



# 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>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

#### Mechanics/electronics

<b>Electrical connection</b>	M12 round connector
<b>Supply voltage scanner/heater</b>	10.8 V ... 30 V
<b>Prohibited residual ripple</b>	± 5 %
<b>Switch-on peak current</b>	2 A
<b>Operating current scanner</b>	≤ 0.4 A
<b>Power consumption</b>	8 W, + 35 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>	1.1 kg, without cable
<b>Dimensions</b>	161 mm x 102 mm x 105 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>	20 ms, 40 ms
<b>Average filter</b>	0 s ... 3,600 s
<b>Accuracy</b>	± 6 %, under reference conditions and with "high" contour smoothing
<b>Max. conveyor speed</b>	≤ 20 m/s

## Interfaces

<b>Serial host interface</b>	✓
Protocol	RS-232/RS-422
Data transmission rate	≤ 115.2 kBaud
<b>Ethernet</b>	✓
Protocol	TCP/IP
Data transmission rate	100 Mbit/s
<b>Auxiliary interface</b>	✓
Protocol	RS-232
Data transmission rate	≤ 115.2 kBaud
<b>Switching inputs</b>	2 (+ Encoder)
<b>Switching outputs</b>	3
<b>Analog signals</b>	Available with separate accessory BAM100
<b>Communication interface</b>	Serial host interface, 1, RS-232/RS-422, 115.2 kBaud Ethernet, 1, TCP/IP, 100 Mbit/s Auxiliary interface, 1, RS-232, 115.2 kBaud
<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>	-30 °C ... +50 °C
<b>Storage temperature</b>	-40 °C ... +70 °C
<b>Ambient light immunity</b>	40,000 lx

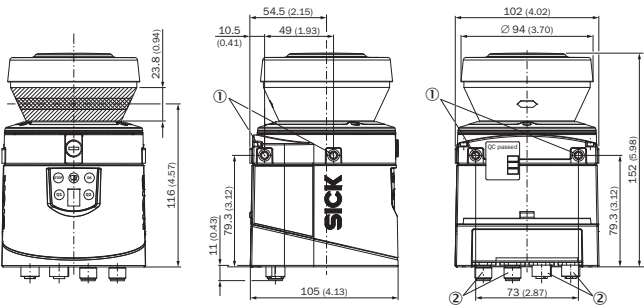
## Classifications

<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

ETIM 7.0	EC002580
ETIM 8.0	EC002580
UNSPSC 16.0901	41112501

Dimensional drawing (Dimensions in mm (inch))

