



# HTB18L-B4A5AG

H18 Sure Sense

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type          | part no. |
|---------------|----------|
| HTB18L-B4A5AG | 1078770  |

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

Detailed technical data

Features

|                                 |                                      |
|---------------------------------|--------------------------------------|
| Functional principle            | Photoelectric proximity sensor       |
| Functional principle detail     | Background suppression               |
| Dimensions (W x H x D)          | 16.2 mm x 48.5 mm x 31.8 mm          |
| Housing design (light emission) | Hybrid                               |
| Thread diameter (housing)       | M18                                  |
| Mounting system type            | M18, head/side (24.1 ... 25.4 mm)    |
| Housing color                   | Blue                                 |
| Sensing range max.              | 30 mm ... 300 mm <sup>1)</sup>       |
| Sensing range                   | 30 mm ... 250 mm <sup>2)</sup>       |
| Type of light                   | Visible red light                    |
| Light source                    | Laser <sup>3)</sup><br><sup>4)</sup> |
| Light spot size (distance)      | 2 mm (120 mm)                        |
| Wave length                     | 655 nm                               |
| Laser class                     | I <sup>5)</sup>                      |
| Adjustment                      |                                      |
| Potentiometer, right            | Sensing range                        |
| Potentiometer, left             | Off delay, adjustable: 0 ... 2 s     |

<sup>1)</sup> Object with 90% remission (based on standard white, DIN 5033).

<sup>2)</sup> Object with 6% remission factor (based on standard black, DIN 5033).

<sup>3)</sup> Average service life: 50,000 h at T<sub>U</sub> = +25 °C.

<sup>4)</sup> 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.

<sup>5)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

|                             |                         |
|-----------------------------|-------------------------|
| <b>Special applications</b> | Detecting small objects |
| <b>Special features</b>     | -                       |

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<sup>2)</sup> Object with 6% remission factor (based on standard black, DIN 5033).

<sup>3)</sup> Average service life: 50,000 h at  $T_U = +25\text{ °C}$ .

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<sup>5)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

## Mechanics/electronics

|                                            |                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supply voltage</b>                      | 10 V DC ... 30 V DC                                                                                                                                                                          |
| <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, NPN                                                                                                                                                                                     |
| <b>Switching mode</b>                      | Light switching                                                                                                                                                                              |
| <b>Switching output detail</b>             |                                                                                                                                                                                              |
| Switching output Q1                        | PNP, Light switching                                                                                                                                                                         |
| Switching output Q2                        | NPN, Light 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>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>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>       | -30 °C ... +55 °C <sup>8)</sup>                                                                                                                                                              |
| <b>Ambient temperature, storage</b>        | -40 °C ... +70 °C                                                                                                                                                                            |

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

<sup>8)</sup> Below Ta = -10 °C, sensor must be turned on at Ta > -10 °C. Sensor cannot be turned on below Ta = -10 °C.

|                    |         |
|--------------------|---------|
| <b>UL File No.</b> | E189383 |
|--------------------|---------|

- 1) May not fall below or exceed  $U_T$  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  $T_a = -10\text{ °C}$ , sensor must be turned on at  $T_a > -10\text{ °C}$ . Sensor cannot be turned on below  $T_a = -10\text{ °C}$ .

### Safety-related parameters

|                         |           |
|-------------------------|-----------|
| <b>MTTF<sub>D</sub></b> | 309 years |
| <b>DC<sub>avg</sub></b> | 0 %       |

### Connection type/pinouts

|                               |                |                           |
|-------------------------------|----------------|---------------------------|
| <b>Connection type</b>        |                | Male connector M12, 4-pin |
| <b>Connection type Detail</b> |                |                           |
|                               | Cable material | Plastic                   |
| <b>Pinouts</b>                |                |                           |
|                               | BN 1           | + (L+)                    |
|                               | WH 2           | Q <sub>2</sub>            |
|                               | BU 3           | - (M)                     |
|                               | BK 4           | Q <sub>1</sub>            |

