Product data sheet

MULS1AA-112211

multiScan100

3D LIDAR SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	Part no.
MULS1AA-112211	1131164

Other models and accessories ➜ www.sick.com/multiScan100

Detailed technical data

Features

Variant	Standard (not pre-configured)
Measurement principle	Statistical measurement procedure
Application	Indoor, Outdoor
Light source	Infrared (850 nm)
Laser class	1 (IEC 60825-1:2014, EN 60825-1:2014)
Aperture angle	
Horizontal	360°
Vertical	65° (22.5° ... -42.5°, DIN ISO 8855)
Scanning frequency	20 Hz
Angular resolution	0.125°, 2 high-resolution scan layers 1°, 14 scan layers
Working range	0.05 m ... 60 m
Scanning range	
At 10% remission factor	10 m, At 100 kLux
At 10% remission factor	12 m, At 10 kLux
At 90% remission factor	15 m, At 100 kLux
At 90% remission factor	30 m, At 10 kLux
Spot size	5.3 mrad (0,3 °) 7.5 mrad (0,3 ° + 0,125 °) [1]
Amount of evaluated echoes	3

[1] In the scan direction.

Mechanics/electronics

Connection type	2 x M12 round connector
Supply voltage	9 V DC ... 30 V DC
Power consumption	22 W, typ. 10 W, Power-up max. 35 W for 5 s

Housing	AlSi12, Optics cover: polycarbonate
Housing color	Anthracite gray (RAL 7016)
Enclosure rating	IP65 (IEC 60529:1989+AMD1:1999+AMD2:2013) IP67 (IEC 60529:1989+AMD1:1999+AMD2:2013) IP69 (IEC 60529:1989+AMD1:1999+AMD2:2013) IPX9K (ISO 20653)
Protection class	III (IEC 61140:2016-11)
Electrical safety	IEC 61010-1:2010-06
Weight	0.7 kg
Dimensions (L x W x H)	100.3 mm x 100.3 mm x 98.5 mm
MTBF	50 years

Safety-related parameters

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

Performance

Scan/frame rate	216,000 measurement point/s ... 648,000 measurement point/s
Response time	≤ 50 ms
Systematic error	± 50 mm
Statistical error	≤ 20 mm
Integrated application	Measurement data output (Streaming)
Digital add-ons	Data Reduction & Data Preparation package, Reliability package, Multi-echo technology, Reflector detection, Interlaced mode

Software functions

Data Reduction & Data Preparation package	Included (Moving average filter, Interval filter, Scan range filter, Scan layer filter, Rectangular filter, Distance filter)
Reliability package	Included (Fog filter, Particle filter, Contamination indication)
Multi-echo technology	Included
Reflector detection	Included
Interlaced mode	Included
Measurement data output (Streaming)	Included

Interfaces

Ethernet	✓, TCP/IP, UDP/IP
Function	Data interface (read result output), NTP, Measured data output (distance, RSSI)
Data transmission rate	100 Mbit/s
Digital inputs/outputs	I/O (8 (Multiport)), Depending on the mounted system plug
Optical indicators	4 LEDs
Configuration software	SOPAS Air (browser based) SOPAS ET

Ambient data

Object remission	2 % ... > 1,000 % (Reflector)
Electromagnetic compatibility (EMC)	EN 61000-6-2:2005, EN 61000-6-3:2007+A1:2011

[1] IEC 60068-2-6:2007.
[2] IEC 60068-2-64:2008.
[3] IEC 60068-2-27:2008.

Vibration resistance	
Sine resonance scan	10 Hz ... 1,000 Hz [1]
Sine test	10 Hz ... 500 Hz, 5 g, 10 frequency cycles [1]
Noise test	10 Hz ... 250 Hz, 4.24 g RMS, 5 h [2]
Shock resistance	50 g, 11 ms, ± 3 single shocks/axis [3] 25 g, 6 ms, ± 1,000 continuous shocks/axis [3] 50 g, 3 ms, ± 5,000 continuous shocks/axis [3]
Ambient operating temperature	–30 °C ... +50 °C
Storage temperature	–40 °C ... +75 °C
Permissible relative humidity	≤ 90 % RH, Non-condensing
Ambient light immunity	100 klx

[1] IEC 60068-2-6:2007.
[2] IEC 60068-2-64:2008.
[3] IEC 60068-2-27:2008.

