2                          | NPN, 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 open end, 2,000 mm                                                                                                                                                                     |
| <b>Cable material</b>                        | PVC                                                                                                                                                                                          |
| <b>Conductor cross section</b>               | $0.2 \text{ mm}^2$                                                                                                                                                                           |
| <b>Circuit protection</b>                    | A <sup>5)</sup><br>B <sup>6)</sup><br>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<br>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>         | $-40 \text{ °C} \dots +70 \text{ °C}$                                                                                                                                                        |
| <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.

## 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 |

|                |          |
|----------------|----------|
| ECLASS 8.0     | 27270901 |
| ECLASS 8.1     | 27270901 |
| ECLASS 9.0     | 27270901 |
| ECLASS 10.0    | 27270901 |
| ECLASS 11.0    | 27270901 |
| ECLASS 12.0    | 27270901 |
| ETIM 5.0       | EC002716 |
| ETIM 6.0       | EC002716 |
| ETIM 7.0       | EC002716 |
| ETIM 8.0       | EC002716 |
| UNSPSC 16.0901 | 39121528 |

Connection/Pin assignment

|                                    |                          |
|------------------------------------|--------------------------|
| Connection type                    | Cable open end, 2,000 mm |
| Connection type Detail             |                          |
| Conductor cross section            | 0.2 mm <sup>2</sup>      |
| Cable material                     | PVC                      |
| Pin assignment <sub>sender</sub>   |                          |
| BN                                 | + (L+)                   |
| WH                                 | Not connected            |
| BU                                 | - (M)                    |
| BK                                 | Test <sub>IN</sub>       |
| Pin assignment <sub>receiver</sub> |                          |
| BN                                 | + (L+)                   |
| WH                                 | Q <sub>2</sub>           |
| BU                                 | - (M)                    |
| BK                                 | Q <sub>1</sub>           |

Technical drawing of the M18x1 LED light module showing three views: front, side, and top. Dimensions are given in mm (inches).

**Front View Dimensions:**

- Total height: 45.5 (1.79)
- Width: 7.9 (0.31)
- Top section width: 16.2 (0.64)
- Mounting hole diameter: 0.9 (0.04)

**Side View Dimensions:**

- Total length: 31.4 (1.24)
- Mounting bracket height: 25.4 (1.00)
- LED chip height: 12.7 (0.50)
- LED chip width: 10.5 (0.41)
- LED chip spacing: 7.5 (0.30)
- LED chip diameter: 10.1 (0.40)

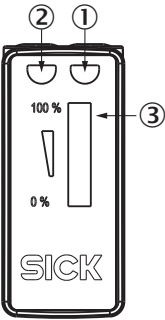
**Top View Dimensions:**

- Total width: 15 (0.59)
- Mounting hole diameter: 0.9 (0.04)
- LED chip diameter: 10.1 (0.40)
- LED chip spacing: 7.5 (0.30)
- LED chip width: 10.5 (0.41)

- | 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 /<br/>HL18L / HSE18L</b> | 2.5 (0.1)    | 0.0 (0.0)  | 3.5 (0.14) | 0.0 (0.0)  |

## 5

Adjustments possible

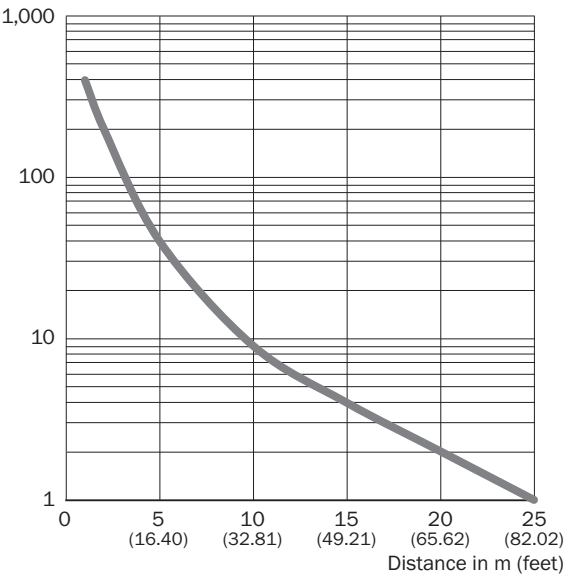


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ Signal strength light bar

Characteristic curve

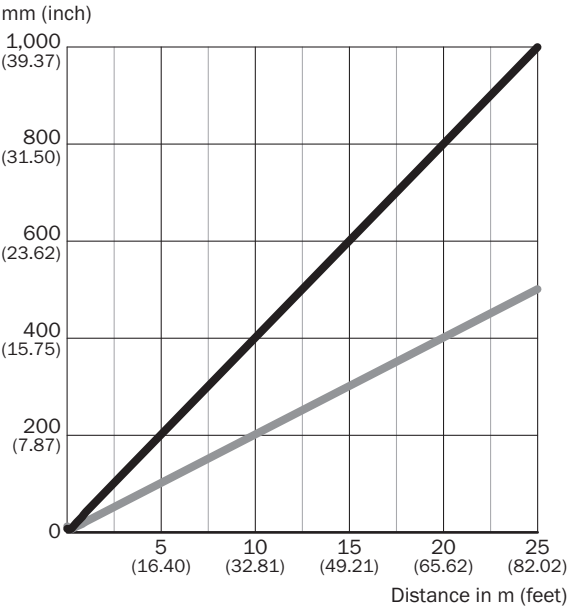
Red light

Operating reserve



Light spot size

Red light



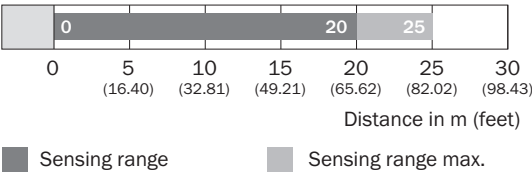
Dimensions in mm (inch)

| Sensing range         | Horizontal       | Vertical       |
|-----------------------|------------------|----------------|
| 0.5 m<br>(1.64 feet)  | 18<br>(0.71)     | 10<br>(0.39)   |
| 1 m<br>(3.28 feet)    | 40<br>(1.57)     | 20<br>(0.79)   |
| 6.5 m<br>(21.33 feet) | 260<br>(10.24)   | 130<br>(5.12)  |
| 25 m<br>(82.02 feet)  | 1,000<br>(39.37) | 500<br>(19.67) |

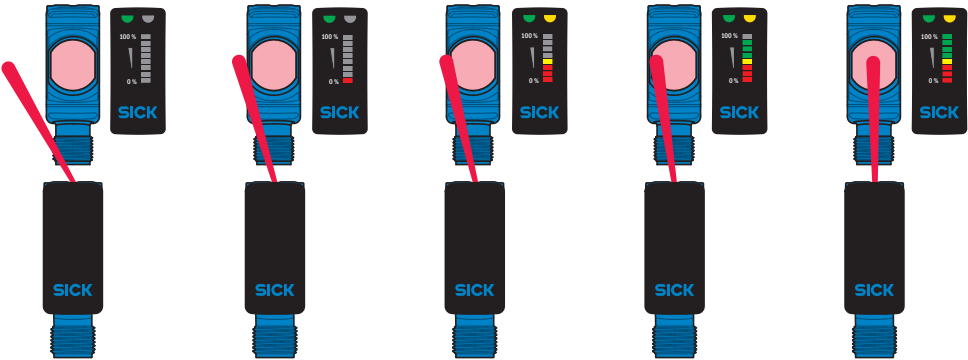
Horizontal

Vertical

Sensing range diagram



Functions



## 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)