



# HTB18L-F4A5BLA00

H18 Sure Sense

HYBRID PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
HTB18L-F4A5BLA00	1100042

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

### 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 48.5 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) 4)</sup>
<b>Light spot size (distance)</b>	2 mm (120 mm)
<b>Wave length</b>	655 nm
<b>Laser class</b>	I
<b>Adjustment</b>	
	Potentiometer, right Teach-in
	Potentiometer, left None

<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<sub>U</sub> = +25 °C.

<sup>4)</sup> 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.

<b>Special applications</b>	Detecting small objects
<b>Special features</b>	Signal strength light bar

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## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>1)</sup>
<b>Current consumption</b>	≤ 20 mA <sup>2)</sup>
<b>Switching output</b>	Push-pull: PNP/NPN
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Switching output detail</b>	
Switching output Q1	Push-pull: PNP/NPN, Light switching <sup>3)</sup>
Switching output Q2	Push-pull: PNP/NPN, Dark switching <sup>3)</sup>
<b>Output current I<sub>max</sub></b>	≤ 100 mA
<b>Response time</b>	≤ 0.5 ms <sup>4)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>5)</sup>
<b>Connection type</b>	Male connector M12, 4-pin
<b>Circuit protection</b>	A <sup>6)</sup> B <sup>7)</sup> D <sup>8)</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 °C ... +55 °C <sup>9)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C

<sup>1)</sup> May not exceed or fall below U<sub>v</sub> tolerances.

<sup>2)</sup> Without signal strength light bar and load.

<sup>3)</sup> Pin 4 and Pin 2: this switching output must not be connected to any other output.

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

<sup>9)</sup> Below Ta = -10 °C, sensor must be turned on at Ta > -10 °C. Sensor cannot be turned on below Ta = -10 °C.

<b>UL File No.</b>	E189383
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- 1) May not exceed or fall below  $U_V$  tolerances.
- 2) Without signal strength light bar and load.
- 3) Pin 4 and Pin 2: this switching output must not be connected to any other output.
- 4) Signal transit time with resistive load.
- 5) With light/dark ratio 1:1.
- 6) A =  $V_S$  connections reverse-polarity protected.
- 7) B = inputs and output reverse-polarity protected.
- 8) D = outputs overcurrent and short-circuit protected.
- 9) Below  $T_a = -10\text{ °C}$ , sensor must be turned on at  $T_a > -10\text{ °C}$ . Sensor cannot be turned on below  $T_a = -10\text{ °C}$ .

### Communication interface

<b>IO-Link</b>	✓, V1.1
Data transmission rate	38,4 kbit/s (COM2)
Cycle time	2.3 ms
Process data length	16 Bit
<b>Process data structure A</b>	Bit 0 = switching signal $Q_{L1}$ Bit 1 = switching signal $Q_{L2}$ Bit 2 ... 15 = empty
<b>Process data structure B</b>	Bit 0 = switching signal $Q_{L1}$ Bit 0 = switching signal $Q_{L1}$ Bit 2 ... 6 = empty Bit 7 = measuring value Bit 8 ... 14 = empty Bit 15 = measuring value

