



# LMS111-10190

Bulkscan

FLOW SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	part no.
LMS111-10190	1093274

Other models and accessories → [www.sick.com/Bulkscan](http://www.sick.com/Bulkscan)

### Detailed technical data

#### Features

<b>Measurement principle</b>	Laser run time technology
<b>Medium</b>	Bulk solids
<b>Communication interface</b>	Serial, RS-232 USB, RS-422
<b>Light source</b>	Infrared (905 nm)
<b>Laser class</b>	1, eye-safe (IEC 60825-1:2014)
<b>Aperture angle</b>	190°
<b>Scanning frequency</b>	25 Hz 50 Hz
<b>Bandwidth</b>	No limit
<b>Heating</b>	Yes
<b>Working range</b>	0.5 m ... 10 m
<b>Amount of evaluated echoes</b>	2

#### Performance

<b>Measurement accuracy</b>	± 6 % under reference conditions and with "high" contour smoothing
<b>Response time</b>	20 ms, 40 ms
<b>Average filter</b>	0 s ... 3,600 s
<b>Max. conveyor speed</b>	≤ 20 m/s

#### Interfaces

	Serial host interface, Ethernet, Auxiliary interface
<b>Number</b>	1, 1, 1
<b>Protocol</b>	RS-232/RS-422 TCP/IP RS-232
<b>Data transmission rate</b>	115.2 kBaud 100 Mbit/s

	115.2 kBaud
<b>Switching inputs</b>	2 + Encoder
<b>Switching outputs</b>	3
<b>Analog signals</b>	Available with separate accessory BAM100
<b>Optical indicators</b>	5 LEDs Additional 7-segment display

### Electronics

<b>Supply voltage</b>	10.8 V ... 30 V
<b>Power consumption</b>	8 W + 35 W heating (typical)
<b>Residual ripple</b>	± 5 %
<b>Protection class</b>	✓
<b>Connection type</b>	M12 round connector
<b>Output signal</b>	Ethernet Digital inputs and digital outputs USB auxiliary interface RS-232/RS-422
<b>Enclosure rating</b>	IP67 (IEC 60529)
<b>MTTF</b>	> 100 years
<b>Switch-on peak current</b>	2 A
<b>Operating current scanner</b>	≤ 0.4 A
<b>Switch-on time</b>	≤ 60 s

### Mechanics

<b>Weight</b>	1.1 kg
<b>Housing color</b>	Gray (RAL 7032)
<b>Dimensions</b>	161 mm x 102 mm x 105 mm
<b>Distance of the sensor to the bulk solid</b>	≥ 0.5 m

### Ambient data

<b>Ambient operating temperature</b>	-30 °C ... +50 °C
<b>Electromagnetic compatibility (EMC)</b>	IEC 61000-6-2:2016-08 / IEC 61000-6-3:2006-07 / EN 61000-6-2:2005 / EN 61000-6-3 / A1 2011
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C
<b>Ambient light immunity</b>	40,000 lx

