



# HL18T-P4A3BH

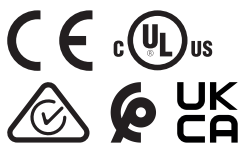
H18 Sure Sense

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type         | part no. |
|--------------|----------|
| HL18T-P4A3BH | 1078824  |

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

Detailed technical data

Features

|                                 |                                                       |
|---------------------------------|-------------------------------------------------------|
| Functional principle            | Photoelectric retro-reflective sensor                 |
| Functional principle detail     | With minimum distance to reflector (dual lens system) |
| 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.              | 0.1 m ... 3 m <sup>1)</sup>                           |
| Sensing range                   | 0.1 m ... 2.5 m <sup>1)</sup>                         |
| Type of light                   | Visible red light                                     |
| Light source                    | PinPoint LED <sup>2)</sup>                            |
| Light spot size (distance)      | 60 mm x 120 mm (3 m)                                  |
| Wave length                     | 631 nm                                                |
| Adjustment                      |                                                       |
| Potentiometer, right            | Sensitivity                                           |
| Potentiometer, left             | Light/dark switching                                  |
| Special applications            | Detecting transparent objects                         |
| Special features                | Signal strength light bar                             |

<sup>1)</sup> Reflector PL80A.  
<sup>2)</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 <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><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 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.

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 730.1 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

## Connection type/pinouts

|                        |                           |
|------------------------|---------------------------|
| <b>Connection type</b> | Male connector M12, 4-pin |
| <b>Pinouts</b>         |                           |

|      |                |
|------|----------------|
| BN 1 | + (L+)         |
| WH 2 | Q <sub>2</sub> |
| BU 3 | - (M)          |
| BK 4 | Q <sub>1</sub> |

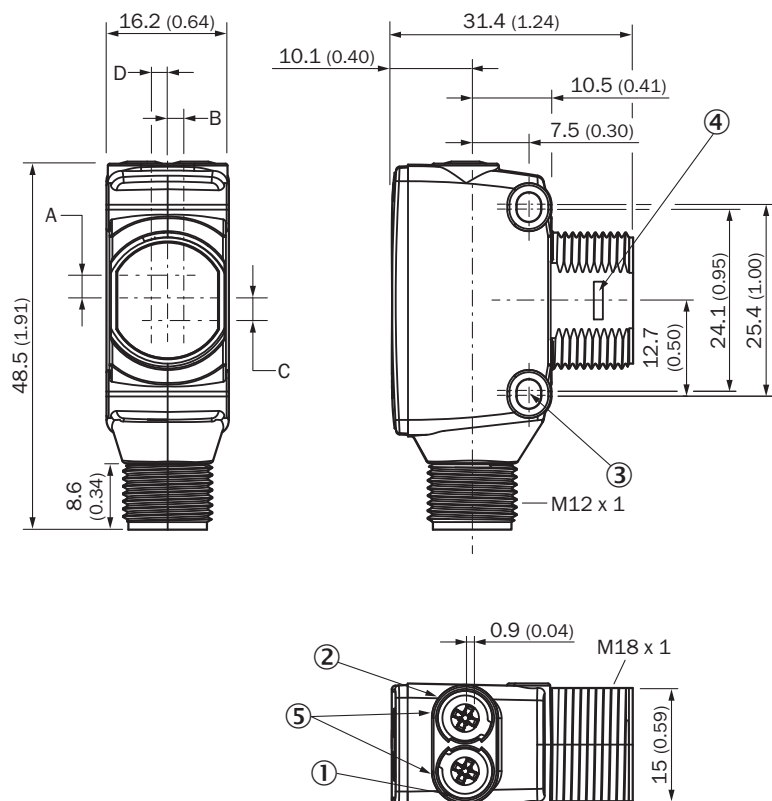
Certificates

|                                           |   |
|-------------------------------------------|---|
| <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>     | 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 |

## Dimensional drawing

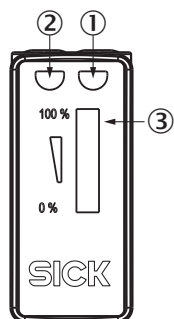


Dimensions in mm (inch)

- 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

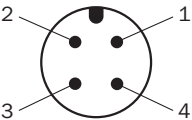
| Dimensions in mm (inch)          | Receiver     |            | Sender     |            |
|----------------------------------|--------------|------------|------------|------------|
|                                  | A            | B          | C          | D          |
| HTB18 / HTF18            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



