



MULS1AA-114322 multiScan165

multiScan100

3D LIDAR SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
MULS1AA-114322 multiScan165	1137723

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



Detailed technical data

Features

Application	Indoor, Outdoor								
Variant	Standard (not pre-configured)								
Measurement principle	Statistical measurement procedure								
Light source	Infrared (905 nm)								
Laser class	1 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)								
Aperture angle	<table border="0"> <tr> <td>Horizontal</td> <td>360°</td> </tr> <tr> <td>Vertical</td> <td>42°, 7.5° ... -35°, DIN ISO 8855</td> </tr> </table>	Horizontal	360°	Vertical	42°, 7.5° ... -35°, DIN ISO 8855				
Horizontal	360°								
Vertical	42°, 7.5° ... -35°, DIN ISO 8855								
Scanning frequency	20 Hz 40 Hz, between layer 4 and 13								
Angular resolution	<table border="0"> <tr> <td>Horizontal</td> <td> 0.125°, 16 scan layers, interlaced 0.25°, 16 scan layers, interlaced 0.5°, 16 scan layers </td> </tr> <tr> <td>Vertical</td> <td> Approx. 2.5° ¹⁾ Approx. 5° ¹⁾ </td> </tr> </table>	Horizontal	0.125°, 16 scan layers, interlaced 0.25°, 16 scan layers, interlaced 0.5°, 16 scan layers	Vertical	Approx. 2.5° ¹⁾ Approx. 5° ¹⁾				
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Vertical	Approx. 2.5° ¹⁾ Approx. 5° ¹⁾								
Working range	0.05 m ... 62 m								
Scanning range	<table border="0"> <tr> <td>At 10% reflection factor and 100 klx</td> <td>20 m ²⁾</td> </tr> <tr> <td>At 10% reflection factor and 30 klx</td> <td>22 m ²⁾</td> </tr> <tr> <td>At 10% reflection factor and 10 klx</td> <td>25 m ²⁾</td> </tr> <tr> <td>At 60% reflection factor and 10 klx</td> <td>62 m ²⁾</td> </tr> </table>	At 10% reflection factor and 100 klx	20 m ²⁾	At 10% reflection factor and 30 klx	22 m ²⁾	At 10% reflection factor and 10 klx	25 m ²⁾	At 60% reflection factor and 10 klx	62 m ²⁾
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At 10% reflection factor and 10 klx	25 m ²⁾								
At 60% reflection factor and 10 klx	62 m ²⁾								

¹⁾ For details see operating instructions.

²⁾ Detection probability > 99%.

³⁾ In the scan direction.

At 90% reflection factor and 100 klx	40 m ²⁾
At 90% reflection factor and 30 klx	60 m ²⁾
At 90% reflection factor and 10 klx	62 m ²⁾
Spot size	5.3 mrad (0,3 °) 7.5 mrad (0,3 ° + 0,125 °) ³⁾
Amount of evaluated echoes	3

¹⁾ For details see operating instructions.

²⁾ Detection probability > 99%.

³⁾ In the scan direction.

Mechanics/electronics

Connection type	2 x M12 round connector
System plug	See system plug 2130754
Supply voltage	9 V DC ... 30 V DC
Power consumption	Typ. 10 W, 22 W, Power-up max. 35 W for 5 s
Housing material	AISI12, 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)
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Performance

Scan/frame rate	216,000 measurement point/s ... 648,000 measurement point/s
Response time	≤ 50 ms
Systematic error	± 35 mm
Statistical error	≤ 10 mm
Integrated application	Output of measurement data 3D Object Detection
Digital add-ons	Data Reduction & Data Preparation package, Reliability package, Multi-echo technology, Reflector detection, Interlaced mode, IMU (Inertial Measurement Unit), PTP

