



# LMS511-20190

Bulkscan

FLOW SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	part no.
LMS511-20190	1059529

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

### Detailed technical data

#### Features

<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>	35 Hz 50 Hz 75 Hz
<b>Bandwidth</b>	No limit
<b>Heating</b>	Yes
<b>Working range</b>	0.5 m ... 20 m
<b>Amount of evaluated echoes</b>	5

#### Mechanics/electronics

<b>Electrical connection</b>	M12 round connector
<b>Supply voltage scanner/heater</b>	19.2 V ... 28.8 V
<b>Prohibited residual ripple</b>	± 5 %
<b>Switch-on peak current</b>	2 A
<b>Operating current scanner</b>	≤ 1.3 A
<b>Power consumption</b>	22 W, + 55 W heating (typical)
<b>Housing color</b>	Gray (RAL 7032)
<b>Enclosure rating</b>	IP67 (IEC 60529)
<b>Protection class</b>	III
<b>Weight</b>	3.7 kg
<b>Dimensions</b>	160 mm x 155 mm x 185 mm
<b>Distance of the sensor to the bulk solid</b>	≥ 0.5 m
<b>Switch-on time</b>	≤ 60 s
<b>MTTF</b>	> 100 years

## Performance

<b>Response time</b>	13 ms, 20 ms, 28 ms
<b>Average filter</b>	0 s ... 3,600 s
<b>Accuracy</b>	± 3 %, at reference conditions
<b>Max. conveyor speed</b>	≤ 30 m/s

## Interfaces

<b>Auxiliary interface</b>	✓
Protocol	USB 2.0
Data transmission rate	≤ 500 kBaud
<b>Serial host interface</b>	✓
Protocol	RS-232/RS-422
Data transmission rate	≤ 500 kBaud
<b>Ethernet</b>	✓
Protocol	TCP/IP
Data transmission rate	100 Mbit/s
<b>Switching inputs</b>	2 (+ Encoder)
<b>Switching outputs</b>	6
<b>Analog signals</b>	Available with separate accessory BAM100
<b>Communication interface</b>	Auxiliary interface, 1, USB 2.0, 500 kBaud Serial host interface, 1, RS-232/RS-422, 500 kBaud Ethernet, 1, TCP/IP, 100 Mbit/s
<b>Optical indicators</b>	5 LEDs (Additional 7-segment display)

## Ambient data

<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 operating temperature</b>	-40 °C ... +60 °C
<b>Storage temperature</b>	-40 °C ... +70 °C
<b>Ambient light immunity</b>	70,000 lx

