



PICS120-AX1100

picoScan100

2D LIDAR SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
PICS120-AX1100	1141751

Other models and accessories → www.sick.com/picoScan100



Detailed technical data

Features

Application	Indoor
Variant	Standard (not pre-configured)
Measurement principle	HDDM ⁺
Light source	Infrared (905 nm)
Laser class	1 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)
Aperture angle	
Horizontal	276 °
Scanning frequency	20 Hz
Angular resolution	
Horizontal	0.1 °
Scan field flatness	Typ. ± 1 °
Working range	0.05 m ... 30 m ¹⁾
Blind zone	0 m ... 0.05 m
Scanning range	
At 90% remission and 10 klx	30 m
At 10% remission and 10 klx	18 m
Spot size	Divergence, typ.: 4.8 mrad On the optics cover: 8 mm
Amount of evaluated echoes	1

¹⁾ For details, see the working range diagram in the technical drawings section.

Mechanics/electronics

Connection type	1 x "Ethernet" connection, 4-pin M12 female connector (0.25 m), D-coded 1 x "POWER" connection, 5-pin M12 male connector (0.35 m), A-coded
Supply voltage	9 V DC ... 30 V DC
Power consumption	Typ. 4.5 W, Max. 10.5 W with loaded digital outputs
Output current	≤ 200 mA
Housing material	Aluminum
Housing color	Anthracite gray (RAL 7016)
Optical hood	Polycarbonate, scratch-resistant coating
Enclosure rating	IP65 (IEC 60529:1989+AMD1:1999+AMD2:2013)

Protection class	III (IEC 61140:2016-11)
Electrical safety	IEC 61010-1:2010-06+AMD1:2016
Weight	220 g, without connecting cable 250 g, with connecting cable
Dimensions (L x W x H)	60 mm x 60 mm x 82 mm (without connecting cable)
Ventilation element	Yes
MTBF	> 100 years

Safety-related parameters

MTTF_D	> 100 years, at 25 °C ambient temperature (EN ISO 13849-1:2015)
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Functions

Digital add-ons	LMDscandata (data format) Reflector detection
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Performance

Data output per scan segment	Segment size 30°
Scan/frame rate	55,201 measurement point/s
Latency of the measurement data output	Segment size 30°: ≤ 10 ms (3 σ)
Detectable object shape	Almost any
Systematic error	Typ. ± 20 mm ¹⁾ Max. ± 30 mm
Statistical error	≤ 5 mm (0.05 m ... 5 m) ²⁾
Integrated application	Output of measurement data

¹⁾ Typical value; actual value depends on environmental conditions.

²⁾ 1 σ.

Interfaces

Ethernet	✓ , UDP/IP Singlecast (Compact, MSGPACK), UDP/IP Multicast (Compact, MSGPACK), TCP/IP (LMDscandata)
Function	Measurement data output (distance, RSSI, time stamp, reflector mark), DHCP, NTP
Data transmission rate	10 Mbit/s ... 100 Mbit/s, half/full-duplex
Digital inputs/outputs	1 (Device Not Ready)
Optical indicators	2 LEDs
Configuration software	SOPASair (web browser) SOPAS ET (software) REST API
Driver	ROS1, ROS2, C++, Python

Ambient data

Object remission	1.8 % ... > 1,000 % (Reflector)
Electromagnetic compatibility (EMC)	
Emitted radiation	Industrial environment (IEC 61000-6-4:2018 / EN IEC 61000-6-4:2019 / IEC 61000-6-4:2006+A1:2010 / EN 61000-6-4:2007+A1:2011)

¹⁾ IEC 60068-2-6:2007.

²⁾ IEC 60068-2-64:2008.

³⁾ IEC 60068-2-27:2008.

⁴⁾ EN 60068-2-14:2009.

