



## HTB18L-N1E5BB

H18 Sure Sense

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
HTB18L-N1E5BB	1091223

Other models and accessories → [www.sick.com/H18\\_Sure\\_Sense](http://www.sick.com/H18_Sure_Sense)

Illustration may differ



## Detailed technical data

## Features

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Background suppression
<b>Dimensions (W x H x D)</b>	16.2 mm x 45.5 mm x 31.8 mm
<b>Housing design (light emission)</b>	Hybrid
<b>Thread diameter (housing)</b>	M18
<b>Mounting system type</b>	M18, head/side (24.1 ... 25.4 mm)
<b>Housing color</b>	Blue
<b>Sensing range max.</b>	30 mm ... 300 mm <sup>1)</sup>
<b>Sensing range</b>	30 mm ... 250 mm <sup>2)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	Laser <sup>3)</sup> <sup>4)</sup>
<b>Light spot size (distance)</b>	2 mm (120 mm)
<b>Wave length</b>	655 nm
<b>Laser class</b>	1
<b>Adjustment</b>	
Potentiometer, right	Sensing range
Potentiometer, left	None
<b>Special applications</b>	Detecting small objects

<sup>1)</sup> Object with 90% remission (based on standard white, DIN 5033).

<sup>2)</sup> Object with 6 % reflectance (referred to standard black, DIN 5033).

<sup>3)</sup> Average service life: 50,000 h at  $T_U = +25^\circ\text{C}$ .

<sup>4)</sup> CLASS 1 LASER PRODUCT EN60825-1:2014, IEC60825-1:2014, Maximum pulse power < 2,5 mW, Pulse length: 4  $\mu\text{s}$ , 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.

Special features	Signal strength light bar
<p>1) Object with 90% remission (based on standard white, DIN 5033).</p> <p>2) Object with 6 % reflectance (referred to standard black, DIN 5033).</p> <p>3) Average service life: 50,000 h at <math>T_U = +25^\circ\text{C}</math>.</p> <p>4) CLASS 1 LASER PRODUCT EN60825-1:2014, IEC60825-1:2014, Maximum pulse power &lt; 2,5 mW, Pulse length: 4 <math>\mu\text{s}</math>, 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.</p>	
Mechanics/electronics	
<b>Supply voltage</b>	
<b>Ripple</b>	$< 5 \text{ V}_{\text{pp}}^{1)}$
<b>Current consumption</b>	
<b>Switching output</b>	NPN
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Switching output detail</b>	
Switching output Q1	NPN, Light switching
Switching output Q2	NPN, Dark switching
<b>Output current <math>I_{\text{max.}}</math></b>	$\leq 100 \text{ mA}$
<b>Response time</b>	$\leq 0.5 \text{ ms}^{3)}$
<b>Switching frequency</b>	1,000 Hz <sup>4)</sup>
<b>Connection type</b>	Cable open end, 1 m
<b>Cable material</b>	Plastic, PVC
<b>Conductor cross section</b>	0.2 mm <sup>2</sup>
<b>Circuit protection</b>	A <sup>5)</sup> B <sup>6)</sup> D <sup>7)</sup>
<b>Protection class</b>	III
<b>Weight</b>	18 g
<b>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67 IP69K
<b>Items supplied</b>	Fastening nut (1x), M18, plastic, black, flat
<b>Electromagnetic compatibility (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>	$-30^\circ\text{C} \dots +55^\circ\text{C}^{8)}$
<b>Ambient temperature, storage</b>	$-40^\circ\text{C} \dots +70^\circ\text{C}$

1) May not fall below or exceed  $U_U$  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  $T_a = -10^\circ\text{C}$ , sensor must be turned on at  $T_a > -10^\circ\text{C}$ . Sensor cannot be turned on below  $T_a = -10^\circ\text{C}$ .

