



# HL18G-P1G3AL

H18 Sure Sense

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
HL18G-P1G3AL	1071038

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

Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor	
Functional principle detail	With minimum distance to reflector (dual lens system)	
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	
Mounting system type	M18, head/side (24.1 ... 25.4 mm)	
Housing color	Blue	
Sensing range max.	0.1 m ... 3 m <sup>1)</sup>	
Sensing range	0.1 m ... 2.5 m <sup>1)</sup>	
Type of light	Visible red light	
Light source	PinPoint LED <sup>2)</sup>	
Light spot size (distance)	60 mm x 120 mm (3 m)	
Wave length	631 nm	
Adjustment	Potentiometer, right	Teach-in
	Potentiometer, left	None
AutoAdapt	✓	
Special applications	Detecting transparent objects	
Special features	AutoAdapt	

<sup>1)</sup> Reflector PL80A.

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Ripple</b>	$< 5 V_{pp}$ <sup>1)</sup>
<b>Current consumption</b>	$\leq 20 \text{ mA}$ <sup>2)</sup>
<b>Switching output</b>	PNP
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Switching output detail</b>	
Switching output Q1	PNP, Light switching
Switching output Q2	PNP, Dark switching
<b>Output current <math>I_{\max.}</math></b>	$\leq 100 \text{ mA}$
<b>Response time</b>	$\leq 0.5 \text{ ms}$ <sup>3)</sup>
<b>Switching frequency</b>	$1,000 \text{ Hz}$ <sup>4)</sup>
<b>Connection type</b>	Cable open end, 2,000 mm
<b>Cable material</b>	Plastic, PVC
<b>Conductor cross section</b>	$0.2 \text{ mm}^2$
<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>Polarizing filter</b>	✓
<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>	$-40 \text{ }^{\circ}\text{C} \dots +70 \text{ }^{\circ}\text{C}$
<b>Ambient temperature, storage</b>	$-40 \text{ }^{\circ}\text{C} \dots +75 \text{ }^{\circ}\text{C}$
<b>UL File No.</b>	E189383

<sup>1)</sup> May not fall below or exceed  $U_y$  tolerances.

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

<sup>3)</sup> Signal transit time with resistive load.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>6)</sup> B = inputs and output reverse-polarity protected.

<sup>7)</sup> D = outputs overcurrent and short-circuit protected.

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	936.1 years
<b>DC<sub>avg</sub></b>	0 %

Connection type/pinouts

<b>Connection type</b>		
		Cable open end, 2,000 mm
<b>Connection type Detail</b>		
	Cable material	Plastic
	Conductor cross section	0.2 mm <sup>2</sup>
<b>Pinouts</b>		
	BN	+ (L+)
	WH	Q <sub>2</sub>
	BU	- (M)
	BK	Q <sub>1</sub>

