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DATA SHEET

PICS120-AX1100

picoScan100
2D LiDAR sensors

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Sensor Intelligence



2D LIDAR SENSORS

PICS120-AX1100

ORDERING INFORMATION

Type	part no.
PICS120-AX1100	1141751

Further device versions and accessories at www.sick.com/picoScan100



DETAILED TECHNICAL DATA

FEATURES

Application	Indoor
Technology	2D LIDAR
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 [†]
Blind zone	0 m ... 0.05 m
Scanning range	At 90% remission factor and 10 klx 30 m At 10% remission factor and 10 klx 18 m
Spot size	Divergence, typ.: 4.8 mrad On the optics cover: 8 mm
Amount of evaluated echoes	1
MTTF ₀	> 100 years, at 25 °C ambient temperature (EN ISO 13849-1:2015)

[†] 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
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

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 (3σ)
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 (LMD-scandata)
Function	Measurement data output (distance, RSSI, time stamp, reflector mark), DHCP, NTP
Data transmission rate	10 Mbit/s ... 100 Mbit/s, half/full-duplex
Optical indicators	2 LEDs
Configuration software	SOPASair (web browser) SOPAS ET (software) REST API
Driver	ROS1, ROS2, C++, Python

AMBIENT DATA

Remission factor	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)
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)
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.