### Certificates

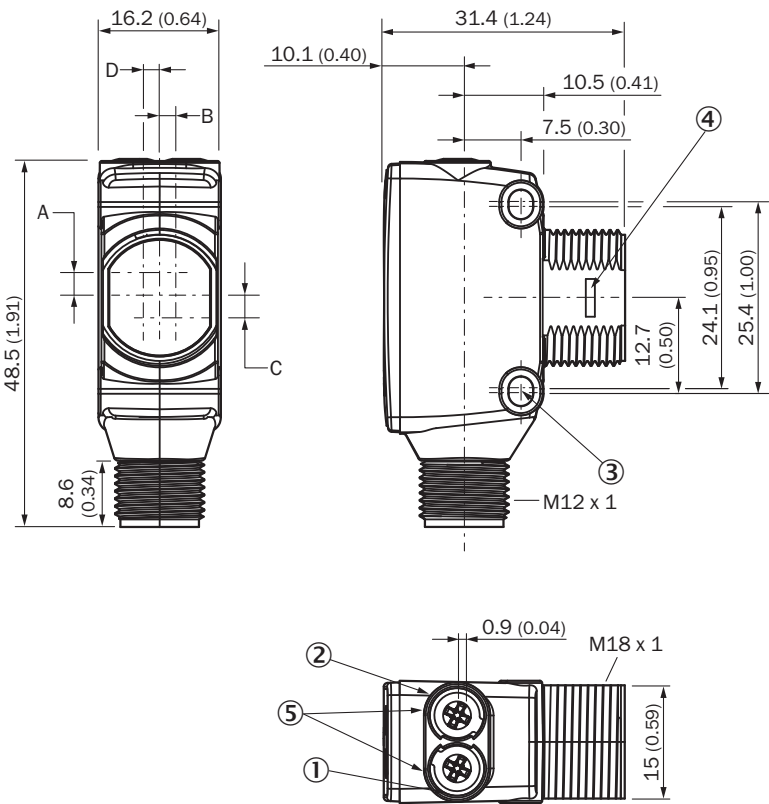
|                                           |   |
|-------------------------------------------|---|
| <b>EU declaration of conformity</b>       | ✓ |
| <b>UK declaration of conformity</b>       | ✓ |
| <b>ACMA declaration of conformity</b>     | ✓ |
| <b>Moroccan declaration of conformity</b> | ✓ |
|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

### Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270904 |
| <b>ECLASS 5.1.4</b> | 27270904 |
| <b>ECLASS 6.0</b>   | 27270904 |
| <b>ECLASS 6.2</b>   | 27270904 |
| <b>ECLASS 7.0</b>   | 27270904 |
| <b>ECLASS 8.0</b>   | 27270904 |
| <b>ECLASS 8.1</b>   | 27270904 |
| <b>ECLASS 9.0</b>   | 27270904 |
| <b>ECLASS 10.0</b>  | 27270904 |
| <b>ECLASS 11.0</b>  | 27270904 |
| <b>ECLASS 12.0</b>  | 27270904 |
| <b>ETIM 5.0</b>     | EC002719 |

|                |          |
|----------------|----------|
| ETIM 6.0       | EC002719 |
| ETIM 7.0       | EC002719 |
| ETIM 8.0       | EC002719 |
| UNSPSC 16.0901 | 39121528 |