Emitted radiation	Business and commercial areas as well as small enterprises (IEC 61000-6-8:2020 / EN IEC 61000-6-8:2020)
Electromagnetic immunity	Industrial environment (IEC 61000-6-2:2016 / EN IEC 61000-6-2:2019 / IEC 61000-6-2:2005 / EN 61000-6-2:2005 / EN 61000-6-2:2005/AC:2005)
Emitted radiation	Residential area (EN 61000-6-3:2007+AMD:A1:2011)
Vibration resistance	
Sine resonance scan	10 Hz ... 1,000 Hz, 1 g ¹⁾
Sine test	10 Hz ... 500 Hz, 10 g, 10 frequency cycles ¹⁾
Noise test	10 Hz ... 500 Hz, 13.5 g RMS, 5 h ²⁾
	No measurement data availability
Shock resistance	
	100 g, 6 ms, ± 3 single shocks/axis ³⁾
	40 g, 6 ms, ± 4,000 continuous shocks/axis ³⁾
	50 g, 3 ms, ± 5,000 continuous shocks/axis ³⁾
	No measurement data availability
Ambient operating temperature	-10 °C ... +50 °C
Storage temperature	-30 °C ... +70 °C
Temperature change	-10 °C ... +50 °C, 10 cycles ⁴⁾
Damp heat	
Cyclical	+ 25 °C ... + 55 °C, 95 % RH, non-condensing (operation/storage/transport) (EN 60068-2-30)
Permissible relative humidity	
Operation	< 80 %, Non-condensing (EN 60068-2-30:2005)
Storage	≤ 90 %, Non-condensing (EN 60068-2-30:2005)
Ambient light immunity	80 klx, indirect
Altitude (above sea level)	< 5,000 m

¹⁾ IEC 60068-2-6:2007.

²⁾ IEC 60068-2-64:2008.

³⁾ IEC 60068-2-27:2008.

⁴⁾ EN 60068-2-14:2009.

General notes

Note on use	The sensor does not constitute a safety component as defined by relevant legislation on machine safety.
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Certificates

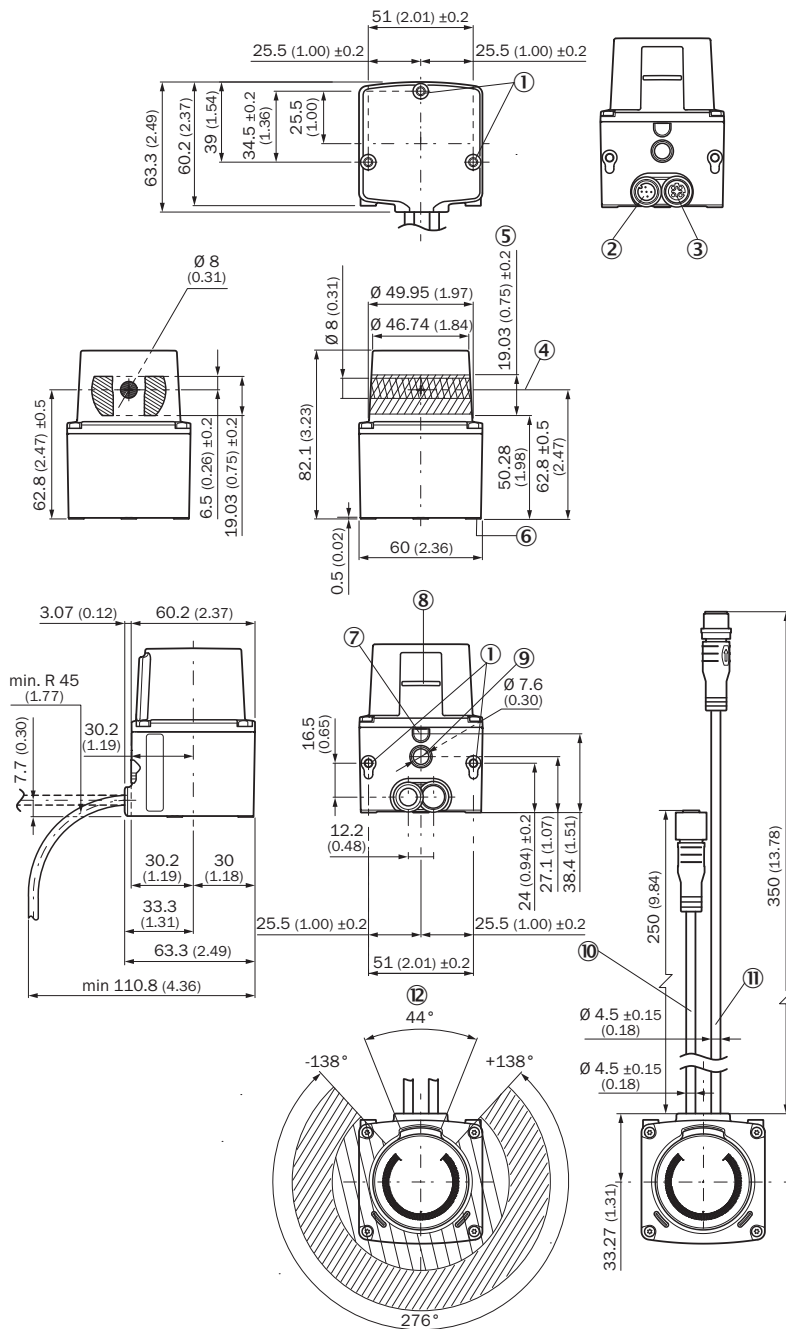
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China-RoHS	✓
cTUVus certificate	✓