### Diagnosis

<b>Device status</b>	Yes
<b>Quality of teach</b>	Yes

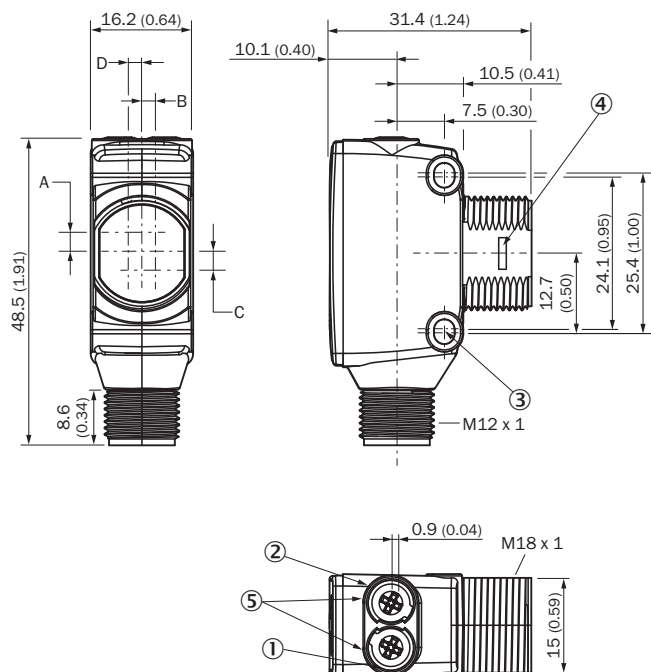
### Classifications

<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
<b>UNSPSC 16.0901</b>	39121528

### Connection/Pin assignment

<b>Connection type</b>	Male connector M12, 4-pin
<b>Pin assignment</b>	
BN 1	+ (L+)
WH 2	Q <sub>2</sub>
BU 3	- (M)
BK 4	Q <sub>1</sub> /C

### Dimensional drawing (Dimensions in mm (inch))

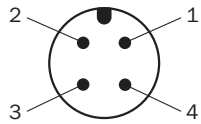


- ① LED indicator yellow: Status of received light beam
- ② LED indicator green: power on
- ③ M3 mounting hole
- ④ Snap Connection for flush ring (sold separately)
- ⑤ Potentiometer (if selected) or LED Indicators

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)

### Connection type

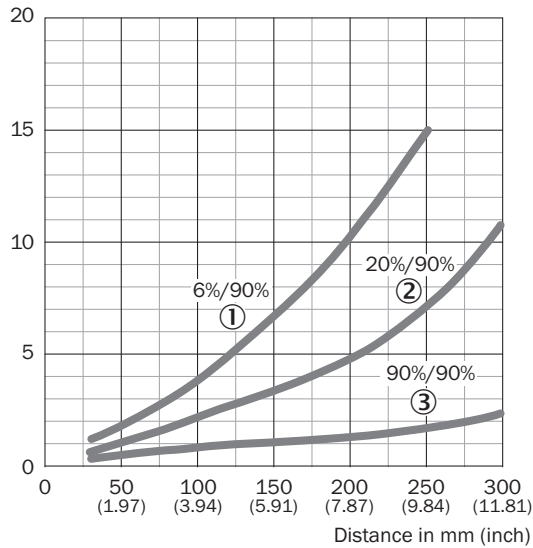
Connection type. see table: Connection/PIN assignment



M12 male connector, 4-pin, A-coding

### Characteristic curve

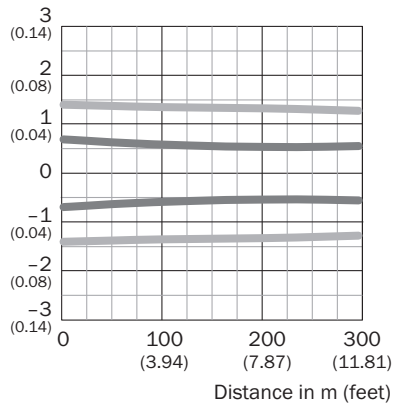
% of sensing range



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

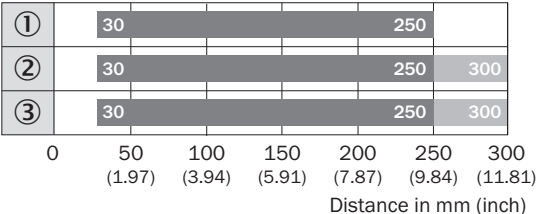
### Light spot size

mm (inch)



— horizontal  
— vertical

Sensing range diagram



- Sensing range      ■ Sensing range max.
- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 20 % remission
- ③ Sensing range on white, 90% remission factor

## 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:

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