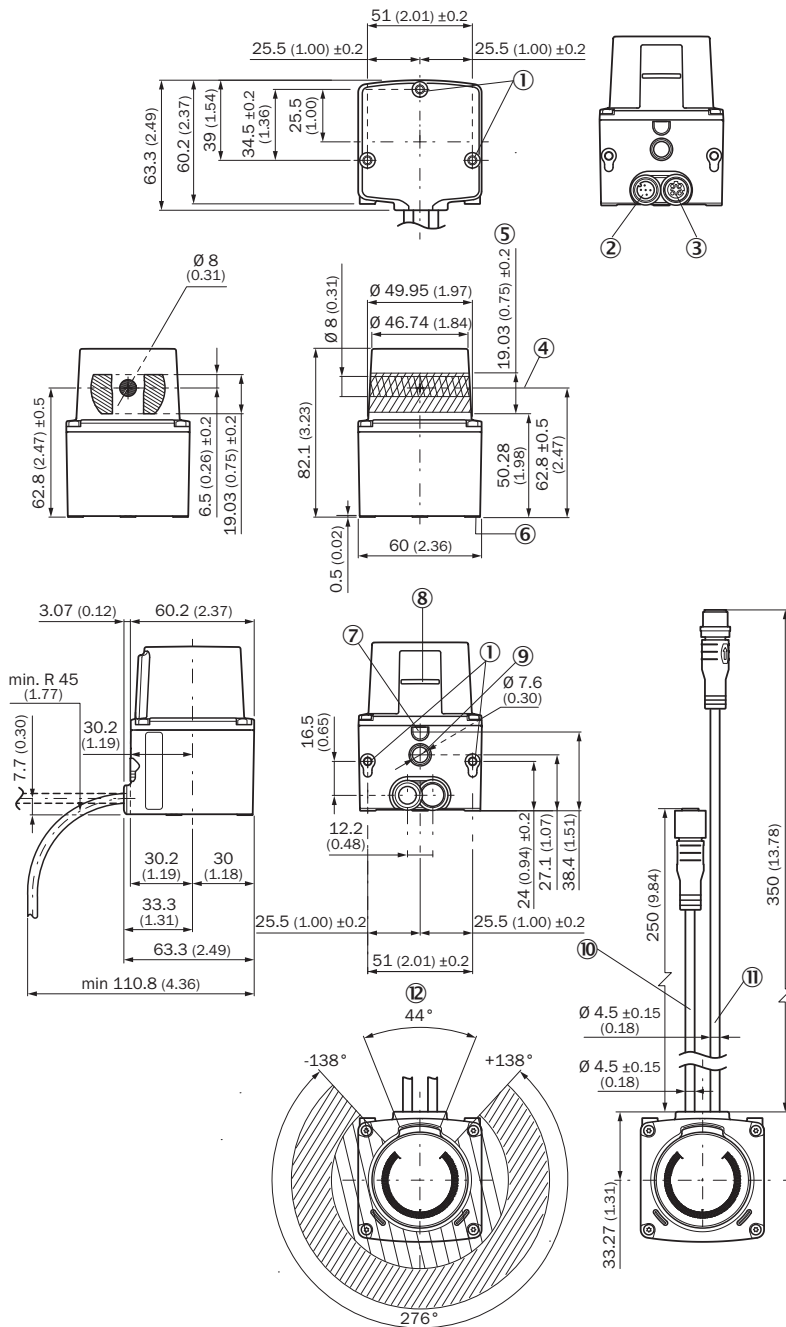
GENERAL NOTES

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	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

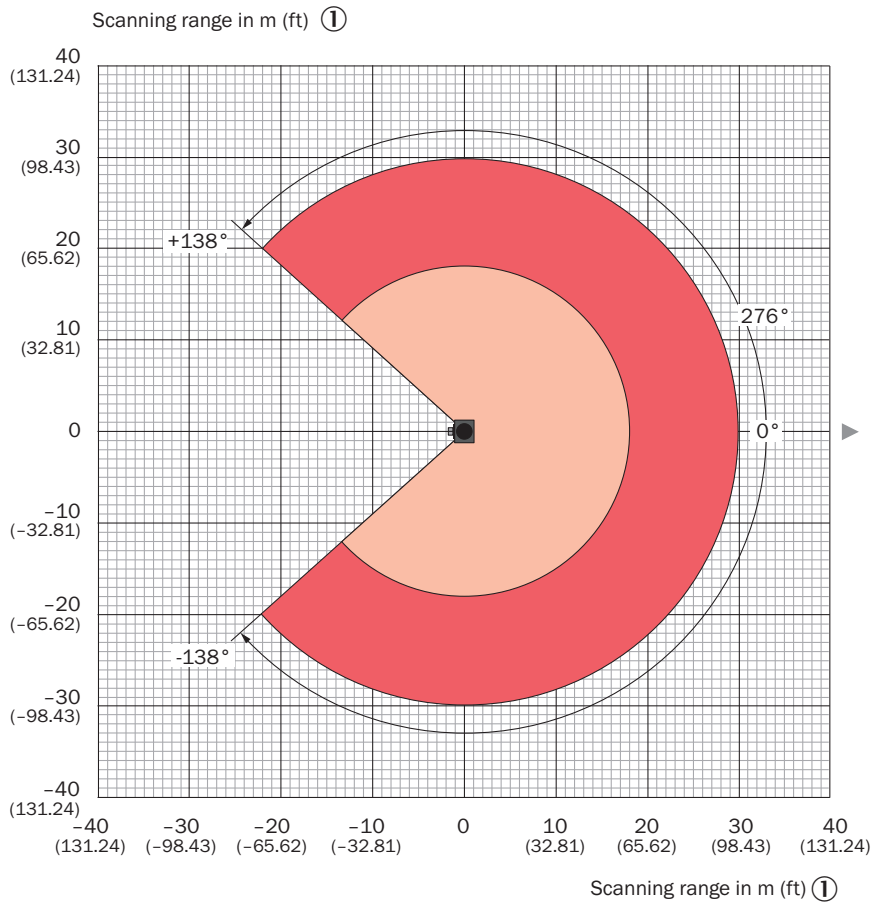
DIMENSIONAL DRAWING



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



- Scanning range max. 30 m (98.43 feet)
 Scanning range typical 30 m (98.43 feet) for objects up to 90 % remission ②
- Scanning range typical 18 m (59.06 feet) for objects up to 10 % remission ③

- ① Scanning range in m
- ② Max. scanning range: 30 m
- ③ Scanning range typically 18 m for objects with 10% remission factor

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1141751



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SICK AT A GLANCE

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SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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