### Classifications

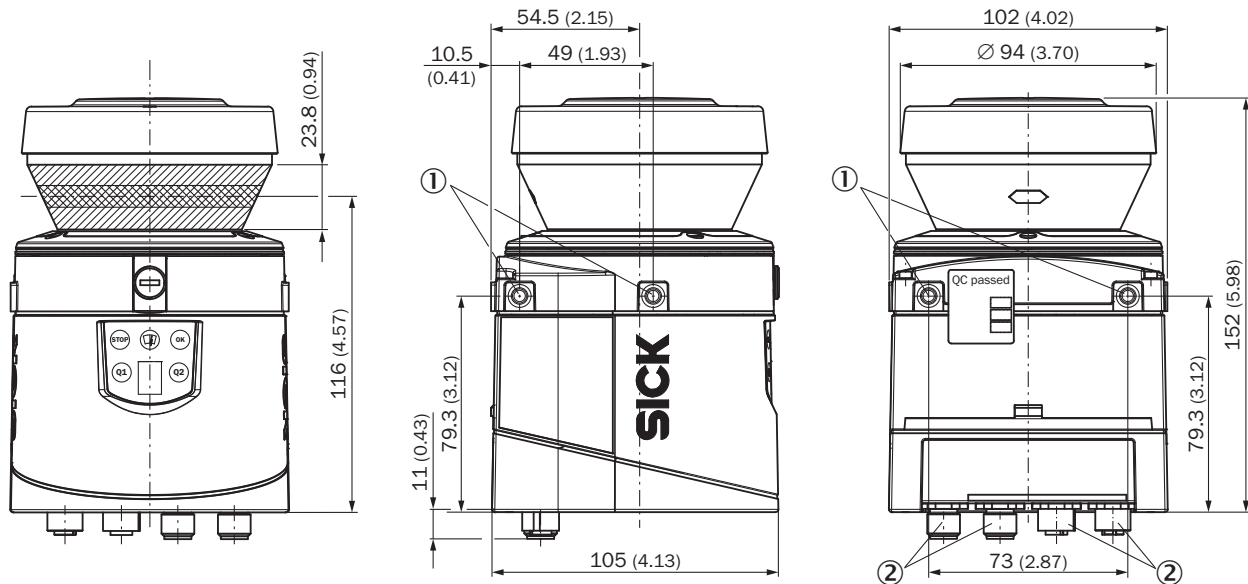
<b>ECLASS 5.0</b>	27200413
<b>ECLASS 5.1.4</b>	27200413
<b>ECLASS 6.0</b>	27200413
<b>ECLASS 6.2</b>	27200413
<b>ECLASS 7.0</b>	27200413
<b>ECLASS 8.0</b>	27200413
<b>ECLASS 8.1</b>	27200413
<b>ECLASS 9.0</b>	27200413
<b>ECLASS 10.0</b>	27200413
<b>ECLASS 11.0</b>	27200413

<b>ECLASS 12.0</b>	27200413
<b>ETIM 5.0</b>	EC002580
<b>ETIM 6.0</b>	EC002580
<b>ETIM 7.0</b>	EC002580
<b>ETIM 8.0</b>	EC002580
<b>UNSPSC 16.0901</b>	41112501