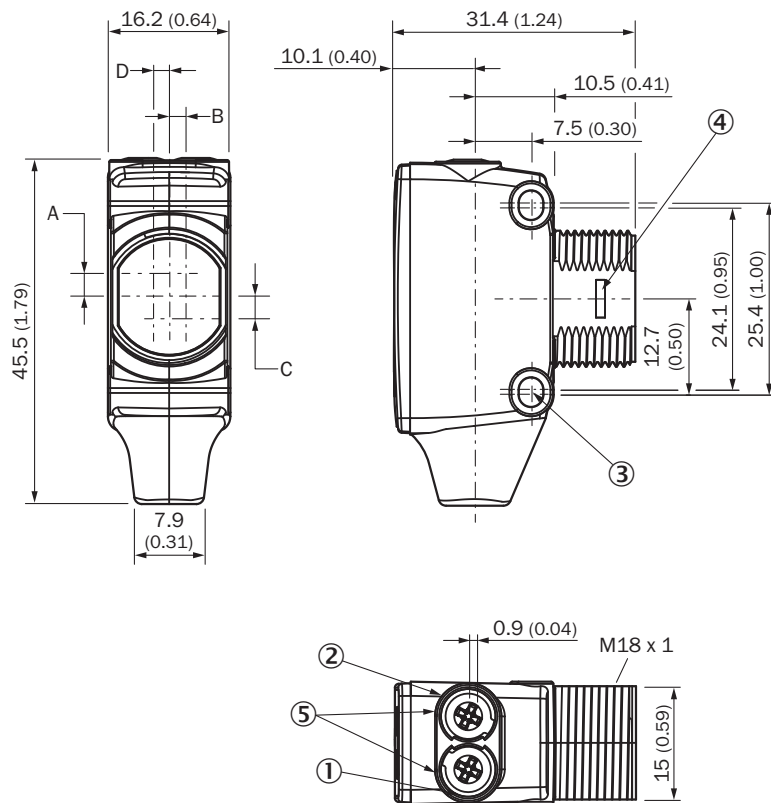
Classifications

<b>ECLASS 5.0</b>	27270902
<b>ECLASS 5.1.4</b>	27270902
<b>ECLASS 6.0</b>	27270902
<b>ECLASS 6.2</b>	27270902
<b>ECLASS 7.0</b>	27270902
<b>ECLASS 8.0</b>	27270902
<b>ECLASS 8.1</b>	27270902
<b>ECLASS 9.0</b>	27270902
<b>ECLASS 10.0</b>	27270902
<b>ECLASS 11.0</b>	27270902
<b>ECLASS 12.0</b>	27270902
<b>ETIM 5.0</b>	EC002717
<b>ETIM 6.0</b>	EC002717
<b>ETIM 7.0</b>	EC002717
<b>ETIM 8.0</b>	EC002717
<b>UNSPSC 16.0901</b>	39121528

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>	✓

## Dimensional drawing

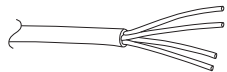


Dimensions in mm (inch)

- 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

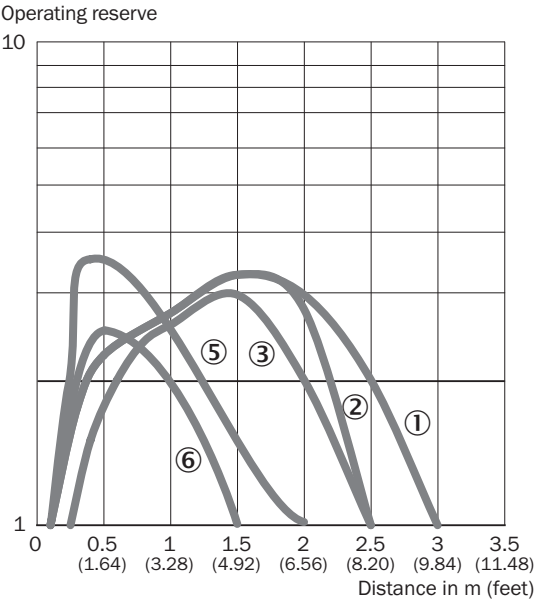
Dimensions in mm (inch)	Receiver		Sender	
-	A	B	C	D
HTB18 / HTF18	- 1.1 (0.04)	1.1 (0.04)	4.7 (0.19)	0.6 (0.02)
HTE18 / HL18 / HSE18	2.5 (0.1)	0.0 (0.0)	4.0 (0.16)	0.0 (0.0)
HTB18L / HTF18L / HL18L / HSE18L	2.5 (0.1)	0.0 (0.0)	3.5 (0.14)	0.0 (0.0)