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- 1) May not fall below or exceed U<sub>v</sub> 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<sub>S</sub> connections reverse-polarity protected.
- 6) B = inputs and output reverse-polarity protected.
- 7) D = outputs overcurrent and short-circuit protected.
- 8) Below T<sub>a</sub> = -10 °C, sensor must be turned on at T<sub>a</sub> > -10 °C. Sensor cannot be turned on below T<sub>a</sub> = -10 °C.

### Connection type/pinouts

<b>Connection type</b>	Cable open end, 1 m	
<b>Connection type Detail</b>		
Conductor cross section	0.2 mm <sup>2</sup>	
Cable material	Plastic	
<b>Pinouts</b>	BN	+(L+)
	WH	Q <sub>2</sub>
	BU	- (M)
	BK	Q <sub>1</sub>

### Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>cULus certificate</b>	✓

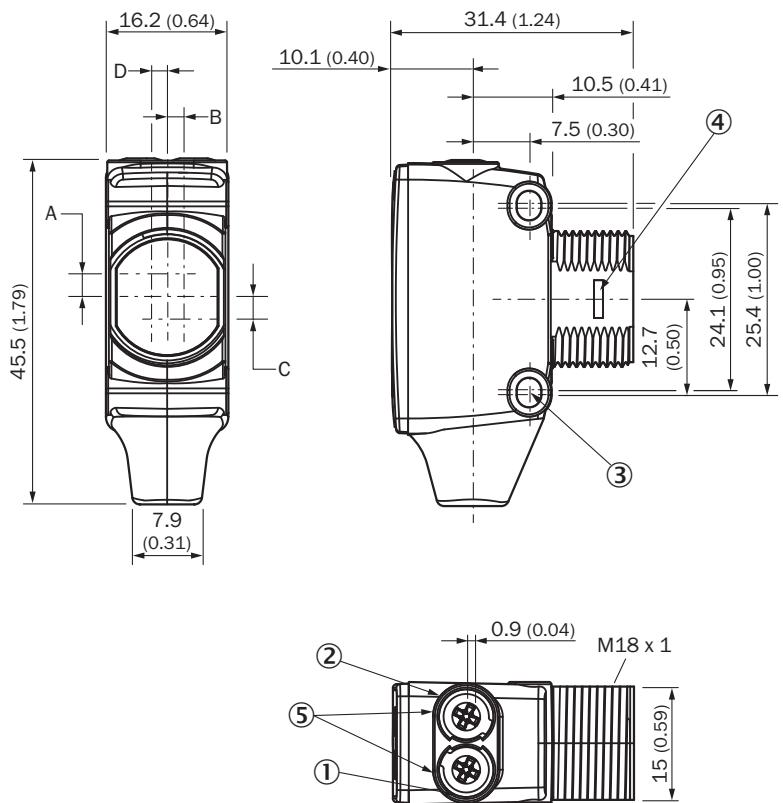
### Classifications

<b>ECLASS 5.0</b>	27270904
<b>ECLASS 5.1.4</b>	27270904
<b>ECLASS 6.0</b>	27270904
<b>ECLASS 6.2</b>	27270904
<b>ECLASS 7.0</b>	27270904
<b>ECLASS 8.0</b>	27270904
<b>ECLASS 8.1</b>	27270904
<b>ECLASS 9.0</b>	27270904
<b>ECLASS 10.0</b>	27270904
<b>ECLASS 11.0</b>	27270904
<b>ECLASS 12.0</b>	27270904
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>ETIM 8.0</b>	EC002719

UNSPSC 16.0901

39121528

## Dimensional drawing

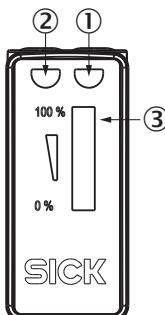


Dimensions in mm (inch)

- 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
<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)
<b>HTB18L / HTF18L / HL18L / HSE18L</b>	2.5 (0.1)	0.0 (0.0)	3.5 (0.14)	0.0 (0.0)

