Data sheet

# HL18-M1G3AE

## H18 Sure Sense

**PHOTOELECTRIC SENSORS**

SICK
Sensor Intelligence.

Illustration may differ

## Ordering information

| Type | part no. |
|---|---|
| HL18-M1G3AE | 1085233 |

Other models and accessories ➜ 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 45.5 mm x 34.4 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.** | 0.03 m ... 6.5 m [1] |
| **Sensing range** | 0.03 m ... 5 m [1] |
| **Type of light** | Visible red light |
| **Light source** | PinPoint LED [2] |
| **Light spot size (distance)** | 130 mm x 260 mm (6.5 m) |
| **Wave length** | 631 nm |
| **Adjustment** | |
| Potentiometer, right | Light/dark switching |
| Potentiometer, left | None |
| **Special features** | - |

[1] Reflector PL80A.

[2] Average service life: 100,000 h at $T_U$ = +25 °C.

## Mechanics/electronics

| | |
|---|---|
| **Supply voltage** | 21.6 V DC ... 250 V DC, 96 V AC ... 250 V AC [1] |
| **Current consumption** | ≤ 10 mA [2] |
| **Switching output** | MOSFET |
| **Switching mode** | Dark switching |
| **Switching output detail** | |
| Switching output Q1 | MOSFET, Dark switching |
| **Output current $I_{max.}$** | ≤ 100 mA |
| **Response time** | ≤ 0.5 ms [3] |
| **Switching frequency** | 1,000 Hz [4] |
| **Connection type** | Cable open end, 2,000 mm |
| **Cable material** | Plastic, PVC |
| **Conductor cross section** | 0.2 mm² |
| **Circuit protection** | A [5]<br>B [6]<br>D [7] |
| **Protection class** | II [8] |
| **Weight** | 18 g |
| **Polarizing filter** | ✓ |
| **Housing material** | Plastic, VISTAL® |
| **Optics material** | Plastic, PMMA |
| **Enclosure rating** | IP67<br>IP69K |
| **Items supplied** | Fastening nut (1x), M18, plastic, black, flat |
| **Electromagnetic compatibility (EMC)** | 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.) |
| **Ambient operating temperature** | –40 °C ... +70 °C |
| **Ambient temperature, storage** | –40 °C ... +75 °C |
| **UL File No.** | E189383 |

[1] From $T_u$ 60 °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

| | |
|---|---|
| **$MTTF_D$** | 499.9 years |
| **$DC_{avg}$** | 0 % |

## Connection type/pinouts

| | |
|---|---|
| **Connection type** | |
| | Cable open end, 2,000 mm |

| | |
|---|---|
| **Connection type Detail** | |
| Cable material | Plastic |
| Conductor cross section | 0.2 mm² |
| **Pinouts** | |
| BN | L1 |
| BU | N |
| BK | Q |