## Certificates

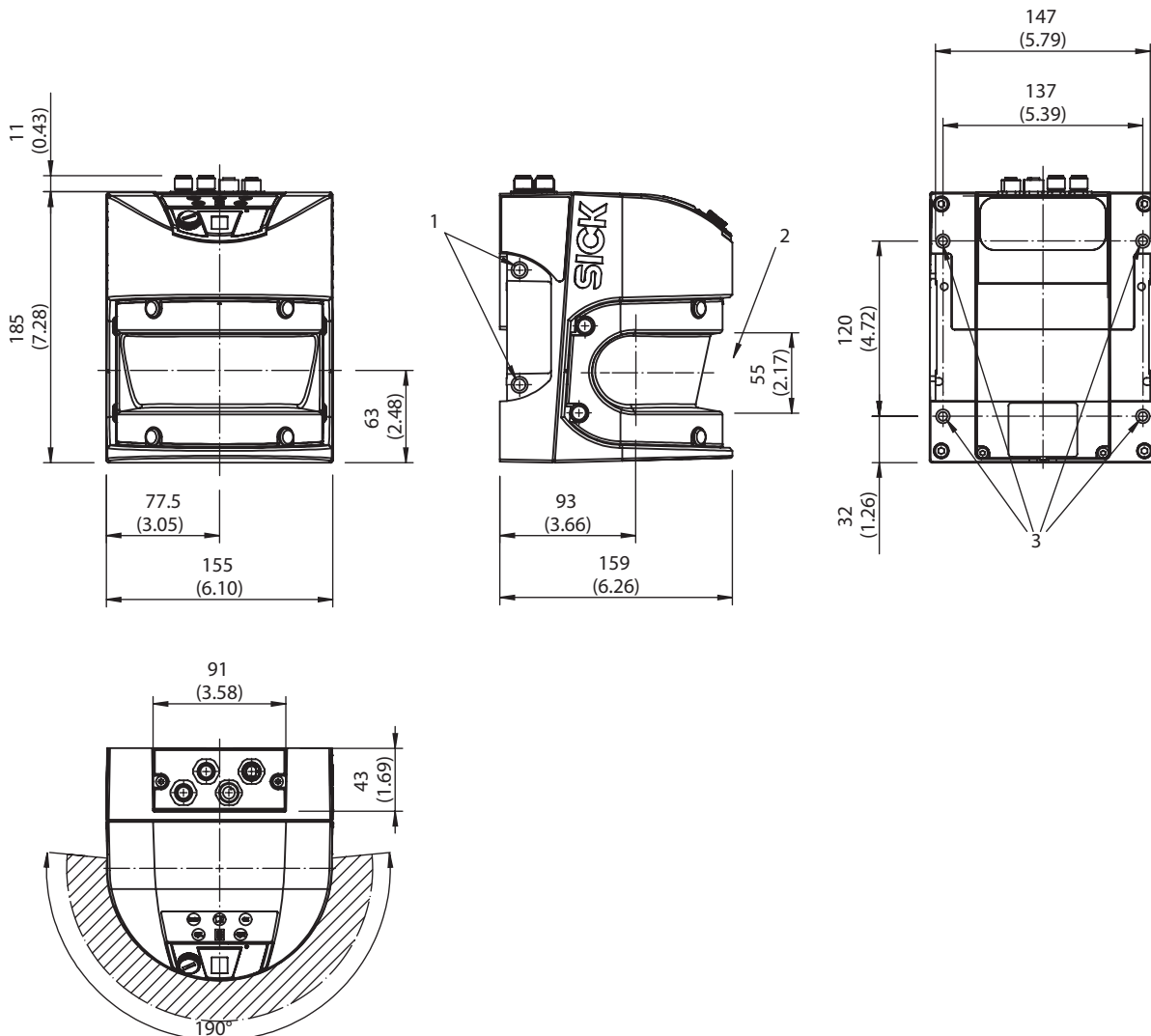
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>cTUVus certificate</b>	✓

