



HL18L-P4A5BB

SureSense

HYBRID PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|--------------|----------|
| HL18L-P4A5BB | 1075008 |

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

Detailed technical data

Features

| | | | | | |
|--|---|----------------------|-------------|---------------------|------|
| Sensor/ detection principle | Photoelectric retro-reflective sensor, Dual lens | | | | |
| 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, nose / side (24 ... 24.5 mm) | | | | |
| Housing color | Blue | | | | |
| Sensing range max. | 0.1 m ... 12 m ¹⁾ | | | | |
| Sensing range | 0.1 m ... 10 m ¹⁾ | | | | |
| Type of light | Visible red light | | | | |
| Light source | Laser ^{2) 3)} | | | | |
| Light spot size (distance) | 2 mm (2 m) | | | | |
| Wave length | 655 nm | | | | |
| Laser class | I | | | | |
| Adjustment | <table border="0"> <tr> <td>Potentiometer, right</td> <td>Sensitivity</td> </tr> <tr> <td>Potentiometer, left</td> <td>None</td> </tr> </table> | Potentiometer, right | Sensitivity | Potentiometer, left | None |
| Potentiometer, right | Sensitivity | | | | |
| Potentiometer, left | None | | | | |
| Special applications | Detecting small objects | | | | |
| Special features | Signal strength light bar | | | | |

¹⁾ Reflector PL80A.

²⁾ Average service life: 50,000 h at T_U = +25 °C.

³⁾ 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.

Mechanics/electronics

| | |
|--|--|
| Supply voltage | 10 V DC ... 30 V DC |
| Ripple | $< 5 V_{pp}^{1)}$ |
| Power 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⁾ |
| Connection type | Male connector M12, 4-pin |
| Circuit protection | A ⁵⁾ B ⁶⁾ D ⁷⁾ |
| Protection class | III ⁸⁾ |
| Weight | 18 g |
| Polarisation filter | ✓ |
| Housing material | Plastic, VISTAL® |
| Optics material | Plastic, PMMA |
| Enclosure rating | IP67 IP69K |
| 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 ⁹⁾ |
| Ambient storage temperature | -40 °C ... $+70$ °C |
| UL File No. | E189383 |

¹⁾ May not exceed or fall below 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⁾ Reference voltage: 50 V DC.

⁹⁾ 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

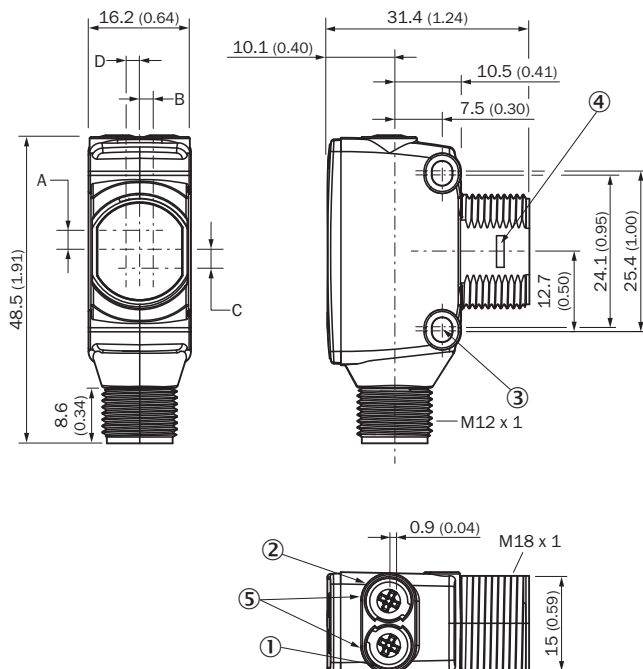
| | |
|-------------------------|-------------|
| MTTF_D | 417.2 years |
| DC_{avg} | 0% |

Classifications

| | |
|-------------------|----------|
| ECI@ss 5.0 | 27270904 |
|-------------------|----------|

| | |
|-----------------------|----------|
| ECl@ss 5.1.4 | 27270904 |
| ECl@ss 6.0 | 27270904 |
| ECl@ss 6.2 | 27270904 |
| ECl@ss 7.0 | 27270904 |
| ECl@ss 8.0 | 27270904 |
| ECl@ss 8.1 | 27270904 |
| ECl@ss 9.0 | 27270904 |
| ETIM 5.0 | EC002719 |
| ETIM 6.0 | EC002719 |
| UNSPSC 16.0901 | 39121528 |

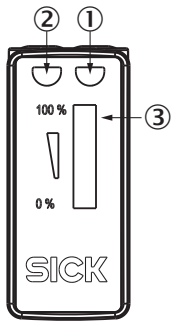
Dimensional drawing (Dimensions in mm (inch))



- 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 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) |