### Certificates

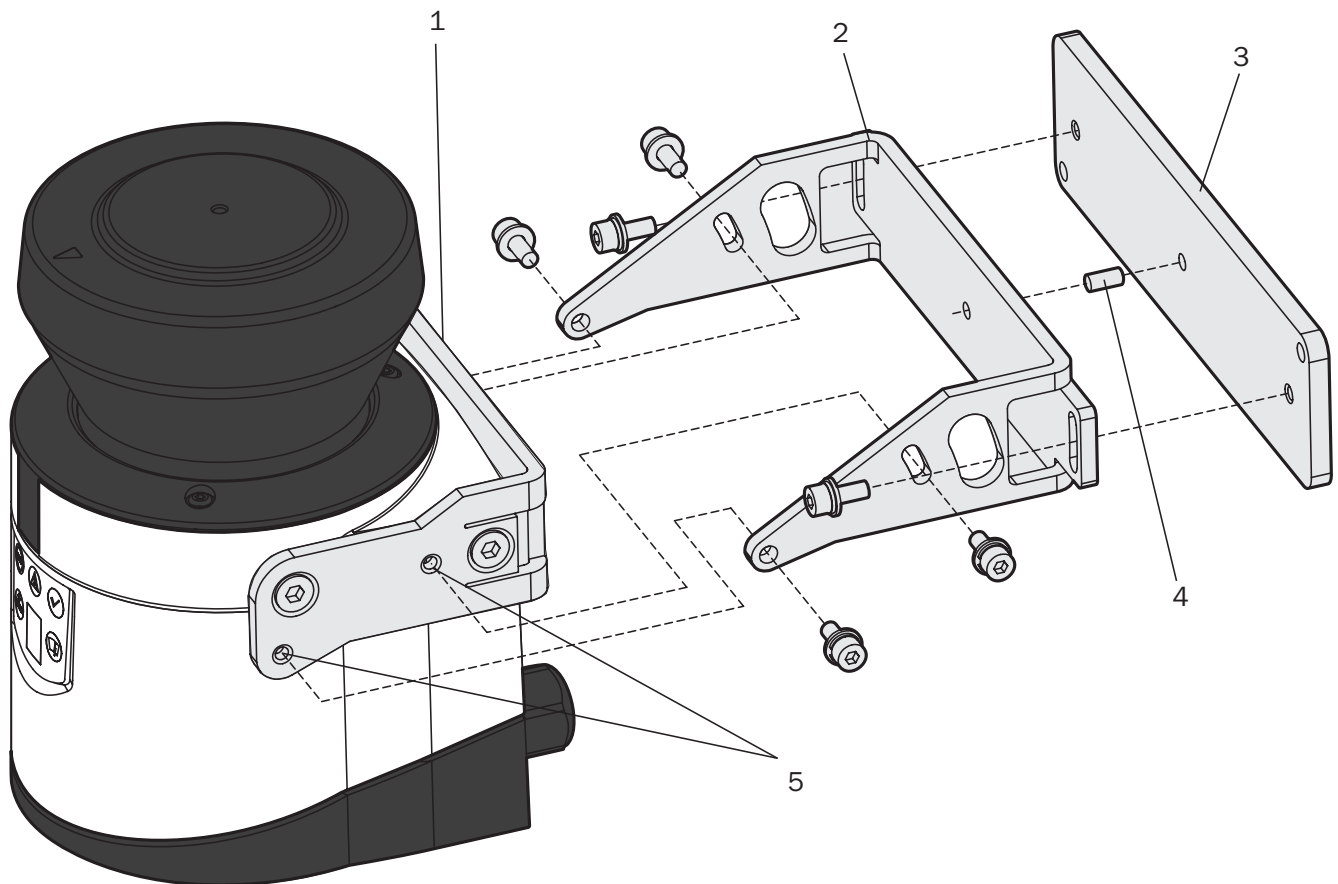
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cTUVus certificate</b>	✓
<b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b>	✓