## 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

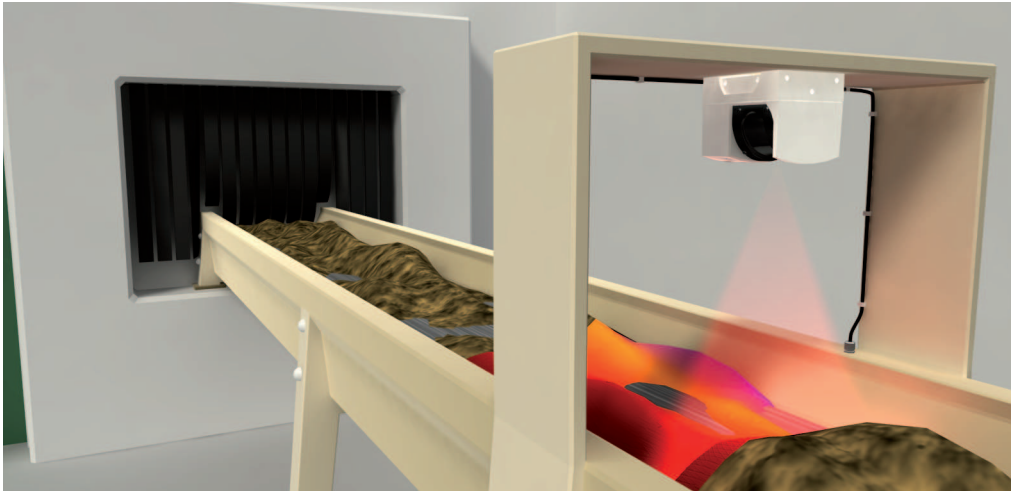
### Dimensional drawing Bulkscan LMS511



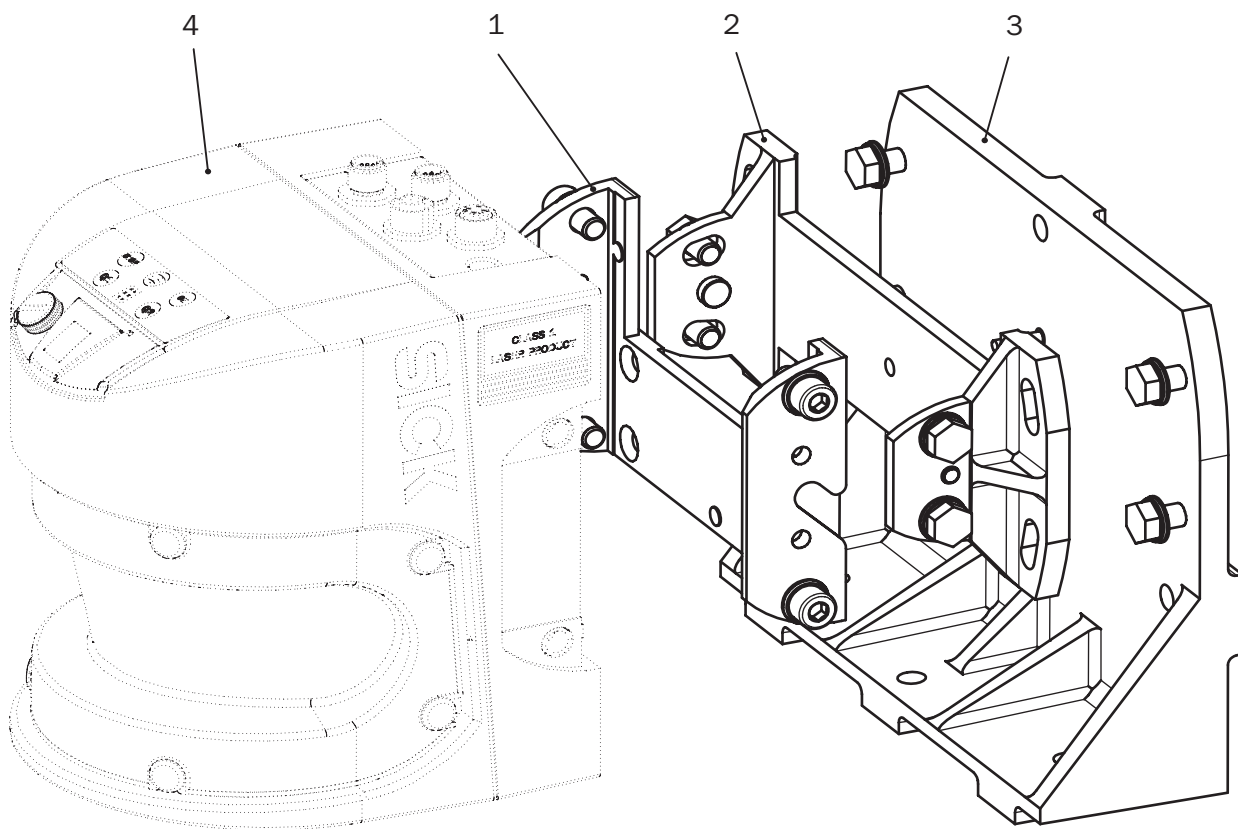
Dimensions in mm (inch)

