# HSE18-A4B2BA

SureSense

**HYBRID PHOTOELECTRIC SENSORS**

**SICK**
Sensor Intelligence.

# HSE18-A4B2BA | SureSense

HYBRID PHOTOELECTRIC SENSORS

## Ordering information

| Type | Part no. |
|------|----------|
| HSE18-A4B2BA | 1079044 |

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

Illustration may differ

## Detailed technical data

### Features

| | |
|------|------|
| **Device type** | Photoelectric sensors |
| **Sensor/ detection principle** | Through-beam photoelectric sensor |
| **Dimensions (W x H x D)** | 16.2 mm x 45.5 mm x 31.8 mm |
| **Housing design (light emission)** | Hybrid |
| **Thread diameter (housing)** | M18 |
| **Housing color** | Blue |
| **Sensing range max.** | 0 m ... 25 m |
| **Sensing range** | 0 m ... 20 m |
| **Type of light** | Visible red light |
| **Light source** | PinPoint LED [1] |
| **Light spot size (distance)** | 400 mm x 200 mm (10 m) |
| **Wave length** | 631 nm |
| **Adjustment** | |
| Potentiometer, right | None |
| Potentiometer, left | None |
| **Special features** | Signal strength light bar |

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

## Mechanics/electronics

| | |
|---|---|
| **Supply voltage** | 10 V DC … 30 V DC |
| **Ripple** | < 5 $V_{pp}$ [1] |
| **Current consumption** | ≤ 20 mA [2] |
| **Switching output** | PNP<br>NPN |
| **Switching mode** | Dark switching |
| **Switching output detail** | |
| Switching output Q1 | PNP, Dark switching |
| Switching output Q2 | NPN, Dark switching |
| **Output current I$_{max.}$** | ≤ 100 mA |
| **Response time** | ≤ 0.5 ms [3] |
| **Switching frequency** | 1,000 Hz [4] |
| **Connection type** | Cable with M12 male connector, 4-pin, 150 mm |
| **Cable material** | PVC |
| **Conductor cross-section** | 0.2 mm² |
| **Circuit protection** | A [5]<br>B [6]<br>D [7] |
| **Protection class** | III |
| **Weight** | 18 g |
| **Housing material** | Plastic, VISTAL® |
| **Optics material** | Plastic, PMMA |
| **Enclosure rating** | IP67<br>IP69K |
| **Items supplied** | Mounting 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] 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.
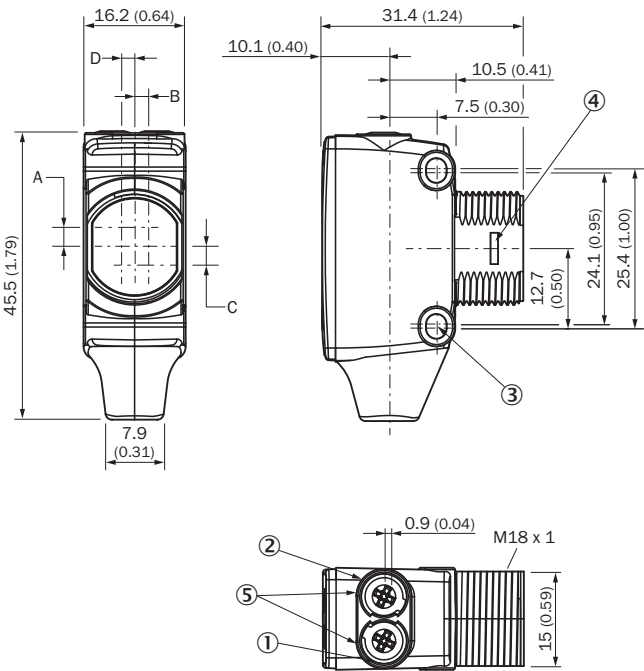
## Classifications

| | |
|---|---|
| **ECl@ss 5.0** | 27270901 |
| **ECl@ss 5.1.4** | 27270901 |
| **ECl@ss 6.0** | 27270901 |
| **ECl@ss 6.2** | 27270901 |
| **ECl@ss 7.0** | 27270901 |

| ECl@ss 8.0 | 27270901 |
|---|---|
| ECl@ss 8.1 | 27270901 |
| ECl@ss 9.0 | 27270901 |
| ECl@ss 10.0 | 27270901 |
| ECl@ss 11.0 | 27270901 |
| ETIM 5.0 | EC002716 |
| ETIM 6.0 | EC002716 |
| ETIM 7.0 | EC002716 |
| ETIM 8.0 | EC002716 |
| UNSPSC 16.0901 | 39121528 |

## Connection/pin assignment

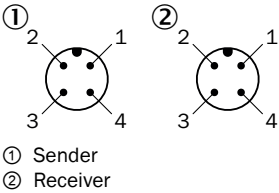| Connection type | Cable with M12 male connector, 4-pin, 150 mm |
|---|---|
| **Connection type Detail** | |
| Cable material | PVC |
| Conductor cross-section | 0.2 mm² |
| **Pin assignment$_{sender}$** | |
| BN 1 | + (L+) |
| WH 2 | Not connected |
| BU 3 | - (M) |
| BK 4 | Test $_{IN}$ |
| **Pin assignment$_{receiver}$** | |
| BN 1 | + (L+) |
| WH 2 | $Q_2$ |
| BU 3 | - (M) |
| BK 4 | $Q_1$ |