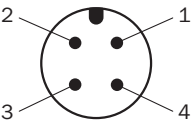
Dimensional drawing



- 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

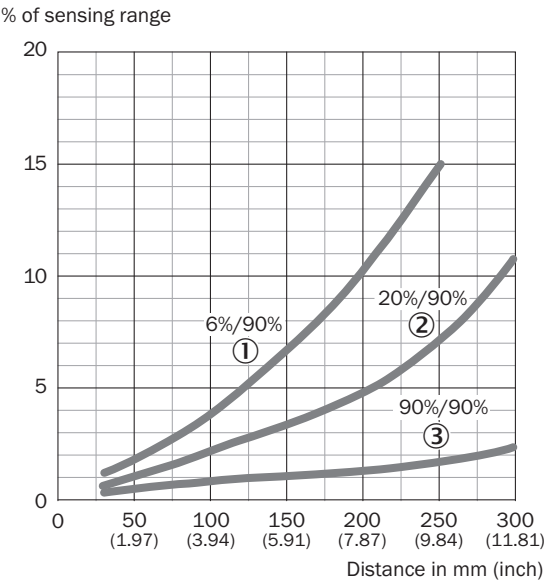
| Dimensions in mm (inch)          | Receiver     |            | Sender     |            |
|----------------------------------|--------------|------------|------------|------------|
|                                  | A            | B          | C          | D          |
| HTB18 / HTF18                    | - 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)  |

Pinouts, see table Technical data: Connection type/pinouts



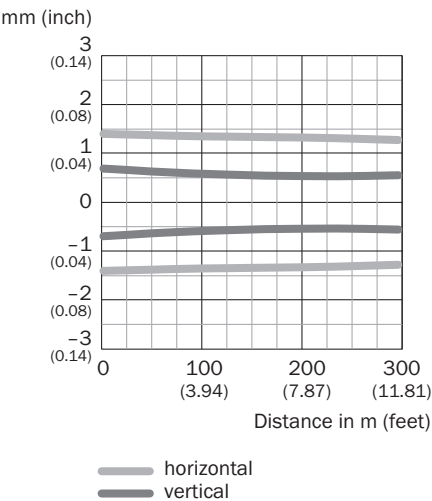
M12 male connector, 4-pin, A-coding

### Characteristic curve

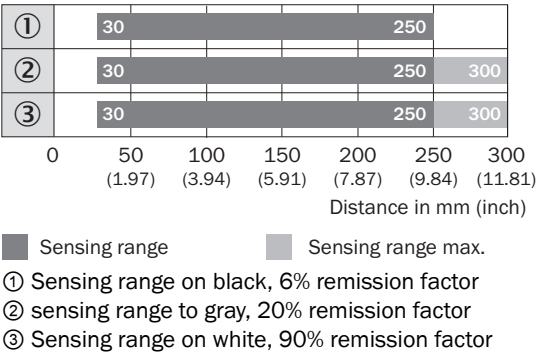


- ① Sensing range on black, 6% remission factor
- ② sensing range to gray, 20% remission factor
- ③ Sensing range on white, 90% remission factor

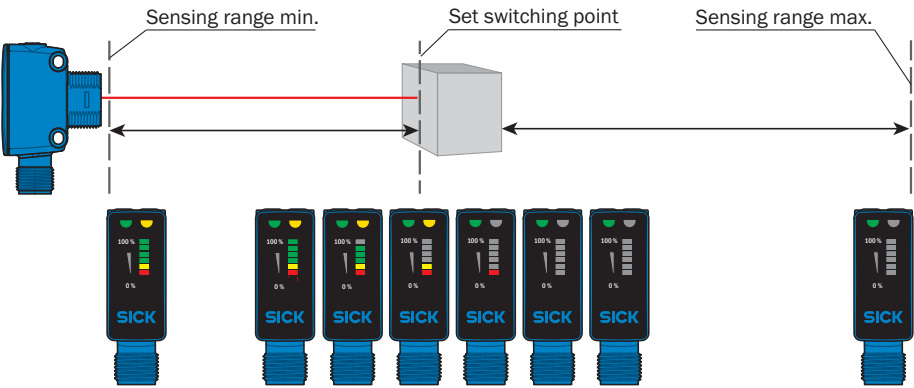
### Light spot size



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. |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|
| Mounting systems                                                                    |                                                                                                                                                                                                                                                                                                                                                                                     |              |          |
|  | <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  |

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Type               | part no. |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| 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> 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 mm²</li> </ul>                                                                                                                                                                                              | STE-1204-G         | 6009932  |
|  | <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, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</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)