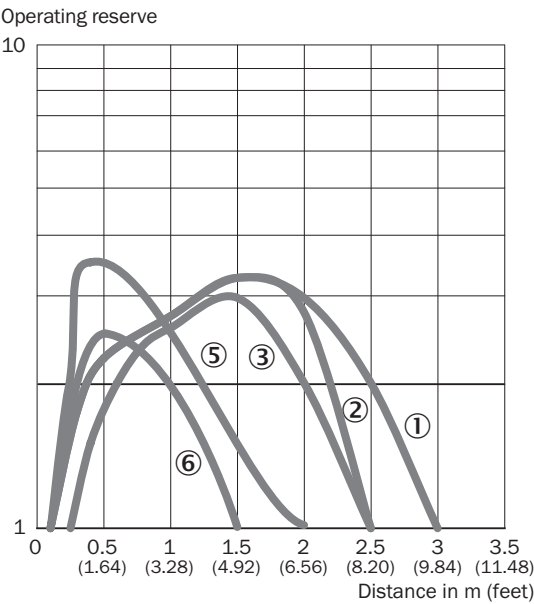
- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ Signal strength light bar

Pinouts, see table Technical data: <b>Connection type/pinouts</b>



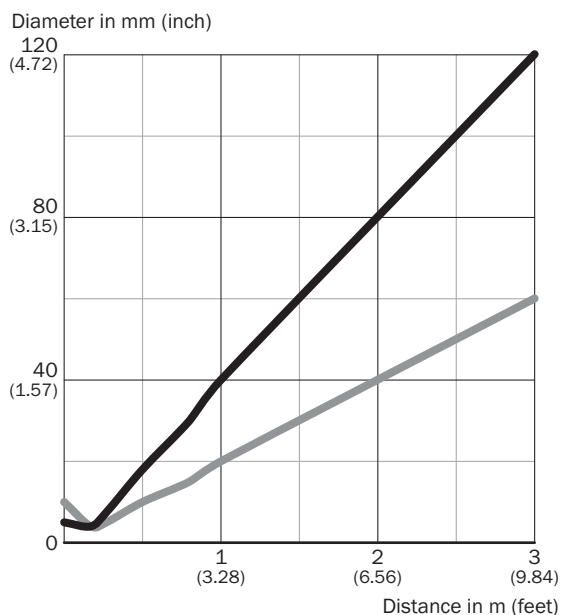
M12 male connector, 4-pin, A-coding

Characteristic curve



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

## Light spot size

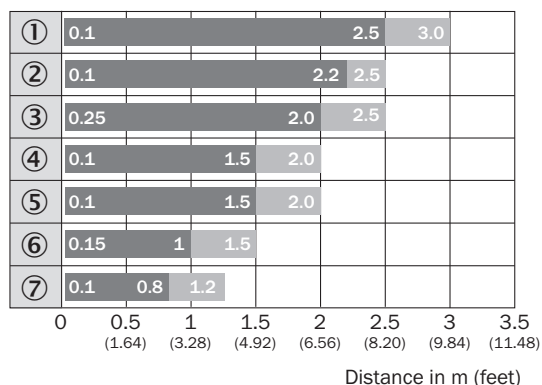


### Dimensions in mm (inch)

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

— Vertical  
— Horizontal

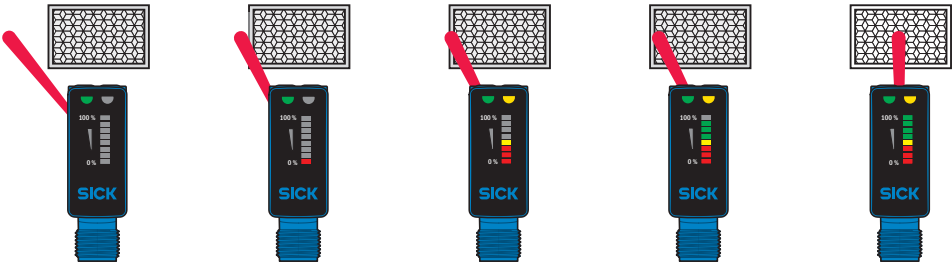
## Sensing range diagram



■ 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. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| reflectors and optics                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |          |
|   | <ul style="list-style-type: none"><li>• <b>Description:</b> Rectangular, screw connection</li><li>• <b>Dimensions:</b> 51 mm 61 mm</li><li>• <b>Ambient operating temperature:</b> -30 °C ... +65 °C</li></ul>                                                                                                                                                                                                               | P250               | 5304812  |
| Mounting systems                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |          |
|  | <ul style="list-style-type: none"><li>• <b>Description:</b> Universal mounting bracket for reflectors</li><li>• <b>Dimensions (W x H x L):</b> 85 mm x 90 mm x 35 mm</li><li>• <b>Material:</b> Steel</li><li>• <b>Details:</b> Steel, zinc coated</li><li>• <b>Suitable for:</b> C110A, P250, PL20, PL30A, PL40A, PL80A</li></ul>                                                                                           | BEF-WN-REFX        | 2064574  |
| 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, Uncontaminated zones</li></ul> | YF2A14-050VB3XLEAX | 2096235  |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li><li>• <b>Description:</b> Unshielded</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  |



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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.

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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.”

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