## Adjustments

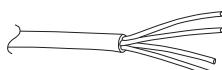


① LED indicator yellow: Status of received light beam

② LED indicator green: power on

③ Signal strength light bar

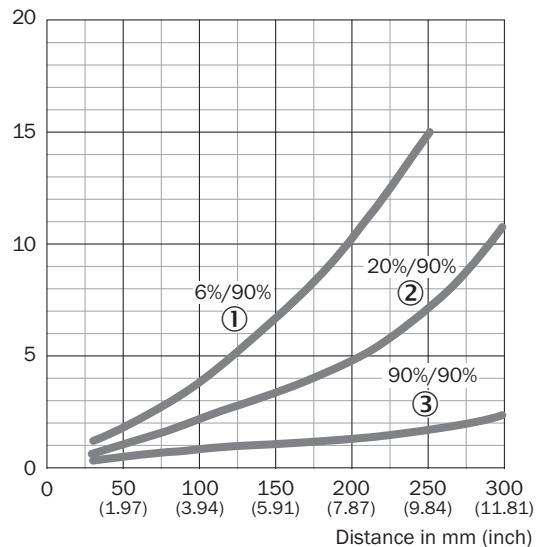
Pinouts, see table Technical data: **Connection type/pinouts**



Cable with flying leads, 4-wire, AWG26 0.15 mm<sup>2</sup>

## Characteristic curve

% of sensing range

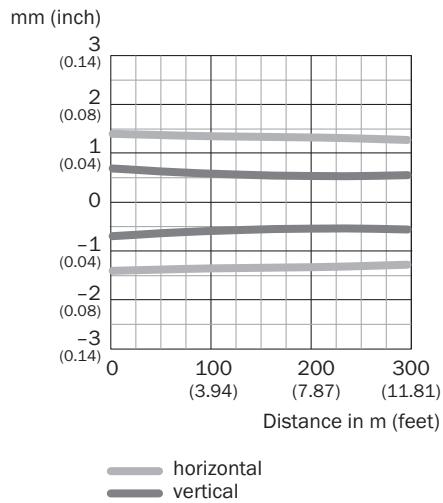


① Sensing range on black, 6% remission factor

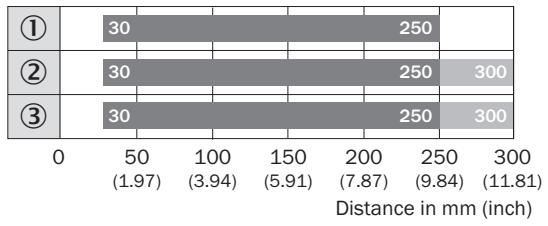
② sensing range to gray, 20% remission factor

③ Sensing range on white, 90% remission factor

## Light spot size



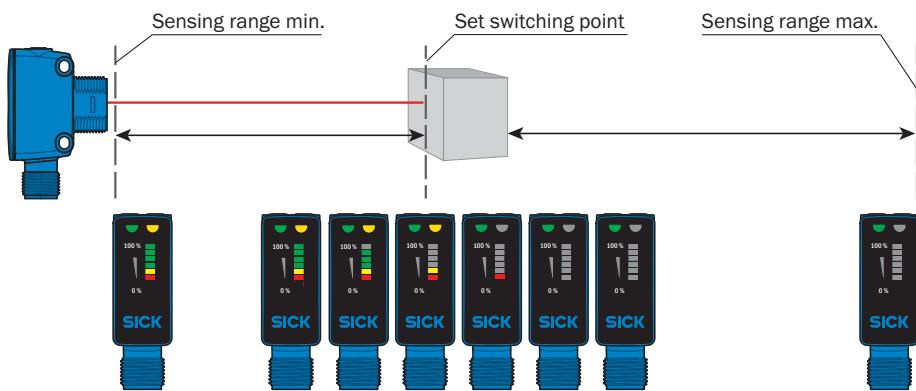
## Sensing range diagram



■ 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



## 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)