



# HL18G-A2B3AL

H18 Sure Sense

HYBRID PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.

# HL18G-A2B3AL | H18 Sure Sense

HYBRID PHOTOELECTRIC SENSORS



Illustration may differ



## Ordering information

| Type         | Part no. |
|--------------|----------|
| HL18G-A2B3AL | 1084976  |

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>            | Photoelectric retro-reflective sensor |
| <b>Functional principle detail</b>     | 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>Mounting system type</b>            | M18, head/side (24.1 ... 25.4 mm)     |
| <b>Housing color</b>                   | Blue                                  |
| <b>Sensing range max.</b>              | 0.1 m ... 3 m <sup>1)</sup>           |
| <b>Sensing range</b>                   | 0.1 m ... 2.5 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>      | 60 mm x 120 mm (3 m)                  |
| <b>Wave length</b>                     | 631 nm                                |
| <b>Adjustment</b>                      |                                       |
|  | Potentiometer, right Teach-in         |
|  | Potentiometer, left None              |
| <b>AutoAdapt</b>                       | ✓                                     |
| <b>Special applications</b>            | Detecting transparent objects         |

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

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

|                         |           |
|-------------------------|-----------|
| <b>Special features</b> | AutoAdapt |
|-------------------------|-----------|

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

<sup>2)</sup> Average service life: 100,000 h at  $T_U = +25\text{ °C}$ .

## Mechanics/electronics

|  |  |
|--|--|
| <b>Supply voltage</b>                      | 10 V DC ... 30 V DC  |
| <b>Ripple</b>                              | $< 5\text{ V}_{pp}$ <sup>1)</sup>  |
| <b>Current consumption</b>                 | $\leq 20\text{ mA}$ <sup>2)</sup>  |
| <b>Switching output</b>                    | PNP  |
| <b>Switching mode</b>                      | Dark switching   |
| <b>Switching output detail</b>             |  |
| Switching output Q1                        | PNP, Dark switching  |
| Switching output Q2                        | Not connected  |
| <b>Output current <math>I_{max}</math></b> | $\leq 100\text{ mA}$   |
| <b>Response time</b>                       | $\leq 0.5\text{ ms}$ <sup>3)</sup>   |
| <b>Switching frequency</b>                 | 1,000 Hz <sup>4)</sup>   |
| <b>Connection type</b>                     | Cable with connector M8, 3-pin, 150 mm   |
| <b>Cable material</b>                      | PVC  |
| <b>Conductor cross section</b>             | 0.2 mm <sup>2</sup>  |
| <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>Polarisation filter</b>                 | ✓  |
| <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 °C ... +70 °C  |
| <b>Ambient temperature, storage</b>        | -40 °C ... +75 °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> | 936.1 years |
|-------------------------|-------------|

|                         |     |
|-------------------------|-----|
| <b>DC<sub>avg</sub></b> | 0 % |
|-------------------------|-----|

### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270902 |
| <b>ECLASS 5.1.4</b>   | 27270902 |
| <b>ECLASS 6.0</b>     | 27270902 |
| <b>ECLASS 6.2</b>     | 27270902 |
| <b>ECLASS 7.0</b>     | 27270902 |
| <b>ECLASS 8.0</b>     | 27270902 |
| <b>ECLASS 8.1</b>     | 27270902 |
| <b>ECLASS 9.0</b>     | 27270902 |
| <b>ECLASS 10.0</b>    | 27270902 |
| <b>ECLASS 11.0</b>    | 27270902 |
| <b>ECLASS 12.0</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 type/pinouts

|                               |  |
|-------------------------------|--|
| <b>Connection type</b>        | Cable with connector M8, 3-pin, 150 mm |
| <b>Connection type Detail</b> |  |
| Conductor cross section       | 0.2 mm <sup>2</sup>                    |
| Cable material                | PVC                                    |
| <b>Pinouts</b>                |  |
| BN 1                          | + (L+)                                 |
| BU 3                          | - (M)                                  |
| BK 4                          | Q                                      |

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

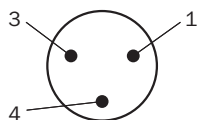


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ M3 mounting hole
- ④ Snap Connection for flush ring (sold seperatly)
- ⑤ Potentiometer (if selected) or LED Indicators