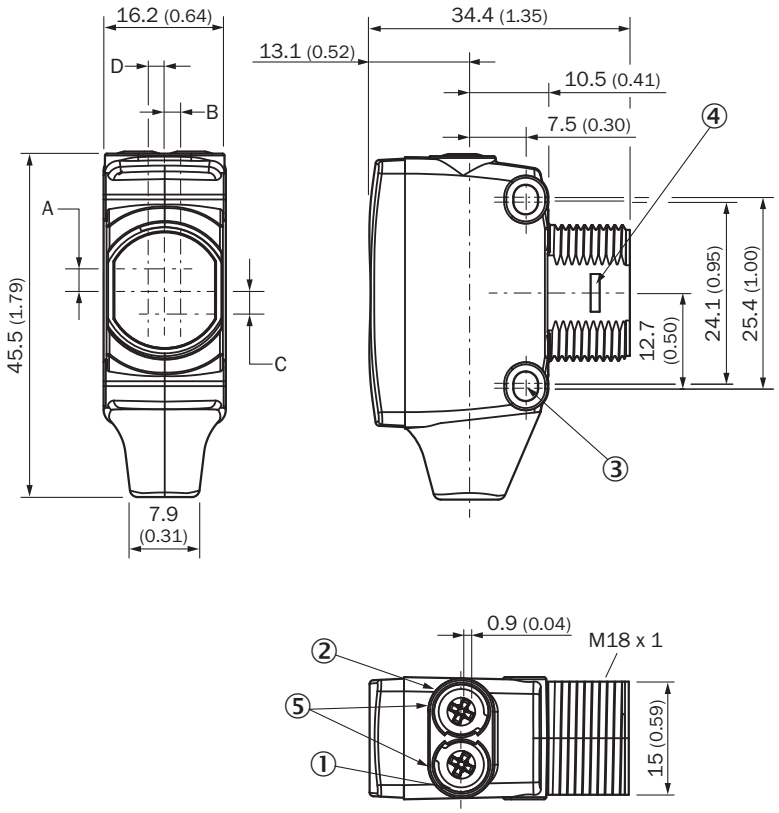
## Certificates

| | |
|---|---|
| **EU declaration of conformity** | ✓ |
| **UK declaration of conformity** | ✓ |
| **ACMA declaration of conformity** | ✓ |
| **Moroccan declaration of conformity** | ✓ |
| **China RoHS** | ✓ |

## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270902 |
| **ECLASS 5.1.4** | 27270902 |
| **ECLASS 6.0** | 27270902 |
| **ECLASS 6.2** | 27270902 |
| **ECLASS 7.0** | 27270902 |
| **ECLASS 8.0** | 27270902 |
| **ECLASS 8.1** | 27270902 |
| **ECLASS 9.0** | 27270902 |
| **ECLASS 10.0** | 27270902 |
| **ECLASS 11.0** | 27270902 |
| **ECLASS 12.0** | 27270902 |
| **ETIM 5.0** | EC002717 |
| **ETIM 6.0** | EC002717 |
| **ETIM 7.0** | EC002717 |
| **ETIM 8.0** | EC002717 |
| **UNSPSC 16.0901** | 39121528 |

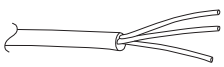
## Dimensional drawing




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

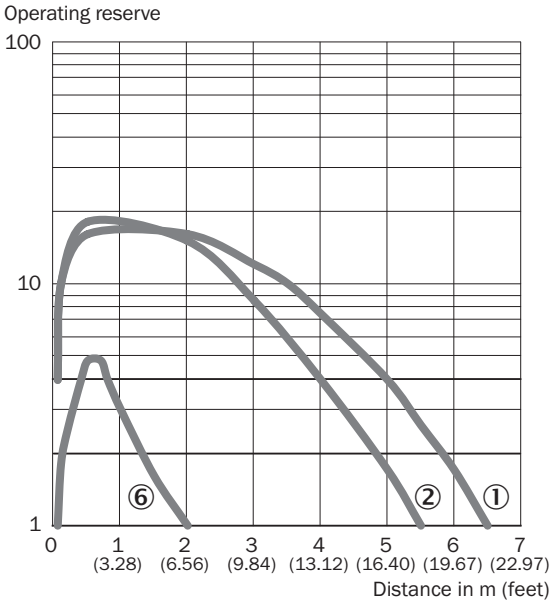
| Dimensions in mm (inch) | Receiver | | Sender | |
|---|---|---|---|---|
| – | A | B | C | D |
| **HTB18 / HTF18** | - 1.1 (0.04) | 1.1 (0.04) | 4.7 (0.19) | 0.6 (0.02) |
| **HTE18 / HL18 / HSE18** | 2.5 (0.1) | 0.0 (0.0) | 4.0 (0.16) | 0.0 (0.0) |