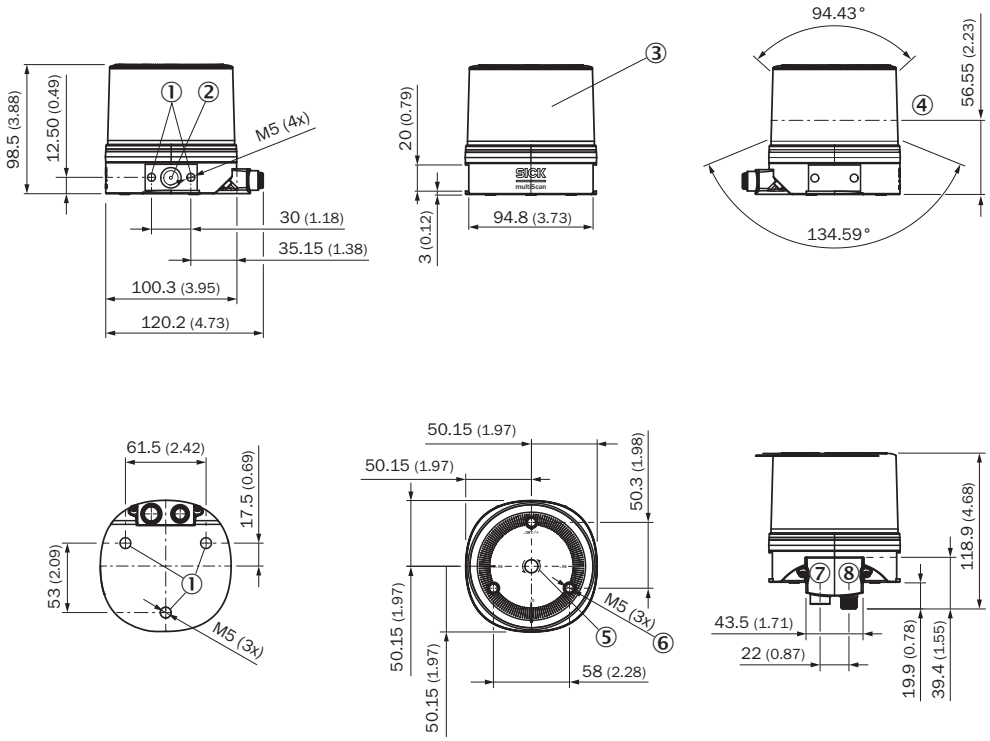
General notes

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

Classifications

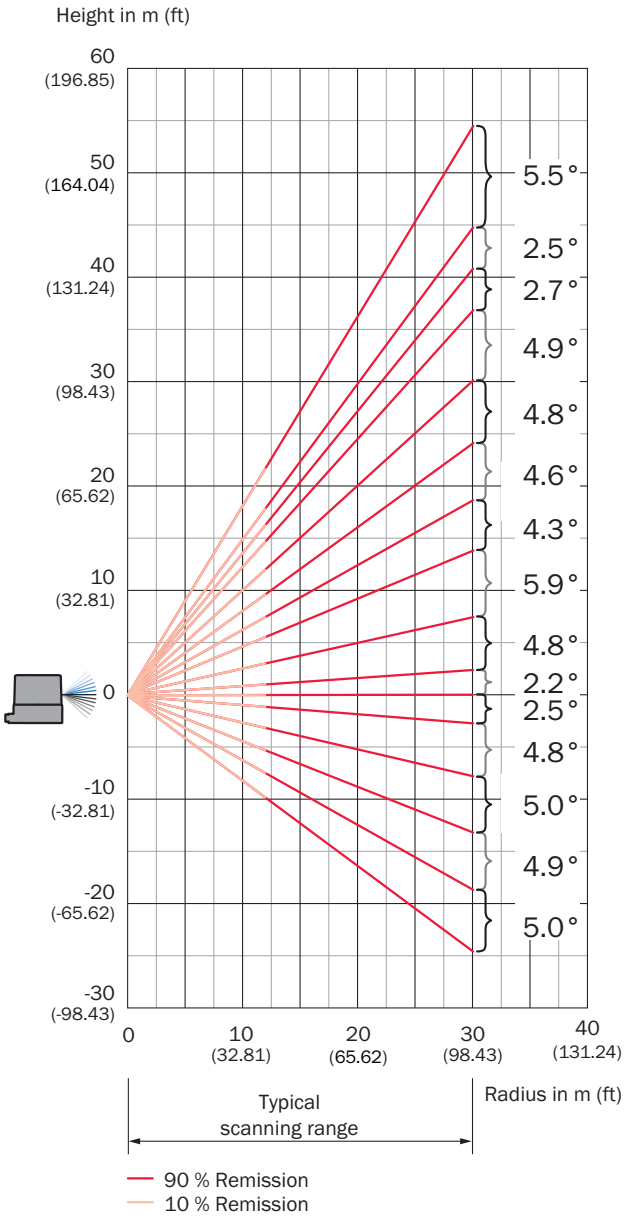
ECLASS 5.0	27270990
ECLASS 5.1.4	27270990
ECLASS 6.0	27270913
ECLASS 6.2	27270913
ECLASS 7.0	27270913
ECLASS 8.0	27270913
ECLASS 8.1	27270913
ECLASS 9.0	27270913
ECLASS 10.0	27270913
ECLASS 11.0	27270913
ECLASS 12.0	27270913
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550
UNSPSC 16.0901	41111615

Dimensional drawing (Dimensions in mm (inch))



① Fixing hole M5 x 7.5 (device)
② Ventilation element
③ Optical hood
④ Visual zero position with maximum viewing range
⑤ Direction of rotation
⑥ Fixing hole M5 x 7.5 (accessories)
⑦ Supply voltage connection
⑧ Ethernet connection

Working range diagram



Recommended accessories

Other models and accessories ➜ www.sick.com/multiScan100

	Brief description	Type	Part no.
Plug connectors and cables			
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 5-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with oils and lubricants, Drag chain operation, Robot	YF2A15-020UB5XLEAX	2095617
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 3 m, 5-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, shielded • **Application:** Zones with oils and lubricants, Drag chain operation, Robot	YF2A25-030UB6XLEAX	2095834
	• **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded • **Connection type head B:** Male connector, RJ45, 4-pin, straight • **Signal type:** Ethernet, PROFINET • **Cable:** 2 m, 4-wire, PUR, halogen-free • **Description:** Ethernet, PROFINET, shielded • **Application:** Drag chain operation, Zones with oils and lubricants	YM2D24-020PN1MRJA4	2106182