Pinouts, see table Technical data: Connection type/pinouts



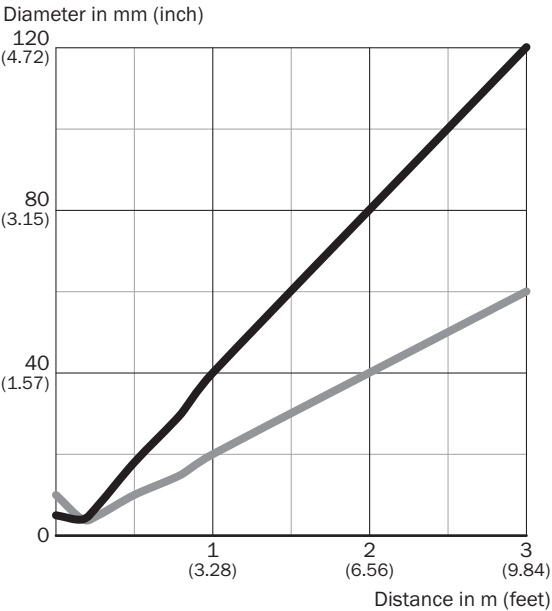
Cable with flying leads, 4-wire, AWG 26, 0.15 mm<sup>2</sup>

Characteristic curve



- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflector P250F
- ⑤ Reflective tape REF-AC1000
- ⑥ Reflector PL41F

Light spot size

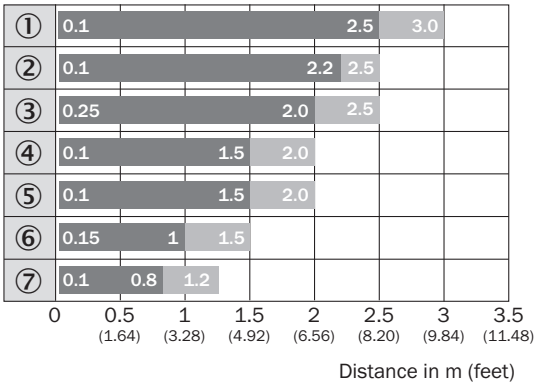


Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
0.5 m (1.64 feet)	18 (0.71)	10 (0.39)
0.8 m (2.62 feet)	30 (1.18)	15 (0.59)
1 m (3.28 feet)	40 (1.57)	20 (0.79)
3 m (9.84 feet)	120 (4.72)	60 (2.36)

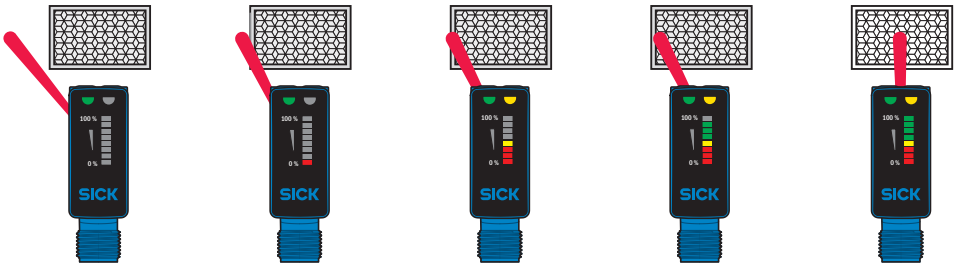
— Vertical  
— Horizontal

Sensing range diagram




- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflector P250F
- ④ Reflector PL30A, PL31A
- ⑤ Reflective tape REF-AC1000
- ⑥ Reflector PL41F
- ⑦ Reflector PL20A


Functions



Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Mounting bracket for M18 sensors</li><li>• <b>Material:</b> Steel</li><li>• <b>Details:</b> Steel, zinc coated</li><li>• <b>Items supplied:</b> Without mounting hardware</li><li>• <b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li></ul>	BEF-WN-M18	5308446

	Brief description	Type	part no.
reflectors and optics			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Reflector with microprismatic reflex tape REF-AC1000, suitable for laser sensors, see alignment note</li><li>• <b>Dimensions:</b> 29 mm 45 mm</li><li>• <b>Ambient operating temperature:</b> -30 °C ... +60 °C</li></ul>	P41F	5315128



## 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)