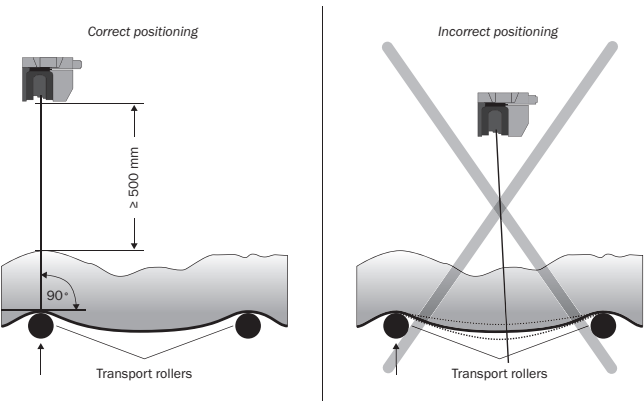
Bulkscan LMS111



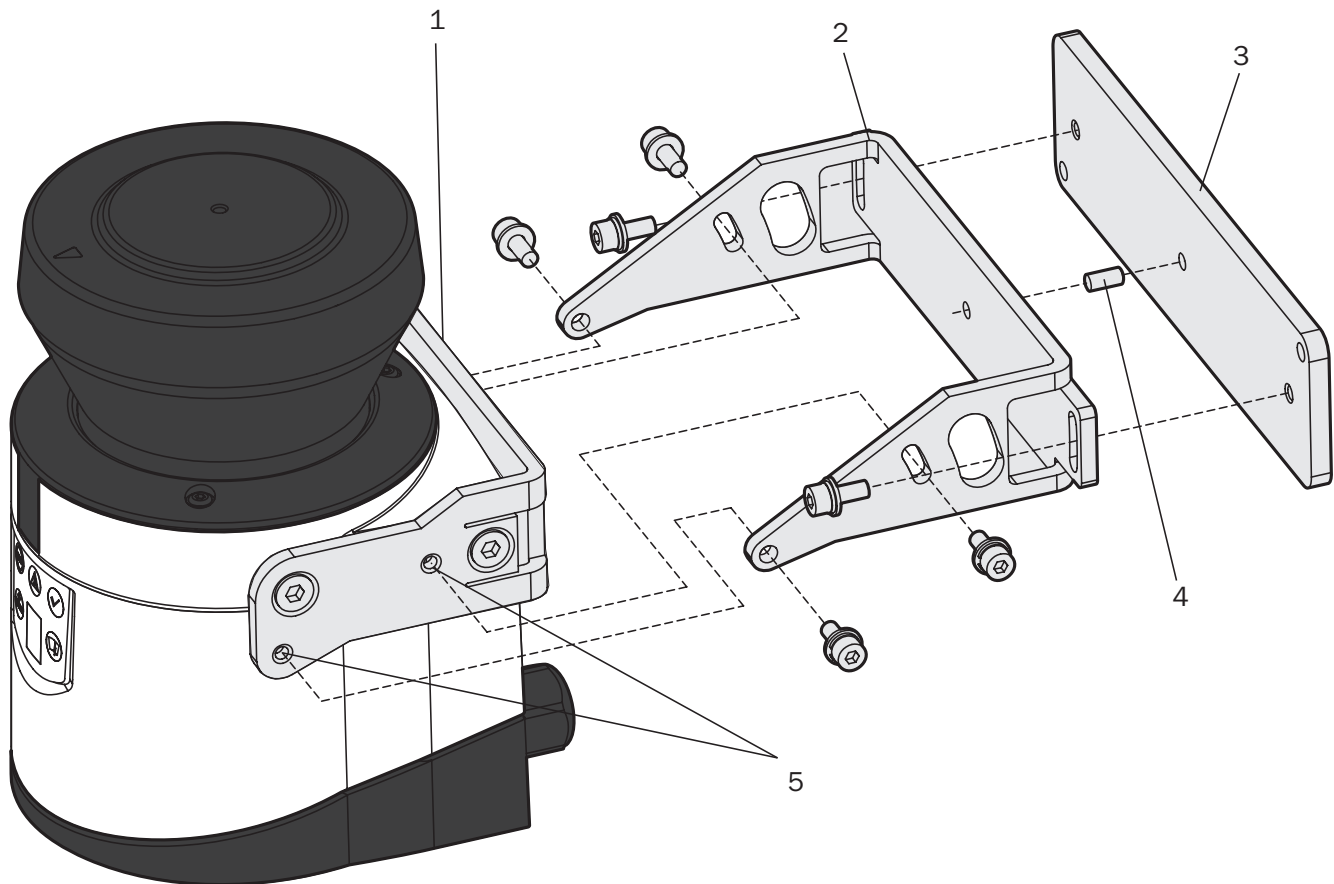
- ① Mounting hole M5 x 7.5
- ② Connector M12