### Dimensional drawing Bulkscan LMS111



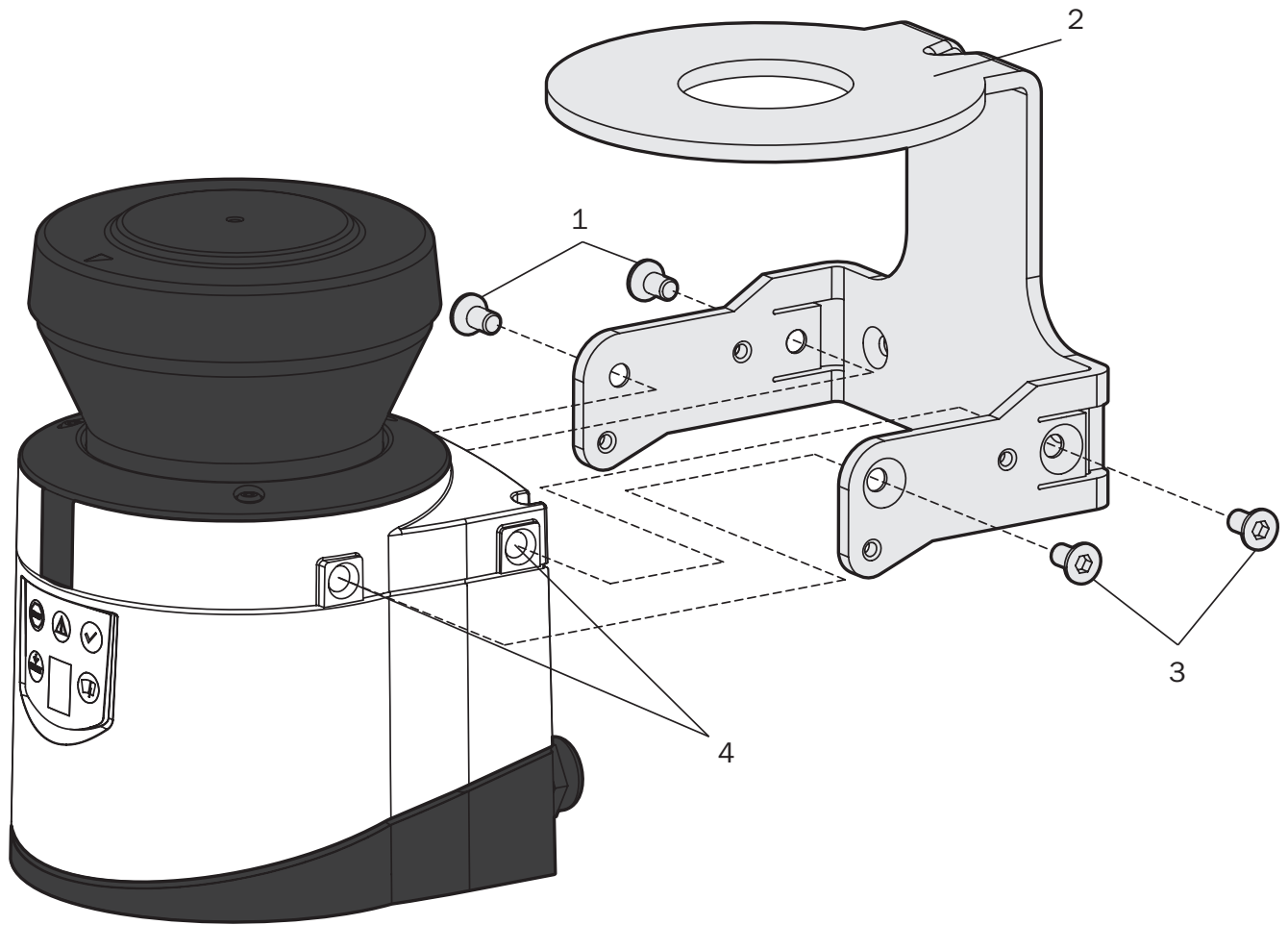
Dimensions in mm (inch)  
 ① Mounting hole M5 x 7.5  
 ② Connector M12