## Pinouts, see table Technical data: Connection type/pinouts



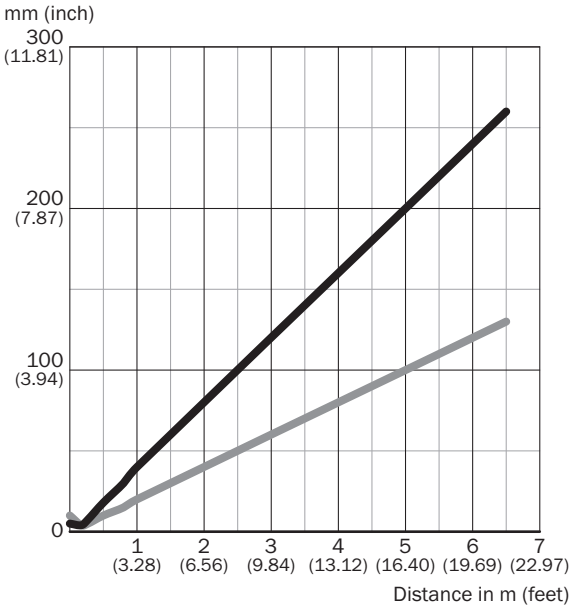
Cable, 3-wire

## Characteristic curve




① Reflector PL80A
② Reflector PL40A
⑥ Reflective tape IREF6000 (REF-IRF-56)

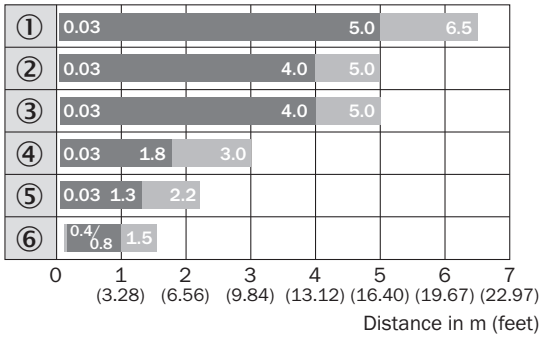
## Light spot size




**Dimensions in mm (inch)**

| Sensing range | Horizontal | Vertical |
|---|---|---|
| **0.5 m (1.64 feet)** | 18 (0.71) | 10 (0.39) |
| **1 m (3.28 feet)** | 40 (1.57) | 20 (0.79) |
| **5 m (16.40 feet)** | 200 (7.87) | 100 (3.94) |
| **6.5 m (21.33 feet)** | 260 (10.24) | 130 (5.12) |

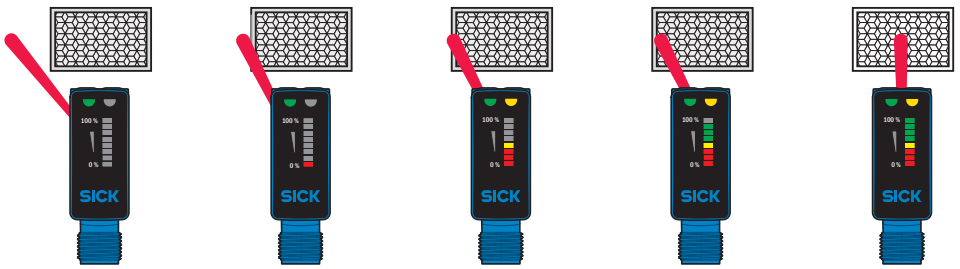
## Sensing range diagram




Sensing range  Sensing range max.

① Reflector PL80A
② Reflector PL40A
③ Reflector P250
④ Reflector PL30A, PL31A
⑤ Reflector PL20A
⑥ Reflective tape IREF6000 (REF-IRF-56)

## Functions



## Recommended accessories

Other models and accessories ➜ www.sick.com/H18_Sure_Sense

| | Brief description | Type | part no. |
|---|---|---|---|
| Mounting systems | | | |
| | • **Description:** Mounting bracket for M18 sensors<br>• **Material:** Steel<br>• **Details:** Steel, zinc coated<br>• **Items supplied:** Without mounting hardware<br>• **Suitable for:** GR18, V180-2, V18, W15, Z1, Z2 | BEF-WN-M18 | 5308446 |
| | • **Description:** Universal mounting bracket for reflectors<br>• **Dimensions (W x H x L):** 85 mm x 90 mm x 35 mm<br>• **Material:** Steel<br>• **Details:** Steel, zinc coated<br>• **Suitable for:** C110A, P250, PL20, PL30A, PL40A, PL80A | BEF-WN-REFX | 2064574 |

| | Brief description | Type | part no. |
|---|---|---|---|
| reflectors and optics | | | |
| | • **Description:** Rectangular, screw connection<br>• **Dimensions:** 51 mm 61 mm<br>• **Ambient operating temperature:** –30 °C ... +65 °C | P250 | 5304812 |

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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.”**

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