Classifications

ECLASS 5.0	27270990
ECLASS 5.1.4	27270990
ECLASS 6.0	27270913
ECLASS 6.2	27270913
ECLASS 7.0	27270913

ECLASS 8.0	27270913
ECLASS 8.1	27270913
ECLASS 9.0	27270913
ECLASS 10.0	27270913
ECLASS 11.0	27270913
ECLASS 12.0	27270913
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550
UNSPSC 16.0901	41111615

Dimensional drawing

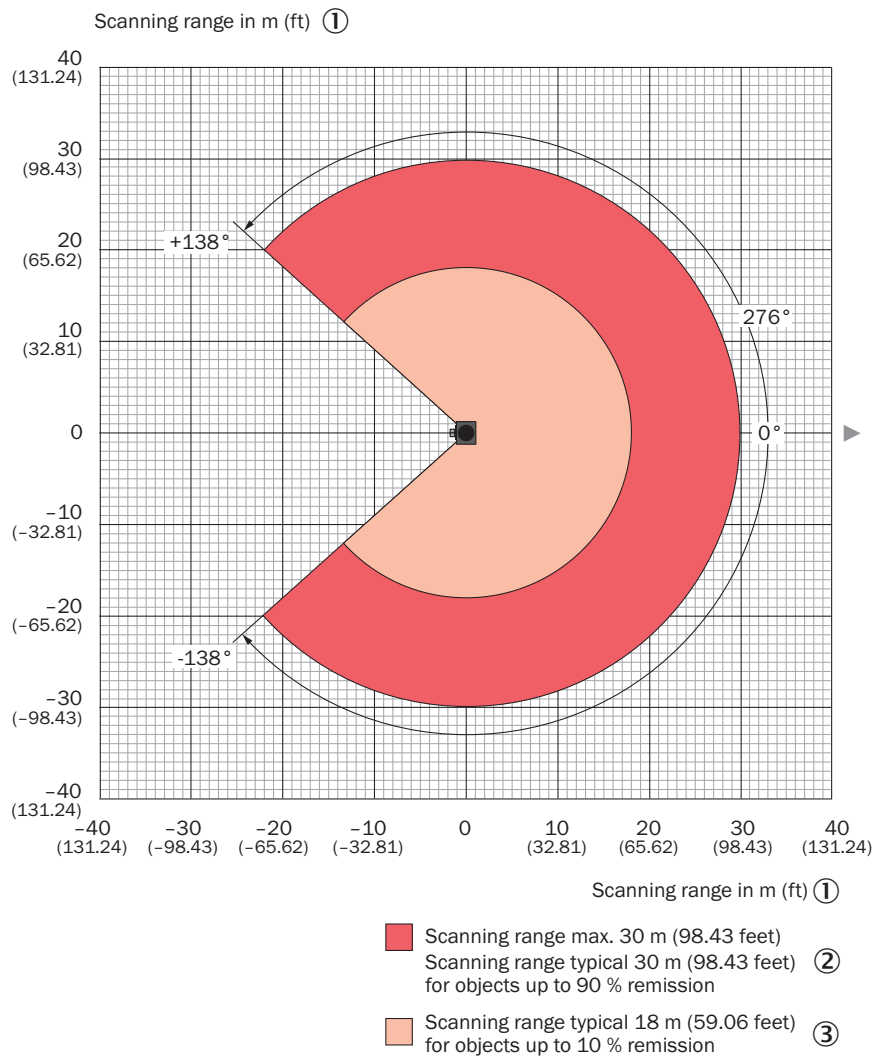


Dimensions in mm (inch)

- ① M4 threaded mounting hole; 4.2 mm deep; tightening torque 2.5 nm
- ② M12 plug for voltage supply
- ③ M12 socket for Ethernet
- ④ Transmission axis
- ⑤ receiving area
- ⑥ Reference area for scan field flatness
- ⑦ M4 threaded mounting hole; 5.4 mm deep, tightening torque 2.5 nm
- ⑧ Support point
- ⑨ Marking for the position of the light emission level
- ⑩ ventilation element
- ⑪ Min. bend radius 34 (static) / 68 (dynamic)
- ⑫ Min. bend radius 45 (static) / 68 (dynamic)

⑬ Area in which no reflective surfaces are allowed for mounted devices

Working range diagram



① Scanning range in m

② Max. scanning range: 30 m

③ Scanning range typically 18 m for objects with 10% remission

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.”

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