



# HL18G-M5G3AP

SureSense

HYBRID PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type         | Part no. |
|--------------|----------|
| HL18G-M5G3AP | 1084568  |

Other models and accessories → [www.sick.com/SureSense](http://www.sick.com/SureSense)

### Detailed technical data

#### Features

|                                        |                                                  |
|----------------------------------------|--------------------------------------------------|
| <b>Device version</b>                  | Standard                                         |
| <b>Sensor/ detection principle</b>     | Photoelectric retro-reflective sensor, Dual lens |
| <b>Dimensions (W x H x D)</b>          | 16.2 mm x 45.5 mm x 34.4 mm                      |
| <b>Housing design (light emission)</b> | Hybrid                                           |
| <b>Thread diameter (housing)</b>       | M18                                              |
| <b>Mounting system type</b>            | M18, nose / 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                    | Light/dark switching                             |
| <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>U</sub> = +25 °C.

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

1) Reflector PL80A.

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

## Mechanics/electronics

|                                             |                                                                                                                                                                                              |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supply voltage</b>                       | 21.6 V DC ... 250 V DC, 96 V AC ... 250 V AC <sup>1)</sup>                                                                                                                                   |
| <b>Current consumption</b>                  | 10 mA <sup>2)</sup>                                                                                                                                                                          |
| <b>Switching output</b>                     | MOSFET                                                                                                                                                                                       |
| <b>Switching mode</b>                       | Dark switching                                                                                                                                                                               |
| <b>Switching output detail</b>              |                                                                                                                                                                                              |
| Switching output Q1                         | MOSFET, Dark switching                                                                                                                                                                       |
| <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, Micro (1/2"-20), 4-pin, 2,000 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>                     | II <sup>8)</sup>                                                                                                                                                                             |
| <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>                       | Mounting nut (1x), M18, plastic, black, flat                                                                                                                                                 |
| <b>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 storage temperature</b>          | -40 °C ... +75 °C                                                                                                                                                                            |
| <b>UL File No.</b>                          | E189383                                                                                                                                                                                      |

1) Above  $T_a = 60\text{ °C}$ , max. supply voltage = 120 V.

2) Without load. The output load and sensor must use the same power source.

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) Reference voltage: 250 V AC, overvoltage category 2.

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 499.9 years |
| <b>DC<sub>avg</sub></b> | 0%          |

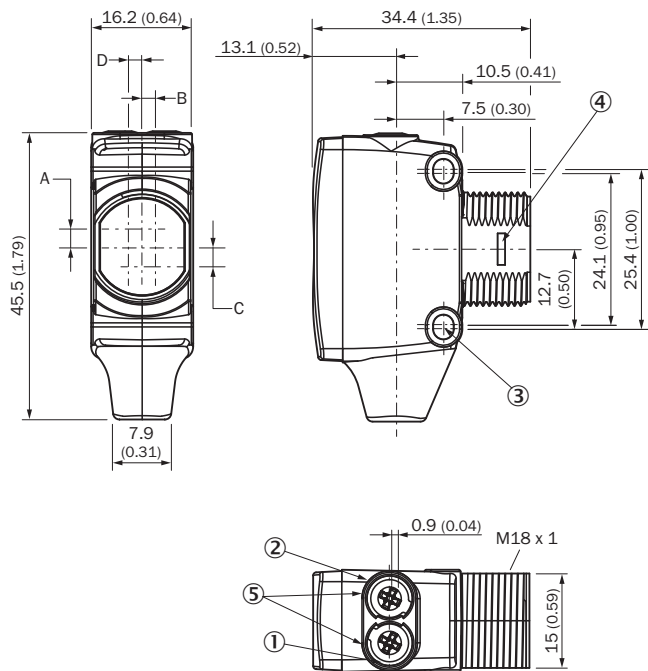
### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.0</b>     | 27270902 |
| <b>ECI@ss 5.1.4</b>   | 27270902 |
| <b>ECI@ss 6.0</b>     | 27270902 |
| <b>ECI@ss 6.2</b>     | 27270902 |
| <b>ECI@ss 7.0</b>     | 27270902 |
| <b>ECI@ss 8.0</b>     | 27270902 |
| <b>ECI@ss 8.1</b>     | 27270902 |
| <b>ECI@ss 9.0</b>     | 27270902 |
| <b>ECI@ss 10.0</b>    | 27270902 |
| <b>ECI@ss 11.0</b>    | 27270902 |
| <b>ETIM 5.0</b>       | EC002717 |
| <b>ETIM 6.0</b>       | EC002717 |
| <b>ETIM 7.0</b>       | EC002717 |
| <b>UNSPSC 16.0901</b> | 39121528 |

### Connection/PIN assignment

|                               |                                                        |                     |
|-------------------------------|--------------------------------------------------------|---------------------|
| <b>Connection type</b>        | Cable with connector, Micro (1/2"-20), 4-pin, 2,000 mm |                     |
| <b>Connection type Detail</b> |                                                        |                     |
|                               | Cable material                                         | PVC                 |
|                               | Conductor cross-section                                | 0.2 mm <sup>2</sup> |
| <b>PIN assignment</b>         |                                                        |                     |
|                               | RD/BK 1                                                | L1                  |
|                               | RD/WH 2                                                | N                   |
|                               | RD 3                                                   | Q                   |
|                               | GN/YE 4                                                | Not connected       |