	• **Connection type head A:** Male connector, M12, 4-pin, straight, D-coded • **Connection type head B:** Male connector, RJ45, 4-pin, straight • **Signal type:** Ethernet, PROFINET • **Cable:** 3 m, 4-wire, PUR, halogen-free • **Description:** Ethernet, PROFINET, shielded • **Application:** Drag chain operation, Zones with oils and lubricants	YM2D24-030PN1MRJA4	2106183
	• **Connection type head A:** System plug • **Description:** System plug spare part kit. For use with multiScan100 and picoScan100. The warranty is retained when the system plug is replaced. The system plug can be replaced and reassembled by following the mounting instructions. 1 x “Ethernet” connection, 4-pin M12 female connector, D-coded 1 x “Power” connection, 5-pin M12 male connector, A-coded	SYSPLG DCT M12-5 3IO DCT M12D ETH	2116047
Terminal and alignment brackets			
	Fine adjustment bracket for multiScan100 with tilt and pitch function, stainless steel 1.4547, Fine adjustment bracket, 4 x M5 x 12 countersunk screws, stainless steel	Mounting bracket alignment	2124591
	Simple mounting bracket for multiScan100 with alignment function, stainless steel 1.4547, Simple bracket, 4 x M5 x 12 countersunk screws, stainless steel	Simple bracket	2128226

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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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