Instruction for installation Mounting kit 2



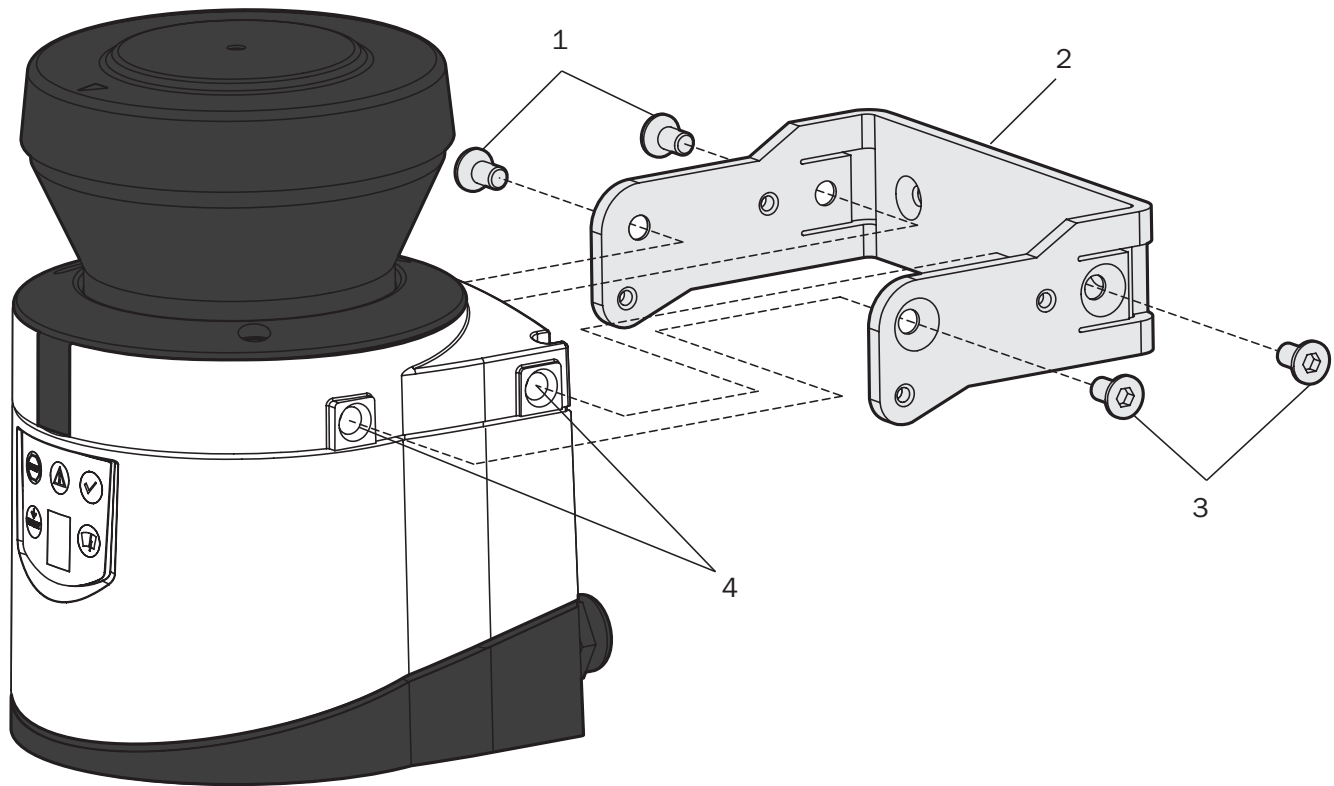
- ① Mounting kit 1a (2034324)
- ② Mounting kit 2
- ③ Mounting kit 3
- ④ centring pin
- ⑤ threaded holes M4