Instruction for installation

Bulkscan LMS511 / Bulkscan LMS111

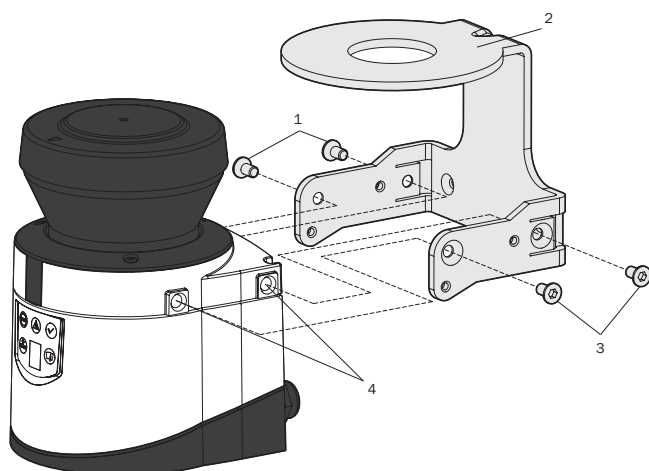


## Mounting kit 2



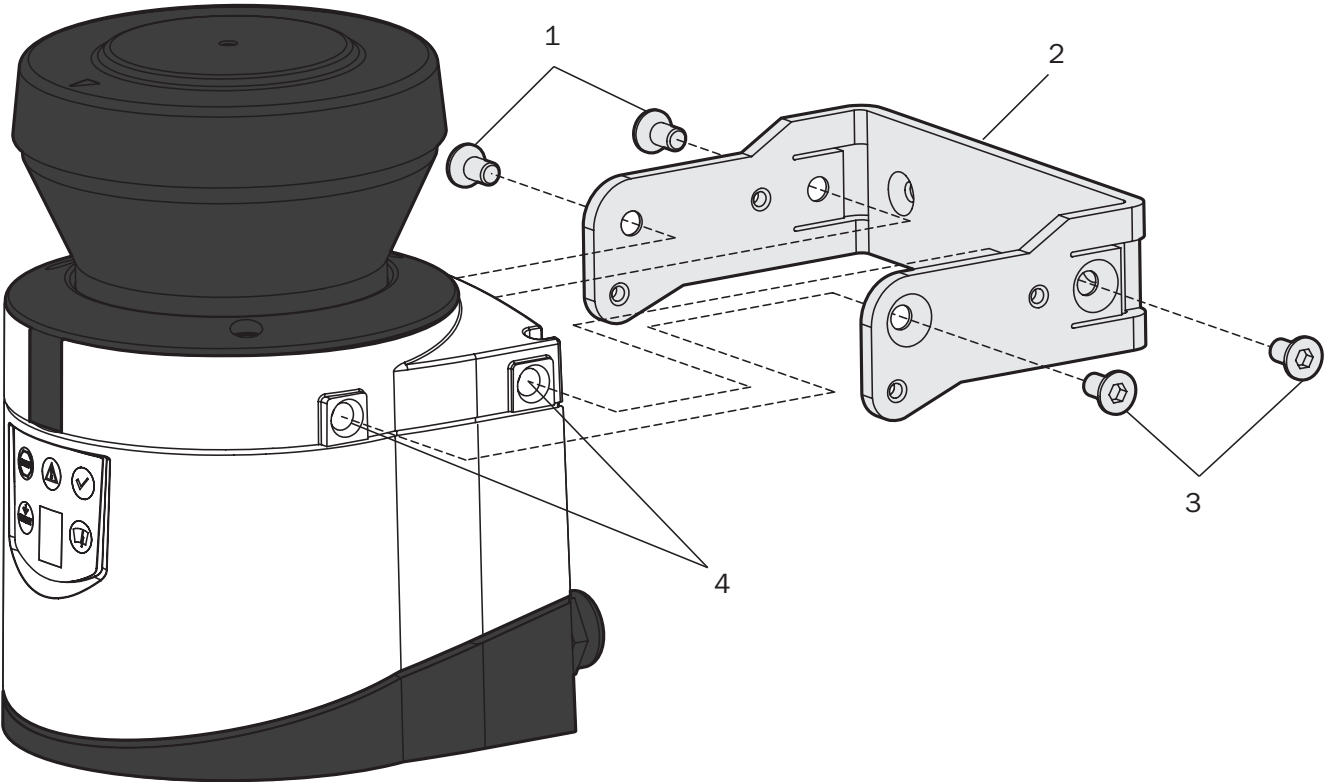
- ① Mounting kit 1a (2034324)
- ② Mounting kit 2
- ③ Mounting kit 3
- ④ Centring pin
- ⑤ Threaded holes M4