- ① 4 screw holes M8 x 9
- ② do not block front screen
- ③ 4 screw holes M6 x 8

## Application

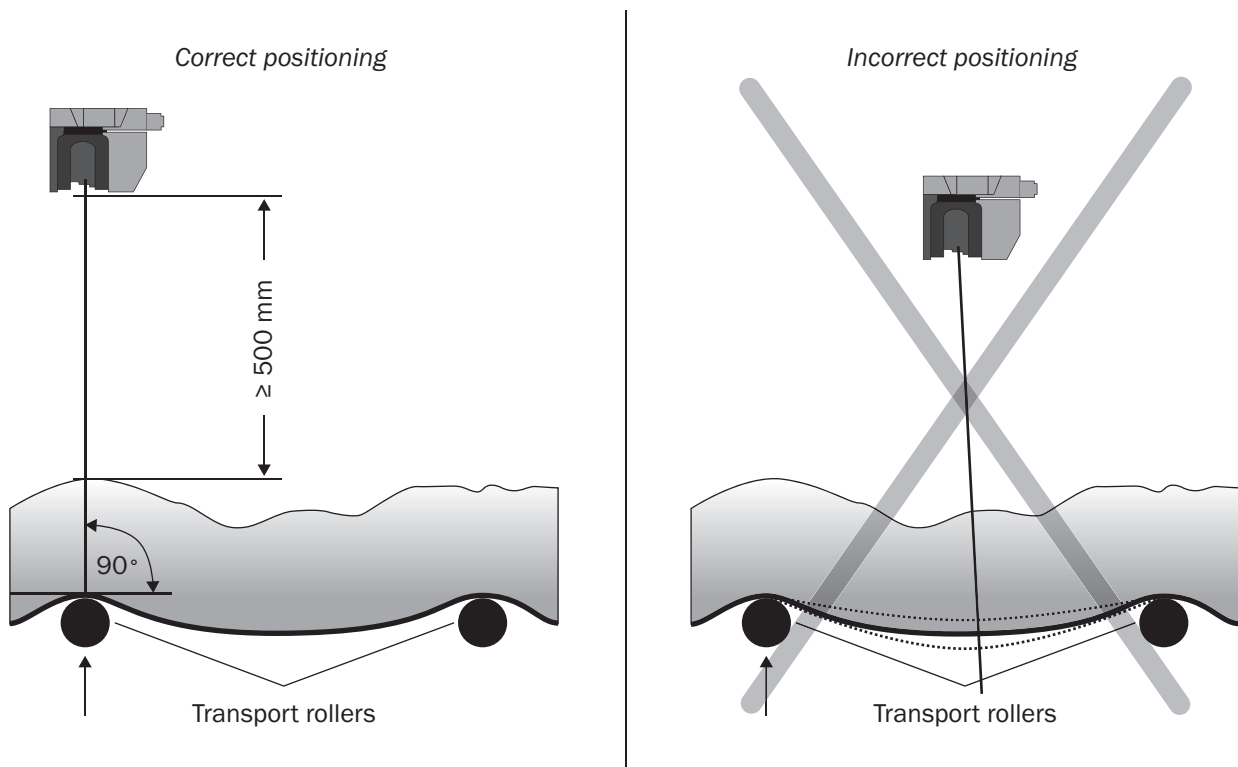


## Instruction for installation Mounting bracket

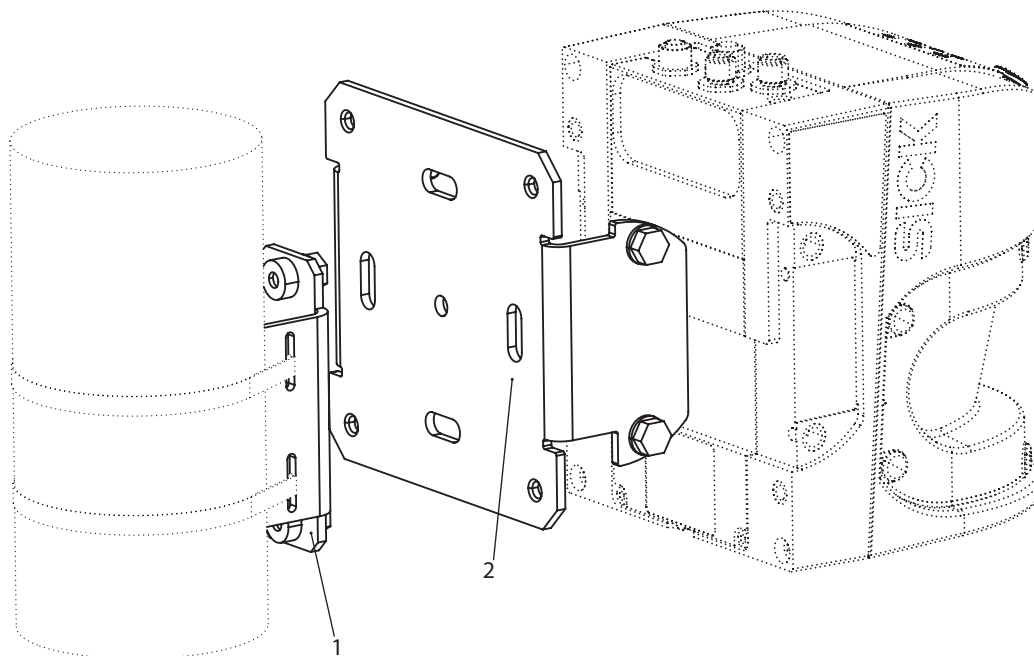


- ① Mounting kit 1
- ② Mounting kit 2
- ③ Mounting kit 3
- ④ Device

### Instruction for installation Bulkscan LMS511 / Bulkscan LMS111

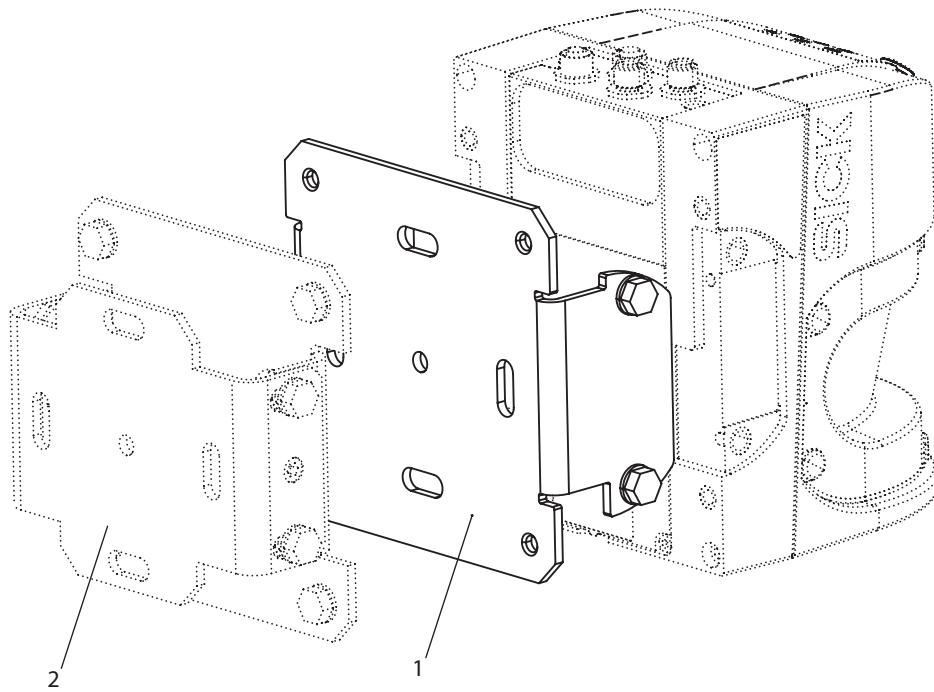


### Instruction for installation Post bracket



- ① Post bracket
- ② Adapter bracket










Instruction for installation Mounting bracket










- ① mounting bracket
- ② Mounting set for LMS2xx Part no. 2018303

### Recommended accessories

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

	Brief description	Type	part no.
<b>Mounting systems</b>			
	<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 LMS5xx (for retrofitting, if 2018303 is already in use)</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel V2A (1.4301)</li> </ul>	Mounting bracket	2059271
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for direct mounting, from the rear, on wall or machine, not adjustable</li> <li><b>Material:</b> Aluminum</li> <li><b>Details:</b> Aluminum</li> <li><b>Packing unit:</b> 1 piece</li> </ul>	Mounting kit 1	2015623
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for rear mounting on wall or machine, adjustable longitudinal and lateral axes, only in conjunction with mounting kit 1 (2015623)</li> <li><b>Material:</b> Aluminum</li> <li><b>Details:</b> Aluminum</li> <li><b>Packing unit:</b> 1 piece</li> </ul>	Mounting kit 2	2015624
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for rear mounting on wall, floor, or machine, adjustable longitudinal and lateral axes, only in conjunction with mounting kit 1 (2015623) and 2 (2015624)</li> <li><b>Material:</b> Aluminum</li> <li><b>Details:</b> Aluminum</li> <li><b>Packing unit:</b> 1 piece</li> </ul>	Mounting kit 3	2015625
<b>Power supply units and power supply cables</b>			
	<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 DC 24 V / 10 A</li> </ul>	Power supply	6020875

	Brief description	Type	part no.