Instruction for installation Mounting kit 1b



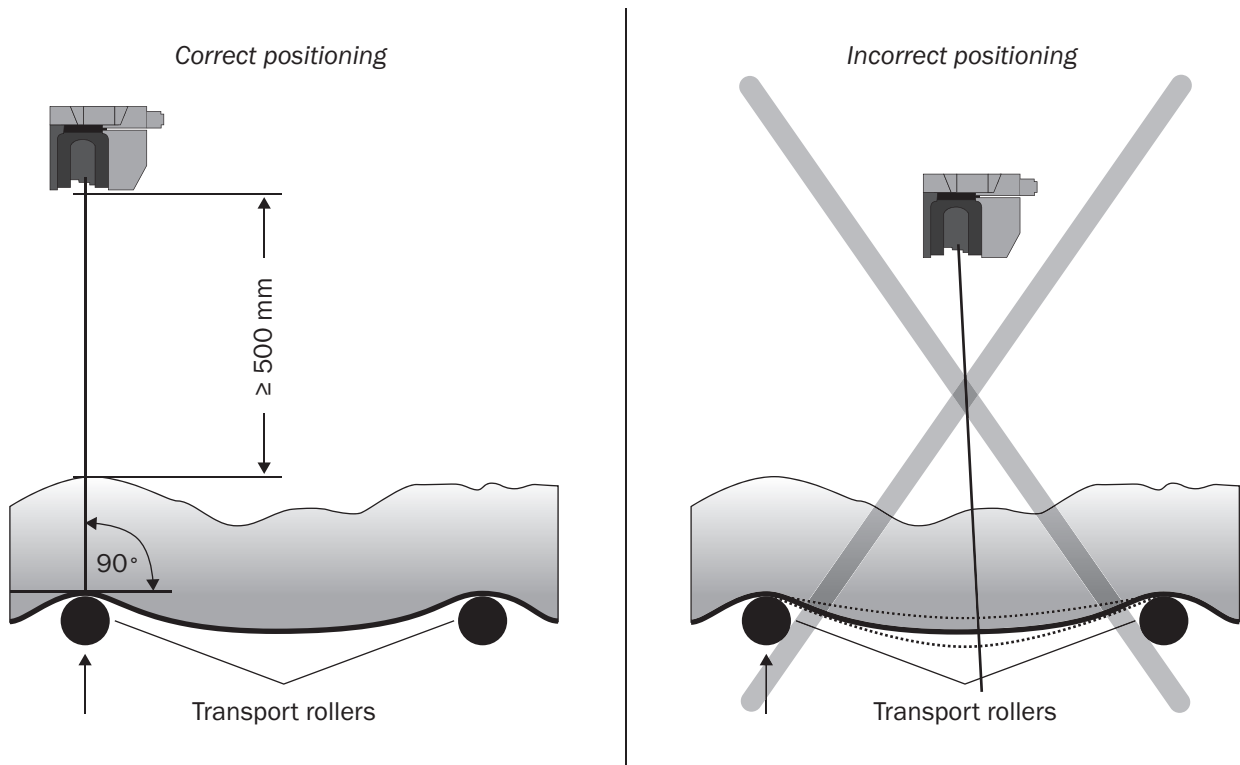
- ① Mounting screws
- ② mounting kit 1b
- ③ Mounting screws
- ④ threaded holes M5x8

Instruction for installation Mounting kit 1a (2034324)



- ① Mounting screws
- ② Mounting kit 1a (2034324)
- ③ Mounting screws
- ④ threaded holes M5x8




Instruction for installation Bulkscan LMS511 / Bulkscan LMS111













Recommended accessories


Other models and accessories → [www.sick.com/Bulkscan](http://www.sick.com/Bulkscan)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Pole bracket requires additionally adapter bracket (2059271) or mounting set (2018303)</li> </ul>	Mast mounting bracket	2018304
	<ul style="list-style-type: none"> <li><b>Description:</b> Strap for mast bracket (sold by meter)</li> </ul>	Tension strap	5306222
	<ul style="list-style-type: none"> <li><b>Description:</b> Strap lock</li> </ul>	Adjustable strap lock	5306221
	<ul style="list-style-type: none"> <li><b>Description:</b> Spring arm / mounting arm for DFV60</li> </ul>	DFV60 spring arm	2056155
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for rear mounting on wall or machine</li> <li><b>Material:</b> Anodized aluminum</li> <li><b>Details:</b> AlMg3, black anodized</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> Mounting bracket, 4 x M5 x 10 countersunk screws</li> </ul>	Mounting kit 1a	2034324
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for rear mounting on wall or machine with protection of optics hood</li> <li><b>Material:</b> Anodized aluminum</li> <li><b>Details:</b> AlMg3, black anodized</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> Mounting bracket, 4 x M5 x 10 countersunk screws</li> </ul>	Mounting kit 1b	2034325
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket, adjustable lateral axis, only in conjunction with mounting kit 1a (2034324) or 1b (2034325)</li> <li><b>Material:</b> Anodized aluminum</li> <li><b>Details:</b> AlMg3, black anodized</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> Mounting bracket, 4 x countersunk screws with washers M4 x 10, 4 x spring washer</li> </ul>	Mounting kit 2	2039302
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting plate, adjustable longitudinal axis, only in conjunction with mounting kit 2 (2039302)</li> <li><b>Material:</b> Anodized aluminum</li> <li><b>Details:</b> AlMg3, black anodized</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Items supplied:</b> Mounting plate, 2 x countersunk screws with washers M4 x 10, 2 x spring washer</li> </ul>	Mounting kit 3	2039303
	<ul style="list-style-type: none"> <li><b>Description:</b> Standard mounting set for weather hood</li> <li><b>Material:</b> Stainless steel 1.4301 (V2A)</li> <li><b>Details:</b> Stainless steel 1.4301 (V2A)</li> <li><b>Items supplied:</b> Mounting bracket, incl. 7 x screws with M6 x 12 washers</li> <li><b>Suitable for:</b> 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560</li> </ul>	Mounting bracket	2046025
	<ul style="list-style-type: none"> <li><b>Description:</b> Quick-action lock system for weather hood</li> <li><b>Material:</b> Steel, Aluminum</li> <li><b>Details:</b> Clamping piece: steel (X5CRNI1810), Clamping profile: aluminum (ALMGSI0)</li> <li><b>Suitable for:</b> 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560</li> </ul>	Quick release	2046989