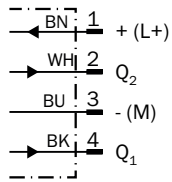
Adjustments possible



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

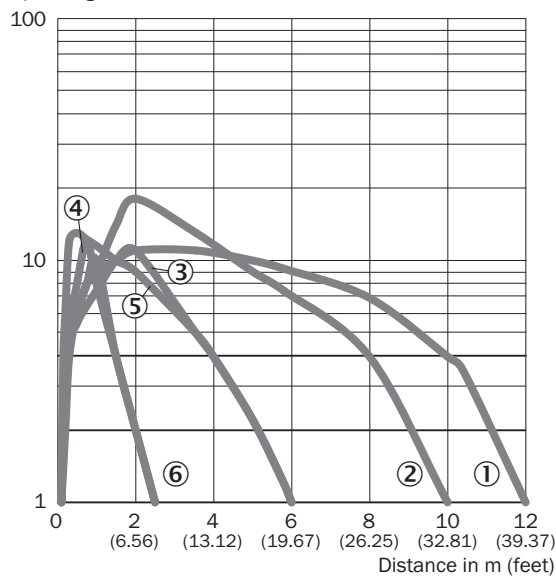
Connection diagram

Cd-243



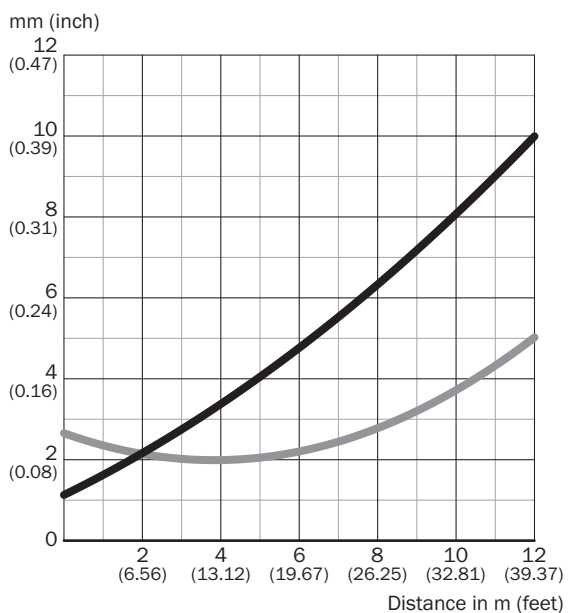
Characteristic curve

Operating reserve



- ① Reflector PL80A
- ② Reflector P250F
- ③ PL10F reflector
- ④ Reflector PL23 FT
- ⑤ Reflective tape REF-AC1000
- ⑥ Reflective tape IREF6000 (REF-IRF-56)

Light spot size

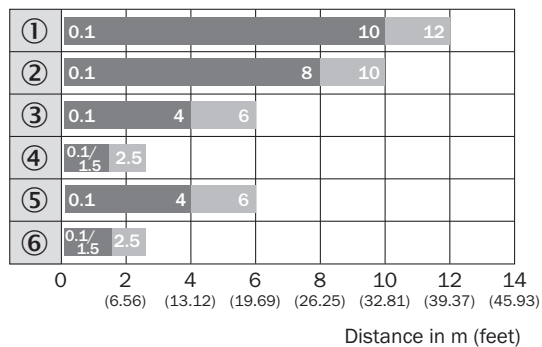


Dimensions in mm (inch)

| Sensing range | Vertical | Horizontal |
|------------------------------|----------------|----------------|
| 0.2 m (0.57 feet) | 1.2 (0.05) | 2.65 (0.10) |
| 0.75 m (2.46 feet) | 1.8 (0.07) | 2.3 (0.09) |
| 5 m (16.40 feet) | 4.0 (0.16) | 2.2 (0.09) |
| 12 m (39.37 feet) | 10.0 (0.39) | 5.0 (0.20) |

— Vertical
— Horizontal

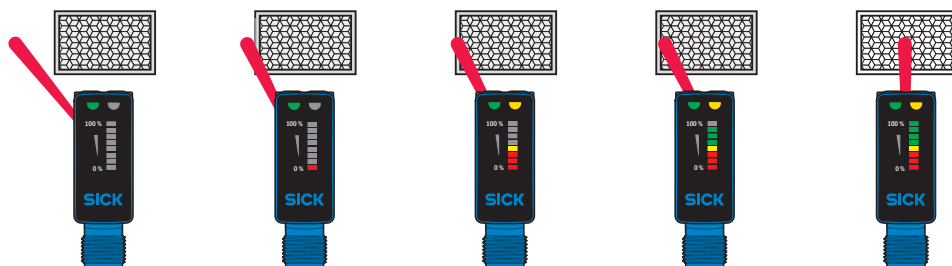
Sensing range diagram



■ Sensing range ■ Sensing range max.







- ① Reflector PL80A
- ② Reflector P250F
- ③ PL10F reflector
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Functions



Recommended accessories

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

| | Brief description | Type | Part no. |
|---|---|--------------------|----------|
| Mounting brackets and plates | | | |
|  | Mounting plate for M18 sensors, steel, zinc coated, without mounting hardware | BEF-WG-M18 | 5321870 |
|  | Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware | BEF-WN-M18 | 5308446 |
| | Bottom M18 mounting bracket SureSense sensors | MB-M18-H18 | 2085820 |
| Other mounting accessories | | | |
| | Spherical bearing M18 | Ball holder | 4057409 |
| | Mounting bracket | MB-BS18MM-M4 | 2049694 |
| Terminal and alignment brackets | | | |
|  | Clamping block for round sensors M18, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included | BEF-KH-M18 | 2051481 |
| Plug connectors and cables | | | |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235 |
|  | Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded | STE-1204-G | 6009932 |
| Reflectors | | | |
|  | Rectangular, screw connection, 80 mm x 80 mm, PMMA/ABS, Screw-on, 2 hole mounting | PL80A | 1003865 |

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