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
PTP	Included

Interlaced mode	Included
Measurement data output (Streaming)	Included
3D Object Detection	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)	
Emitted radiation	EN 61000-6-3:2007+A1:2011
Electromagnetic immunity	Industrial environment (EN 61000-6-2:2005)
Application areas	Automotive (UN ECE R10) ¹⁾
Application areas	Agricultural and forestry machinery (ISO 14982-1, ISO 14982-2) ¹⁾
Application areas	Earthmoving and construction machinery (ISO 13766-1) ¹⁾
Vibration resistance	
Sine resonance scan	10 Hz ... 1,000 Hz ²⁾
Sine test	10 Hz ... 500 Hz, 5 g, 10 frequency cycles ²⁾
Noise test	10 Hz ... 250 Hz, 4.24 g RMS, 5 h ³⁾
Shock resistance	50 g, 11 ms, ± 3 single shocks/axis ⁴⁾ 25 g, 6 ms, ± 1,000 continuous shocks/axis ⁴⁾ 50 g, 3 ms, ± 5,000 continuous shocks/axis ⁴⁾
Ambient operating temperature	-40 °C ... +50 °C
Storage temperature	-40 °C ... +75 °C
Permissible relative humidity	≤ 90 % RH, Non-condensing
Ambient light immunity	100 klx

¹⁾ Load dump: from ISO 16750-2 Test B Severity Level 4 passed for 12 V systems. Required in case of transient disturbances on the input filtering signal lines (de-bounce > 10 ms).

²⁾ IEC 60068-2-6:2007.

³⁾ IEC 60068-2-64:2008.

⁴⁾ IEC 60068-2-27:2008.

General notes

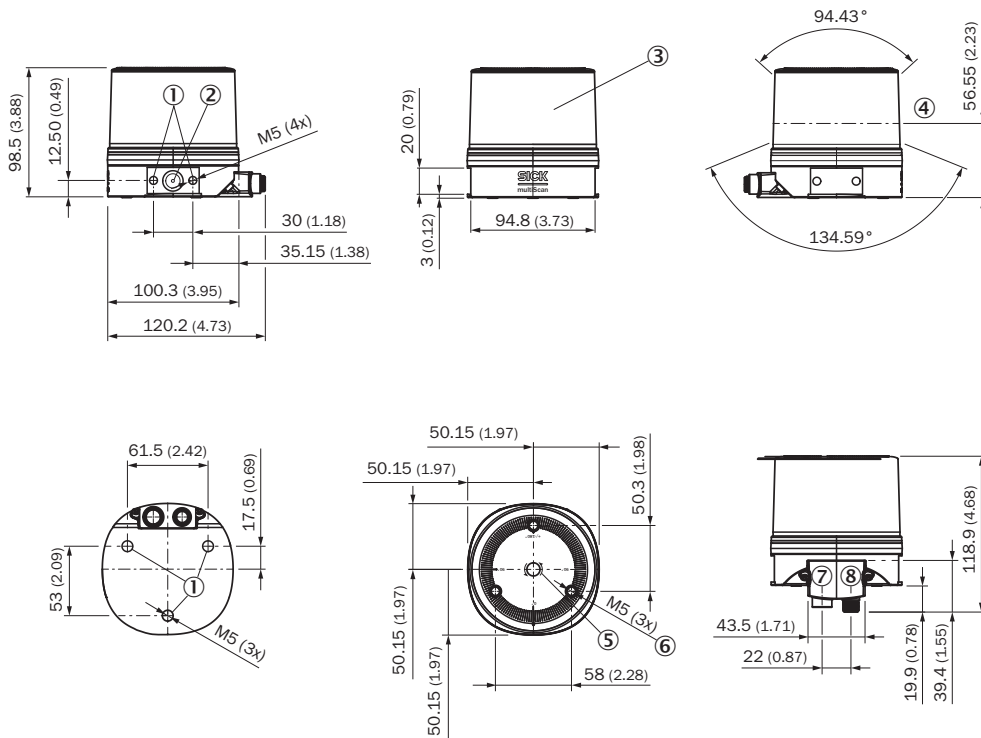
Items supplied	Hardware, software, Software license
Note on use	The sensor does not constitute a safety component as defined by relevant legislation on machine safety.