## 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

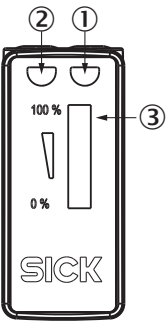| Dimensions in mm (inch) | Receiver | | Sender | |
|---|---|---|---|---|
| | A | B | C | D |
| HTB18 / HTF18 | - 1.1 (0.04) | 1.1 (0.04) | 4.7 (0.19) | 0.6 (0.02) |
| HTE18 / HL18 / HSE18 | 2.5 (0.1) | 0.0 (0.0) | 4.0 (0.16) | 0.0 (0.0) |
| HTB18L / HTF18L / HL18L / HSE18L | 2.5 (0.1) | 0.0 (0.0) | 3.5 (0.14) | 0.0 (0.0) |

## Connection type

See table: **Connection/Pin assignment**
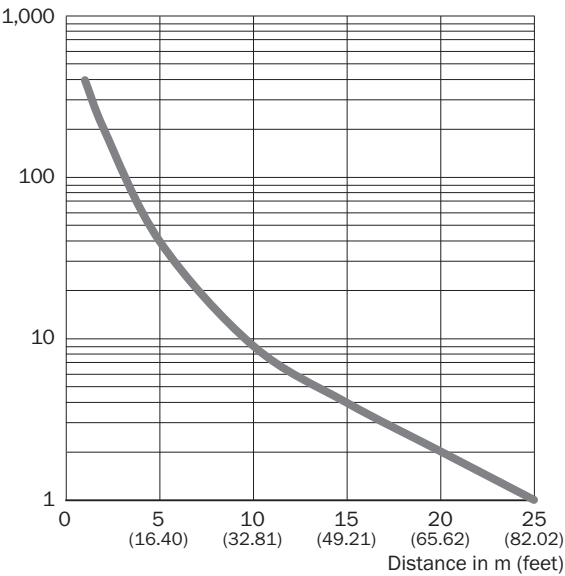
① Sender
② Receiver

## Adjustments possible

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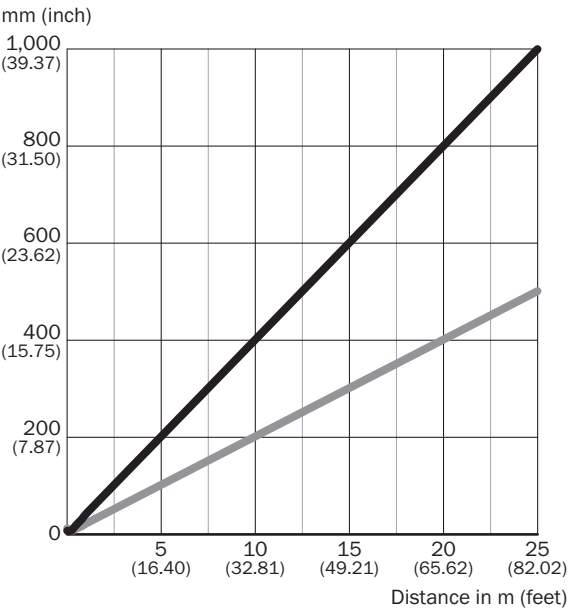③ Signal strength light bar

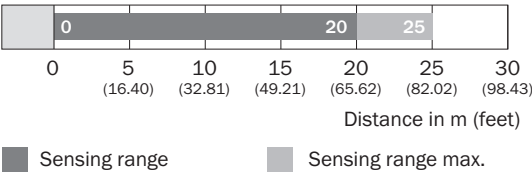## Characteristic curve

Red light

Operating reserve



Distance in m (feet)

## Light spot size

Red light



mm (inch) / Distance in m (feet)

| Dimensions in mm (inch) | | |
|---|---|---|
| **Sensing range** | **Horizontal** | **Vertical** |
| **0.5 m** <br>**(1.64 feet)** | 18 <br>(0.71) | 10 <br>(0.39) |
| **1 m** <br>**(3.28 feet)** | 40 <br>(1.57) | 20 <br>(0.79) |
| **6.5 m** <br>**(21.33 feet)** | 260 <br>(10.24) | 130 <br>(5.12) |
| **25 m** <br>**(82.02 feet)** | 1,000 <br>(39.37) | 500 <br>(19.67) |

━━━ Horizontal
━━━ Vertical

## Sensing range diagram



Distance in m (feet)

■ Sensing range    ■ Sensing range max.

## Functions

## Recommended accessories

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

| | Brief description | Type | Part no. |
|---|---|---|---|
| **Plug connectors and cables** | | | |
| | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235 |
| | Head A: male connector, M12, 4-pin, straight<br>Head B: -<br>Cable: unshielded | STE-1204-G | 6009932 |

## 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**

SICK AG  |  Waldkirch  |  Germany  |  www.sick.com