| 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)  |

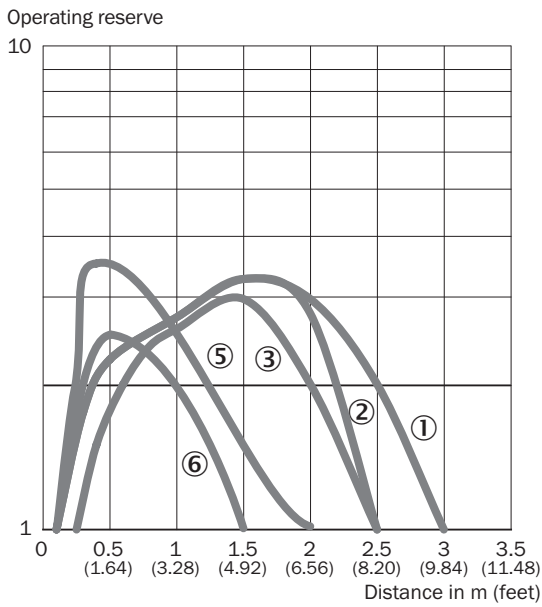
**Connection type**

Pinouts, see Technical details: **Connection type/pinouts**



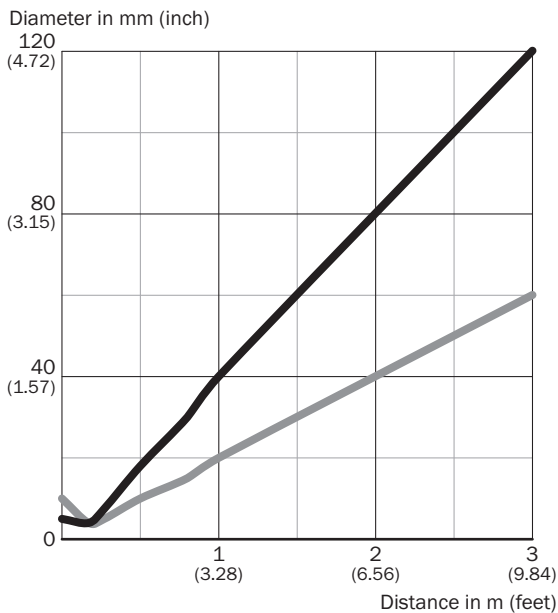
Connector M8, 3-pin

### Characteristic curve



- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflector P250F
- ⑤ Reflective tape REF-AC1000
- ⑥ Reflector PL41F

### Light spot size

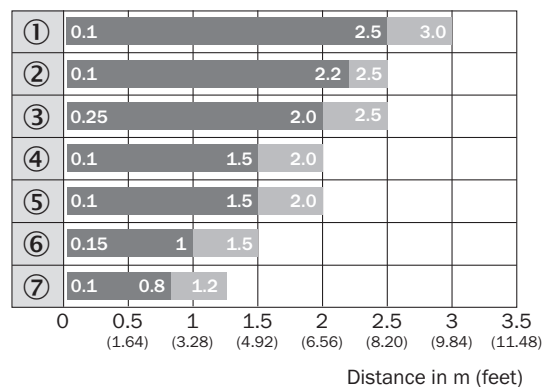


#### Dimensions in mm (inch)

| Sensing range               | Vertical      | Horizontal   |
|-----------------------------|---------------|--------------|
| <b>0.5 m</b><br>(1.64 feet) | 18<br>(0.71)  | 10<br>(0.39) |
| <b>0.8 m</b><br>(2.62 feet) | 30<br>(1.18)  | 15<br>(0.59) |
| <b>1 m</b><br>(3.28 feet)   | 40<br>(1.57)  | 20<br>(0.79) |
| <b>3 m</b><br>(9.84 feet)   | 120<br>(4.72) | 60<br>(2.36) |

- Vertical
- Horizontal

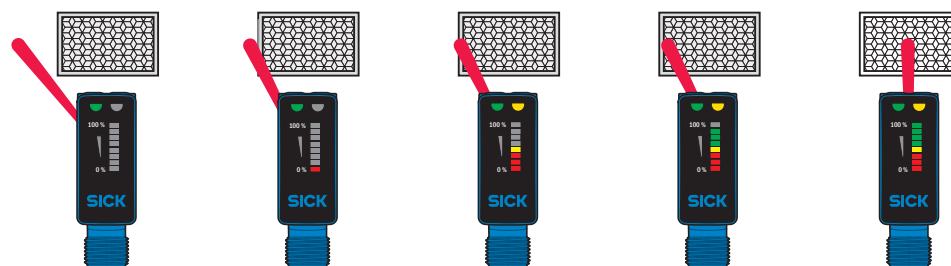
### Sensing range diagram



■ Sensing range      ■ Sensing range max.



- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflector P250F
- ④ Reflector PL30A, PL31A
- ⑤ Reflective tape REF-AC1000
- ⑥ Reflector PL41F
- ⑦ Reflector PL20A


### 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> Male connector, M8, 3-pin, straight</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> 0.14 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul> | STE-0803-G | 6037322  |
| Reflectors  |   |            |          |
|  | Reflector with microprismatic reflex tape REF-AC1000, suitable for laser sensors, see alignment note, 29 mm x 45 mm, PMMA/ABS, Screw-on, 2 hole mounting  | P41F       | 5315128  |

|   | Brief description   | Type               | Part no. |
|---|---|--------------------|----------|
| Others  |   |                    |          |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M8, 3-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, 3-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals</li></ul> | YF8U13-050VA1XLEAX | 2095884  |



## 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)