Classifications

ECLASS 5.0	27270990
ECLASS 5.1.4	27270990

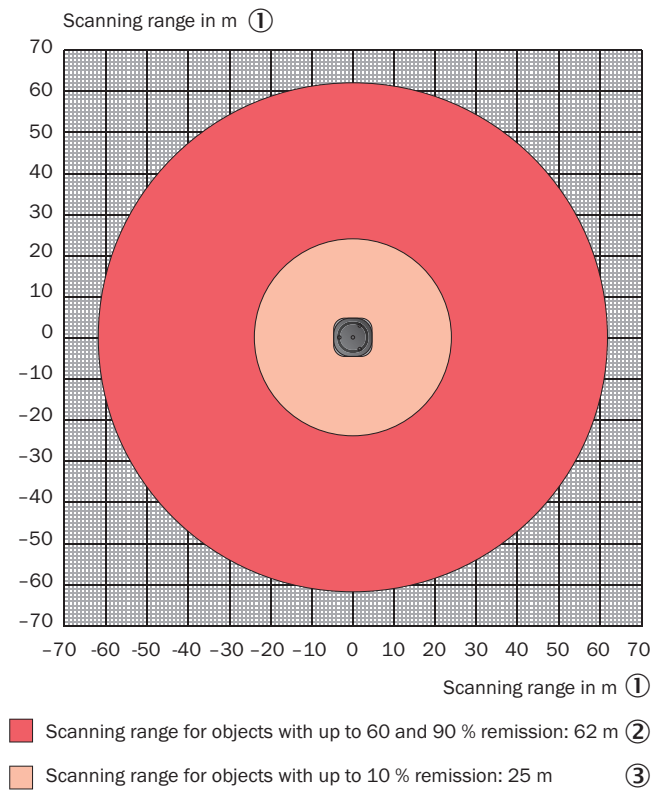
ECLASS 6.0	27270913
ECLASS 6.2	27270913
ECLASS 7.0	27270913
ECLASS 8.0	27270913
ECLASS 8.1	27270913
ECLASS 9.0	27270913
ECLASS 10.0	27270913
ECLASS 11.0	27270913
ECLASS 12.0	27270913
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC002550
UNSPSC 16.0901	41111615

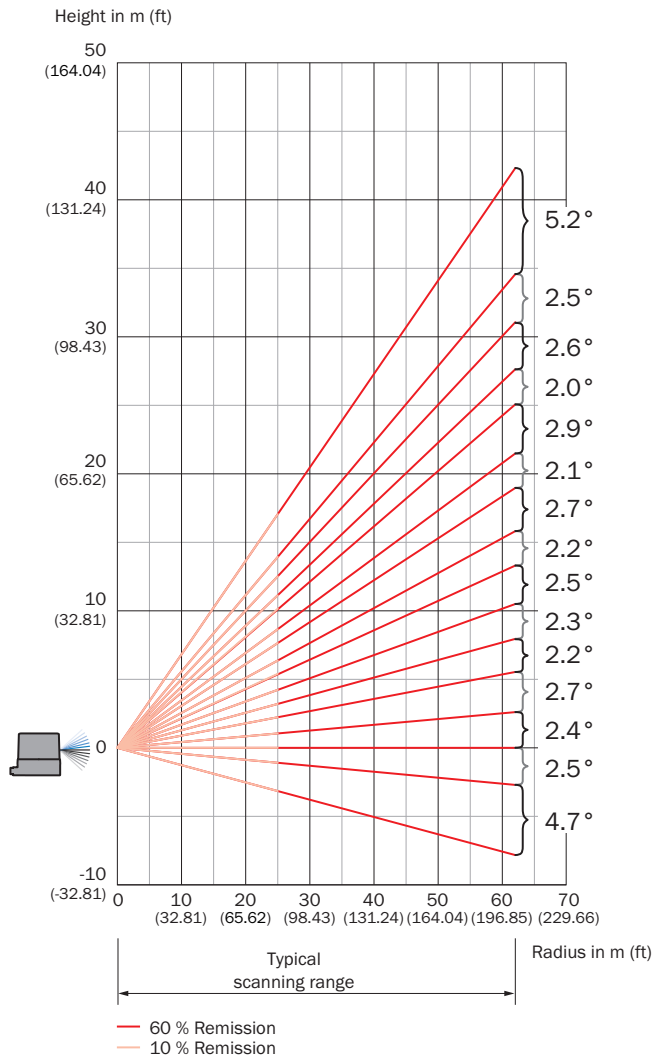
Dimensional drawing (Dimensions in mm (inch))



- 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.
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

	Brief description	Type	Part no.
Others			
	<ul style="list-style-type: none"> • Connection type head A: System plug • Description: System plug spare part kit. For use with multiScan100 and picoScan150. The warranty is retained when the system plug is replaced. The system plug can be replaced and reinstalled 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
	<ul style="list-style-type: none"> • 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
	<ul style="list-style-type: none"> • 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
	<ul style="list-style-type: none"> • 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: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation 	YF2A25- 030UB6XLEAX	2095834

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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