## Mounting kit 1b



- ① Mounting screws
- ② Mounting kit 1b
- ③ Mounting screws
- ④ Threaded holes M5x8





Mounting kit 1a (2034324)












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

Recommended accessories







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




	Brief description	Type	Part no.
Incremental encoders			
	<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
	<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
Mounting brackets and plates			
	<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> Standard mounting set for weather hood</li><li>• <b>Suitable for:</b> 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560</li></ul>	Mounting bracket	2046025

	Brief description	Type	Part no.
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for rear mounting on wall or machine</li> <li><b>Packing unit:</b> 1 piece</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>Packing unit:</b> 1 piece</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>Packing unit:</b> 1 piece</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>Packing unit:</b> 1 piece</li> </ul>	Mounting kit 3	2039303
Terminal and alignment brackets			
	<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> Quick-action lock system for weather hood</li> <li><b>Suitable for:</b> 2085937, 2085938, 2085939, 2046459, 2046458, 2082563, 2082560</li> </ul>	Quick release	2046989
Others			
	<ul style="list-style-type: none"> <li><b>Product family:</b> Assembly accessories</li> <li><b>Description:</b> Strap for mast bracket (sold by meter)</li> </ul>	Tension strap	5306222
	<ul style="list-style-type: none"> <li><b>Product family:</b> Assembly accessories</li> <li><b>Description:</b> Strap lock</li> </ul>	Adjustable strap lock	5306221
	<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
	<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>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>	YM2D24-200EA1MRJA4	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>	YF2A64-050XXXLEAX	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

	Brief description	Type	Part no.
	<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>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
	<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
	<ul style="list-style-type: none"> <li><b>Product family:</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
	<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, PROFINET, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-050PN1MRJA4	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, PROFINET, shielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-100PN1MRJA4	2106185
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, 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>	YM2A28-050UA6XLEAX	6036155
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, 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>	YM2A28-100UA6XLEAX	6036156



	Brief description	Type	Part no.
	<ul style="list-style-type: none"> <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> 20 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, 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>	YM2A28-200UA6XLEAX	6036157
	<ul style="list-style-type: none"> <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>Description:</b> RS-232, RS-422, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>	Connecting cable (female connector - open)	6028420
	<ul style="list-style-type: none"> <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>Description:</b> RS-232, RS-422, 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>	YF2A28-200UA6XLEAX	6036154
 <p>① If the sensor is mounted upside down, the label on top of the weather protection hood must be removed.</p> <p>② Mounting bracket (2046025) not included with delivery!</p> <p>③ Quick release (2046989) not included with delivery!</p>	<ul style="list-style-type: none"> <li>• <b>Product family:</b> Protective caps and hoods</li> <li>• <b>Description:</b> Weather hood, 190°</li> <li>• <b>Suitable for:</b> LMS10x, LMS11x, LMS12x, LMS13x, LMS14x, LMS15x, S100</li> </ul>	Weather protection cover 190°	2046459
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-050UA6XLEAX	2095835
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A28-C60UA6XLEAX	2145470

	Brief description	Type	Part no.
	<ul style="list-style-type: none"><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>Description:</b> Sensor/actuator cable, shielded</li><li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li></ul>	YF2A28-010UA6XLEAX	2145471
	<ul style="list-style-type: none"><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>Description:</b> Sensor/actuator cable, shielded</li><li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li></ul>	YF2A28-020UA6XLEAX	2145472
	<ul style="list-style-type: none"><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>Description:</b> Sensor/actuator cable, shielded</li><li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li></ul>	YF2A28-030UA6XLEAX	2145473

## 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)