



HTB18L-P4A5BG

H18 Sure Sense

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | part no. |
|---------------|----------|
| HTB18L-P4A5BG | 1076162 |

Other models and accessories → 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 ¹⁾ |
| Sensing range | 30 mm ... 250 mm ²⁾ |
| Type of light | Visible red light |
| Light source | Laser ³⁾ ⁴⁾ |
| Light spot size (distance) | 2 mm (120 mm) |
| Wave length | 655 nm |
| Laser class | I ⁵⁾ |
| Adjustment | |
| Potentiometer, right | Sensing range |
| Potentiometer, left | Off delay, adjustable: 0 ... 2 s |

¹⁾ Object with 90% remission (based on standard white, DIN 5033).²⁾ Object with 6% remission factor (based on standard black, DIN 5033).³⁾ Average service life: 50,000 h at $T_U = +25^\circ\text{C}$.⁴⁾ 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, 2007.⁵⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

| | |
|-----------------------------|---------------------------|
| Special applications | Detecting small objects |
| Special features | Signal strength light bar |

- 1) Object with 90% remission (based on standard white, DIN 5033).
- 2) Object with 6% remission factor (based on standard black, DIN 5033).
- 3) Average service life: 50,000 h at $T_U = +25$ °C.
- 4) CLASS 1 LASER PRODUCT EN60825-1:2014, IEC60825-1:2014, Maximum pulse power < 2,5 mW, Pulse length: 4 μ s, 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.
- 5) Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Mechanics/electronics

| | |
|---|--|
| Supply voltage | 10 V DC ... 30 V DC |
| Ripple | < 5 V_{pp} ¹⁾ |
| Current consumption | ≤ 20 mA ²⁾ |
| Switching output | PNP |
| Output function | Complementary |
| Switching mode | Light/dark switching |
| Switching output detail | |
| Switching output Q1 | PNP, Light switching |
| Switching output Q2 | PNP, Dark switching |
| Output current $I_{max.}$ | ≤ 100 mA |
| Response time | ≤ 0.5 ms ³⁾ |
| Switching frequency | 1,000 Hz ⁴⁾ |
| Time functions | Off delay |
| Connection type | Male connector M12, 4-pin |
| Cable material | Plastic, PVC |
| Circuit protection | A ⁵⁾ B ⁶⁾ D ⁷⁾ |
| Protection class | III |
| Weight | 18 g |
| Housing material | Plastic, VISTAL® |
| Optics material | Plastic, PMMA |
| Enclosure rating | IP67 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 | -30 °C ... +55 °C ⁸⁾ |

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

| | |
|-------------------------------------|-------------------|
| Ambient temperature, storage | -40 °C ... +70 °C |
| UL File No. | E189383 |

- 1) May not fall below or exceed U_V 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 °C, sensor must be turned on at T_a > -10 °C. Sensor cannot be turned on below T_a = -10 °C.

Safety-related parameters

| | |
|-------------------------|-------------|
| MTTF_D | 282.7 years |
| DC_{avg} | 0 % |

Connection type/pinouts

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

Classifications

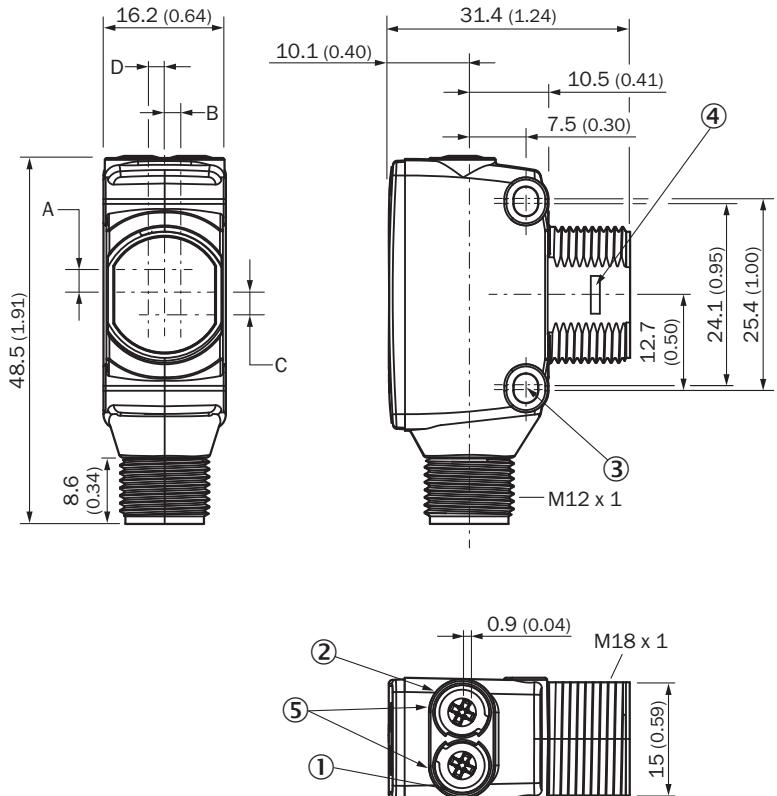
| | |
|-----------------------|----------|
| ECLASS 5.0 | 27270904 |
| ECLASS 5.1.4 | 27270904 |
| ECLASS 6.0 | 27270904 |
| ECLASS 6.2 | 27270904 |
| ECLASS 7.0 | 27270904 |
| ECLASS 8.0 | 27270904 |
| ECLASS 8.1 | 27270904 |
| ECLASS 9.0 | 27270904 |
| ECLASS 10.0 | 27270904 |
| ECLASS 11.0 | 27270904 |
| ECLASS 12.0 | 27270904 |
| ETIM 5.0 | EC002719 |
| ETIM 6.0 | EC002719 |
| ETIM 7.0 | EC002719 |
| ETIM 8.0 | EC002719 |
| UNSPSC 16.0901 | 39121528 |