	Brief description	Type	part no.
Power supply units and power supply cables			
	<ul style="list-style-type: none"> <li><b>Output voltage:</b> 24 V DC</li> <li><b>Output current:</b> 10 A</li> <li><b>Description:</b> Power supply unit 24 V DC / 10 A</li> </ul>	Power supply	6020875
device protection and care			
	<ul style="list-style-type: none"> <li><b>Product family:</b> Cleaning agents</li> <li><b>Description:</b> Cloth for cleaning optical surfaces</li> </ul>	Lens cloth	4003353
	<ul style="list-style-type: none"> <li><b>Description:</b> Weather hood, 190°</li> <li><b>Material:</b> Aluminum</li> <li><b>Items supplied:</b> Weather hood, 190°, 3 x cylinder head screws M5 x 12</li> <li><b>Suitable for:</b> LMS10x, LMS11x, LMS12x, LMS13x, LMS14x, LMS15x, S100</li> </ul>	Weather protection cover 190°	2046459

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li><b>Connection type head B:</b> Male connector, RJ45, 8-pin, straight</li> <li><b>Signal type:</b> Ethernet</li> <li><b>Cable:</b> 20 m, 4-wire, AWG26, PUR, halogen-free</li> <li><b>Description:</b> Ethernet, twisted pair, shielded</li> </ul>	YM2D24-200EA1M-RJA4	6036158
	<ul style="list-style-type: none"> <li><b>Description:</b> Power, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Power</li> <li><b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li><b>Connection systems:</b> Flying leads</li> </ul>	YF2A64-050XXXLEAX	6036159
	<ul style="list-style-type: none"> <li><b>Description:</b> Power, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Power</li> <li><b>Cable:</b> 20 m, 4-wire, PUR, halogen-free</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2Z15-200UE1XLEAX	6042564
	<ul style="list-style-type: none"> <li><b>Description:</b> Power, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Power</li> <li><b>Cable:</b> 10 m, 4-wire, PUR, halogen-free</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2Z15-100UE1XLEAX	6042565
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li><b>Connection type head B:</b> Male connector, RJ45, 4-pin, straight</li> <li><b>Signal type:</b> Ethernet, PROFINET</li> <li><b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Ethernet, shielded, PROFINET</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-050P-N1MRJA4	2106184
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li><b>Connection type head B:</b> Male connector, RJ45, 4-pin, straight</li> <li><b>Signal type:</b> Ethernet, PROFINET</li> <li><b>Cable:</b> 10 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Ethernet, shielded, PROFINET</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-100P-N1MRJA4	2106185
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Male connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YM2A28-050UA6XLEAX	6036155
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Male connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YM2A28-100UA6XLEAX	6036156
	<ul style="list-style-type: none"> <li><b>Description:</b> RS-232, shielded, RS-422</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> RS-232, RS-422</li> <li><b>Cable:</b> 10 m, 8-wire</li> <li><b>Connection systems:</b> Flying leads</li> </ul>	Connecting cable (female connector - open)	6028420
	<ul style="list-style-type: none"> <li><b>Description:</b> RS-232, shielded, RS-422</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> RS-232, RS-422</li> <li><b>Cable:</b> 20 m, 8-wire</li> <li><b>Connection systems:</b> Flying leads</li> </ul>	YF2A28-200UA6XLEAX	6036154