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

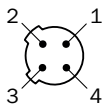


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ M3 mounting hole
- ④ Snap Connection for flush ring (sold separately)
- ⑤ Potentiometer (if selected) or LED Indicators

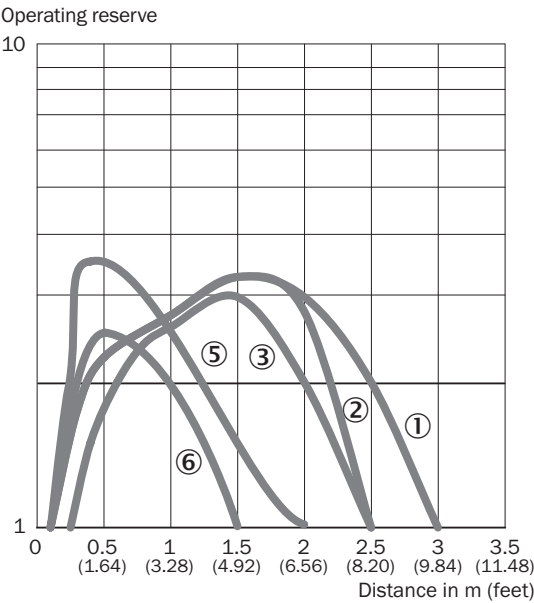
| Dimensions in mm (inch)     | Receiver     |            | Sender     |            |
|-----------------------------|--------------|------------|------------|------------|
|                             | A            | B          | C          | D          |
| <b>HTB18 / HTF18</b>        | - 1.1 (0.04) | 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)  |

## Connection type

See table: Connection/PIN assignment

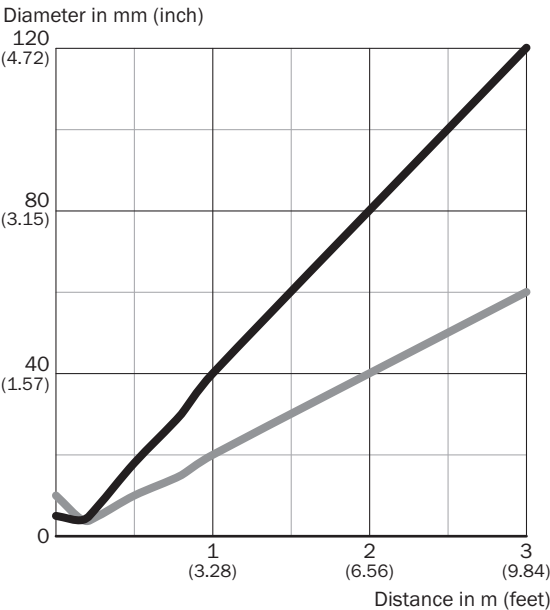


Characteristic curve



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

Light spot size

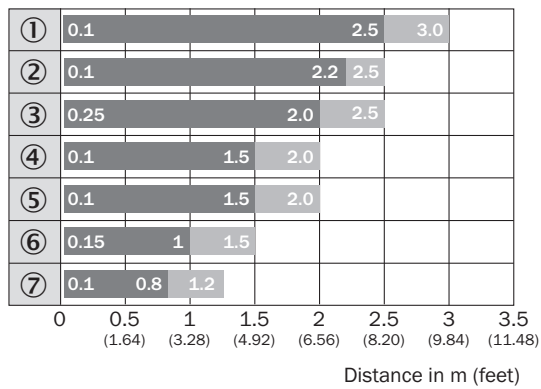


Dimensions in mm (inch)

| 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) |

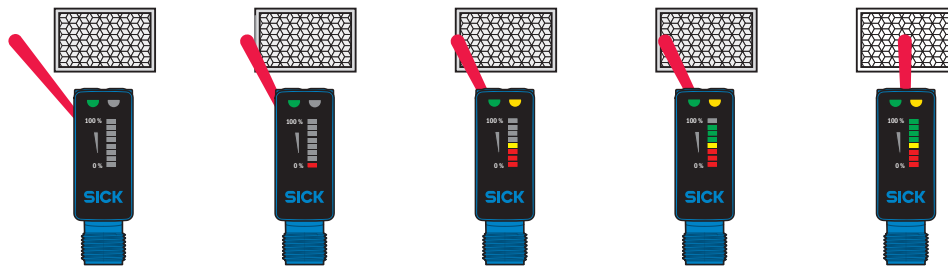
- Vertical
- Horizontal

## 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/SureSense](http://www.sick.com/SureSense)

|                                                                                     | Brief description                                                                                                                                       | Type | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|
| Reflectors                                                                          |                                                                                                                                                         |      |          |
|  | Reflector with micropismatic 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  |

## 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)