Certificates

| | |
|-------------------------------------|---|
| EU declaration of conformity | ✓ |
|-------------------------------------|---|

| | |
|---|---|
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |
| cULus certificate | ✓ |

Dimensional drawing

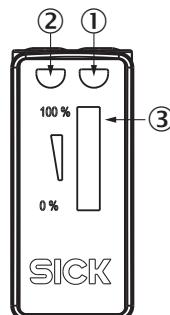


Dimensions in mm (inch)

- 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 |
| 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

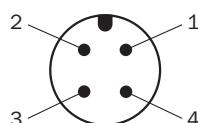


① LED indicator yellow: Status of received light beam

② LED indicator green: power on

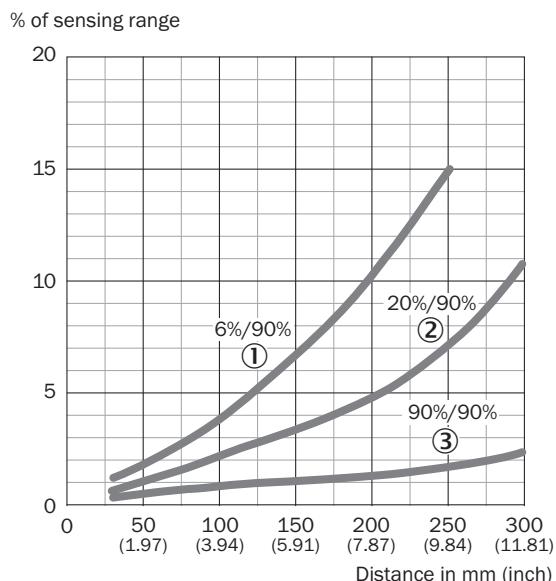
③ Signal strength light bar

Pinouts, see table Technical data: Connection type/pinouts



M12 male connector, 4-pin, A-coding

Characteristic curve

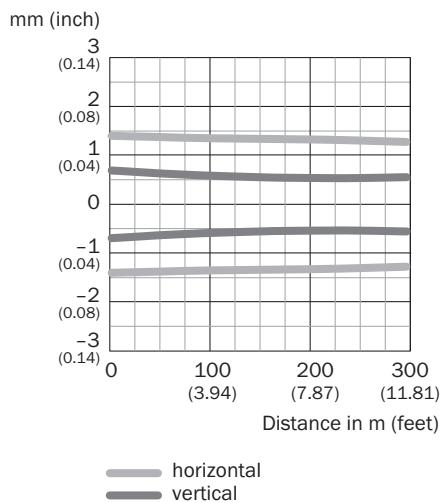


① Sensing range on black, 6% remission factor

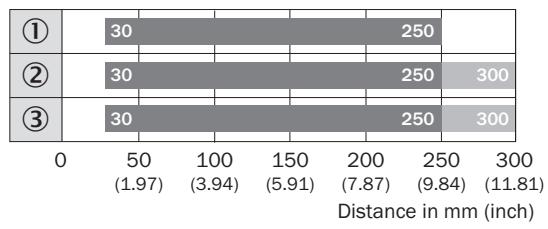
② sensing range to gray, 20% remission factor

③ Sensing range on white, 90% remission factor

Light spot size



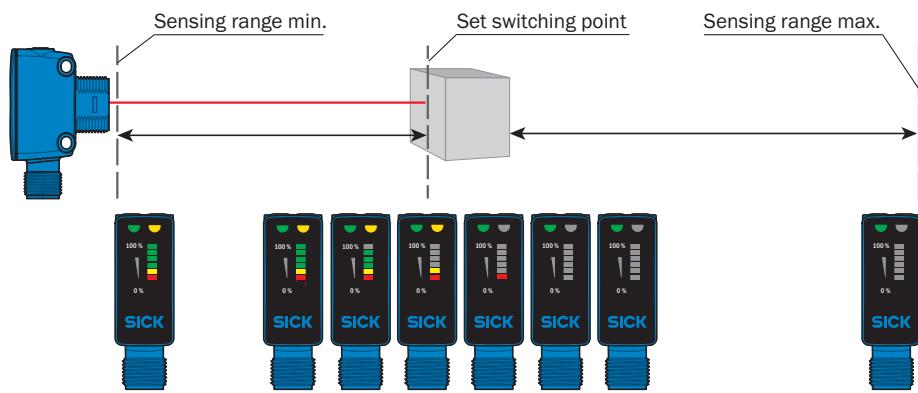
Sensing range diagram



■ Sensing range ■ Sensing range max.

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

Functions



Recommended accessories

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

| | Brief description | Type | part no. |
|--|--|--------------------|----------|
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> Description: Mounting bracket for M18 sensors Material: Steel Details: Steel, zinc coated Items supplied: Without mounting hardware Suitable for: GR18, V180-2, V18, W15, Z1, Z2 | BEF-WN-M18 | 5308446 |
|  | <ul style="list-style-type: none"> Description: Plate N11N for universal clamp bracket Material: Stainless steel Details: Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp) Items supplied: Universal clamp (5322627), mounting hardware Usable for: DeltaPac, Glare, WTD20E | BEF-KHS-N11N | 2071081 |
| connectors and cables | | | |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PVC Description: Sensor/actuator cable, unshielded Application: Zones with chemicals, Uncontaminated zones | YF2A14-050VB3XLEAX | 2096235 |
|  | <ul style="list-style-type: none"> Connection type head A: Male connector, M12, 4-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² | STE-1204-G | 6009932 |
|  | <ul style="list-style-type: none"> Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation | 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