	Brief description	Type	part no.
	<ul style="list-style-type: none"> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-050UA6XLEAX	2095835
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-C60UA6XLEAX	2145470
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-010UA6XLEAX	2145471
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-020UA6XLEAX	2145472
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 8-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-030UA6XLEAX	2145473
integration modules and adapters			
	<ul style="list-style-type: none"> <li><b>Description:</b> BAM100 analog module for Bulkscan, by Beckhoff, 24 V DC supply voltage (-15% / + 20%), rail mounting on 35 mm C rail, according to EN 50022 with interlocking, Ethernet TCP/IP interface (RJ45), CoLa communication, 3 x IN: 4 mA ... 20 mA, 4 x OUT: 4 mA ... 20 mA</li> </ul>	BAM100-HE44K	2073296
Measuring wheel encoders			
	<ul style="list-style-type: none"> <li><b>Measuring wheel circumference:</b> 300 mm</li> <li><b>Measuring wheel surface:</b> O-ring NBR70</li> <li><b>Communication interface:</b> 10 V ... 32 V, Incremental, HTL, Push pull</li> <li><b>Supply voltage:</b> 10 V ... 32 V</li> <li><b>Pulses per revolution:</b> 1,024</li> <li><b>Connection type:</b> Male connector, M12, 8-pin, radial</li> <li><b>Resolution in pulses/mm:</b> 3.41</li> </ul>	DFV60E-22EC01024	1060308
	<ul style="list-style-type: none"> <li><b>Measuring wheel circumference:</b> 300 mm</li> <li><b>Measuring wheel surface:</b> O-ring NBR70</li> <li><b>Communication interface:</b> 10 V ... 32 V, Incremental, HTL, Push pull</li> <li><b>Supply voltage:</b> 10 V ... 32 V</li> <li><b>Pulses per revolution:</b> 1,024</li> <li><b>Connection type:</b> Cable, 8-wire, universal, 1.5 m</li> <li><b>Resolution in pulses/mm:</b> 3.41</li> </ul>	DFV60E-22EK01024	1060309
Incremental encoders			
	<ul style="list-style-type: none"> <li><b>Mechanical design:</b> Solid shaft face mount flange 10 mm x 19 mm (With flat)</li> <li><b>Communication interface:</b> 10 V ... 32 V, HTL, Push pull</li> <li><b>Connection type:</b> Cable, 8-wire, universal, 1.5 m</li> <li><b>Pulses per revolution:</b> 1,024</li> </ul>	DFS60E-S4EK01024	1037534
	<ul style="list-style-type: none"> <li><b>Mechanical design:</b> Blind hollow shaft 15 mm (Front clamp)</li> <li><b>Communication interface:</b> 10 V ... 32 V, HTL, Push pull</li> <li><b>Connection type:</b> Male connector, M12, 8-pin, radial</li> <li><b>Pulses per revolution:</b> 1,024</li> </ul>	DFS60E-BHEC01024	1036541

	Brief description	Type	part no.
Commissioning aids and test equipment			
	<ul style="list-style-type: none"><li>• <b>Product:</b> Alignment aids</li><li>• <b>Description:</b> Alignment aid for detecting the infrared light (wavelength 780 nm to 1050 nm) of SICK sensors</li></ul>	Alignment aid	2101720

## 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)