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>Product family:</b> Protective caps and hoods</li> <li><b>Description:</b> Weather protection hood (180°), vertical mounting. <sup>1)</sup>In applications with high shock/vibration requirements, the optics cover must be checked regularly for damage.</li> <li><b>Material:</b> Aluminum (powder-coating)</li> <li><b>Items supplied:</b> Weather hood, 8 x M6 x 10 screws, stainless steel, 8 x D6.4 washers, stainless steel</li> <li><b>Suitable for:</b> LMS511, LMS531, LMS581</li> </ul>	Weather protection hood	2133702

	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>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>Description:</b> Power, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>	YF2A64-050XXXXLEAX	6036159
	<ul style="list-style-type: none"> <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>Description:</b> Power, shielded</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>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>Description:</b> Power, shielded</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, shieldedPROFINET</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, shieldedPROFINET</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>Connection type head A:</b> Male connector, M12, 12-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, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YM2A2B-050UD3XLEAX	2131093
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 12-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, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YM2A2B-100UD3XLEAX	2131094
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 12-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> 20 m, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YM2A2B-200UD3XLEAX	2131095
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 12-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, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A2B-050UD3XLEAX	2131096
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 12-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, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> </ul>	YF2A2B-100UD3XLEAX	2131098

	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>Connection type head A:</b> Female connector, M12, 12-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> 20 m, 12-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A2B-200UD3XLEAX	2131099
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 face)</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</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
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)