



# 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>Measurement principle</b>      | Laser run time technology      |
| <b>Medium</b>                     | Bulk solids                    |
| <b>Communication interface</b>    | Serial, RS-232<br>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>         | 35 Hz<br>50 Hz<br>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                              |

#### Performance

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

#### Interfaces

|                               |  |
|-------------------------------|--|
|                               | Auxiliary interface, Serial host interface, Ethernet |
| <b>Number</b>                 | 1, 1, 1  |
| <b>Protocol</b>               | USB 2.0<br>RS-232/RS-422<br>TCP/IP                   |
| <b>Data transmission rate</b> | 500 kBaud  |

|                           |  |
|---------------------------|--|
|                           | 500 kBaud 100 Mbit/s                     |
| <b>Switching inputs</b>   | 2 + Encoder                              |
| <b>Switching outputs</b>  | 6  |
| <b>Analog signals</b>     | Available with separate accessory BAM100 |
| <b>Optical indicators</b> | 5 LEDs Additional 7-segment display      |

### Electronics

|                                  |  |
|----------------------------------|--|
| <b>Supply voltage</b>            | 19.2 V ... 28.8 V  |
| <b>Power consumption</b>         | 22 W + 55 W heating (typical)  |
| <b>Residual ripple</b>           | ± 5 %  |
| <b>Protection class</b>          | ✓  |
| <b>Connection type</b>           | M12 round connector  |
| <b>Output signal</b>             | Ethernet<br>Digital inputs and digital outputs<br>USB auxiliary interface<br>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> | ≤ 1.3 A  |
| <b>Switch-on time</b>            | ≤ 60 s   |

### Mechanics

|   |                          |
|---|--------------------------|
| <b>Weight</b>                                   | 3.7 kg                   |
| <b>Housing color</b>                            | Gray (RAL 7032)          |
| <b>Dimensions</b>                               | 160 mm x 155 mm x 185 mm |
| <b>Distance of the sensor to the bulk solid</b> | ≥ 0.5 m                  |

### Ambient data

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

### Certificates

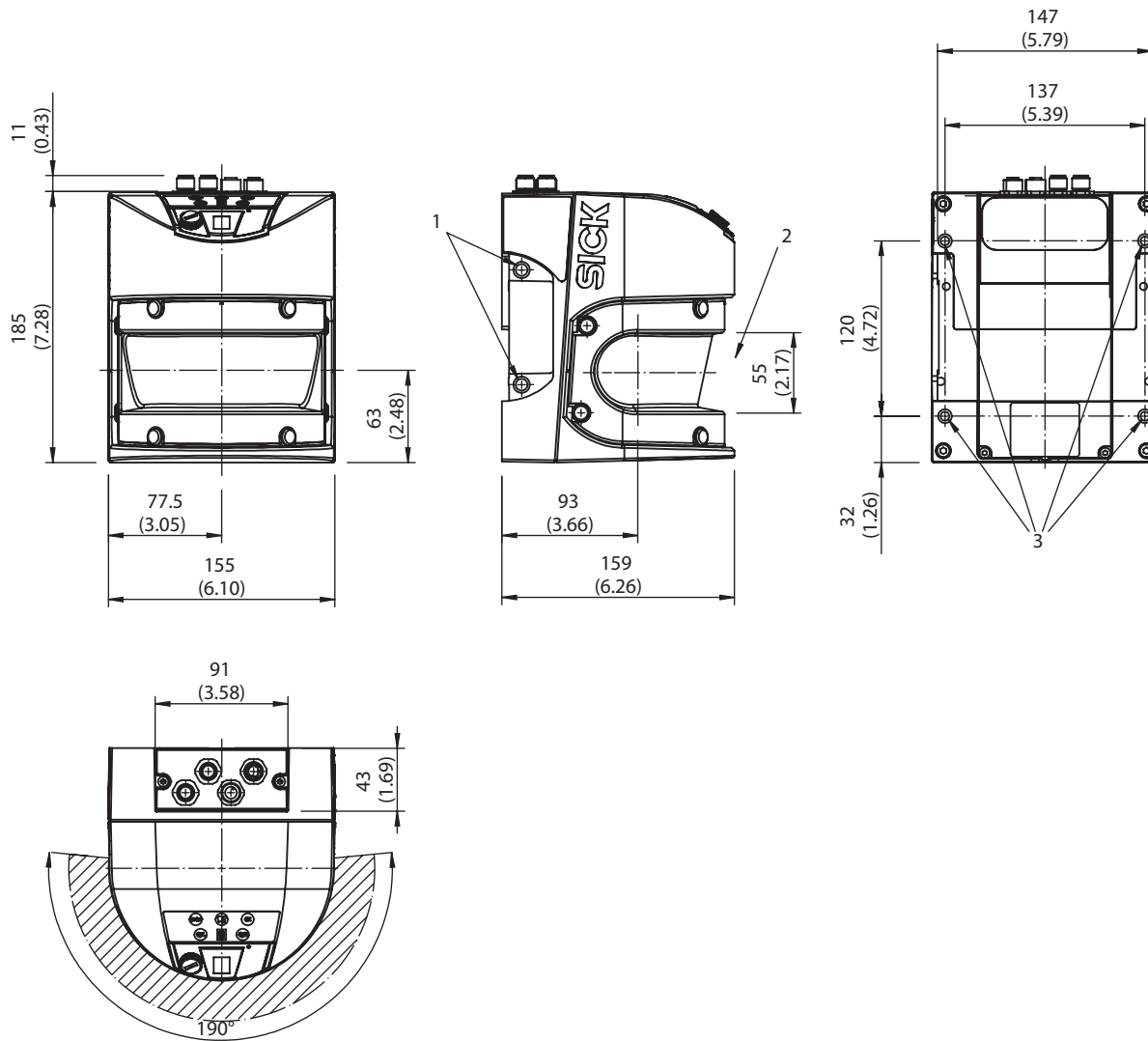
|  |   |
|--|---|
| <b>EU declaration of conformity</b>  | ✓ |
| <b>UK declaration of conformity</b>  | ✓ |
| <b>ACMA declaration of conformity</b>  | ✓ |
| <b>China RoHS</b>  | ✓ |
| <b>cTUVus certificate</b>  | ✓ |
| <b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b> | ✓ |

### Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27200413 |
| <b>ECLASS 5.1.4</b> | 27200413 |
| <b>ECLASS 6.0</b>   | 27200413 |

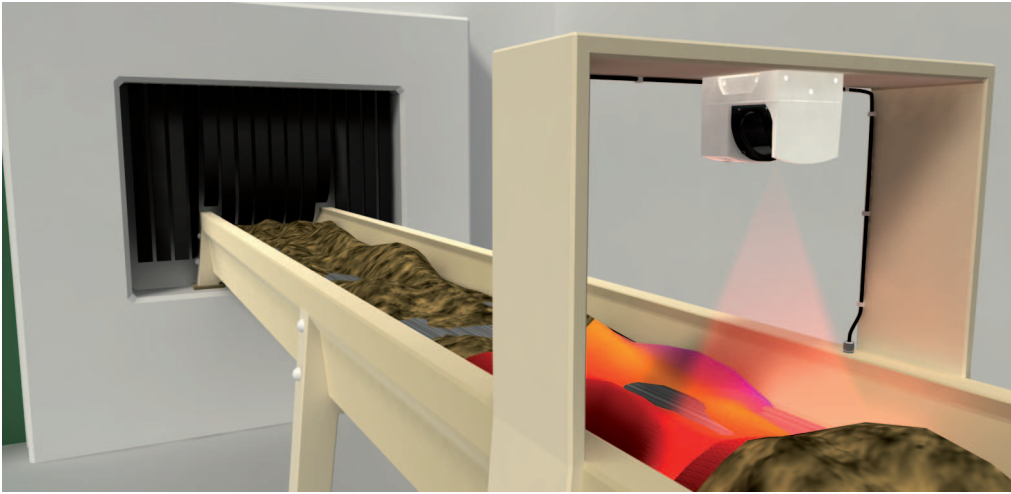
|                       |          |
|-----------------------|----------|
| <b>ECLASS 6.2</b>     | 27200413 |
| <b>ECLASS 7.0</b>     | 27200413 |
| <b>ECLASS 8.0</b>     | 27200413 |
| <b>ECLASS 8.1</b>     | 27200413 |
| <b>ECLASS 9.0</b>     | 27200413 |
| <b>ECLASS 10.0</b>    | 27200413 |
| <b>ECLASS 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

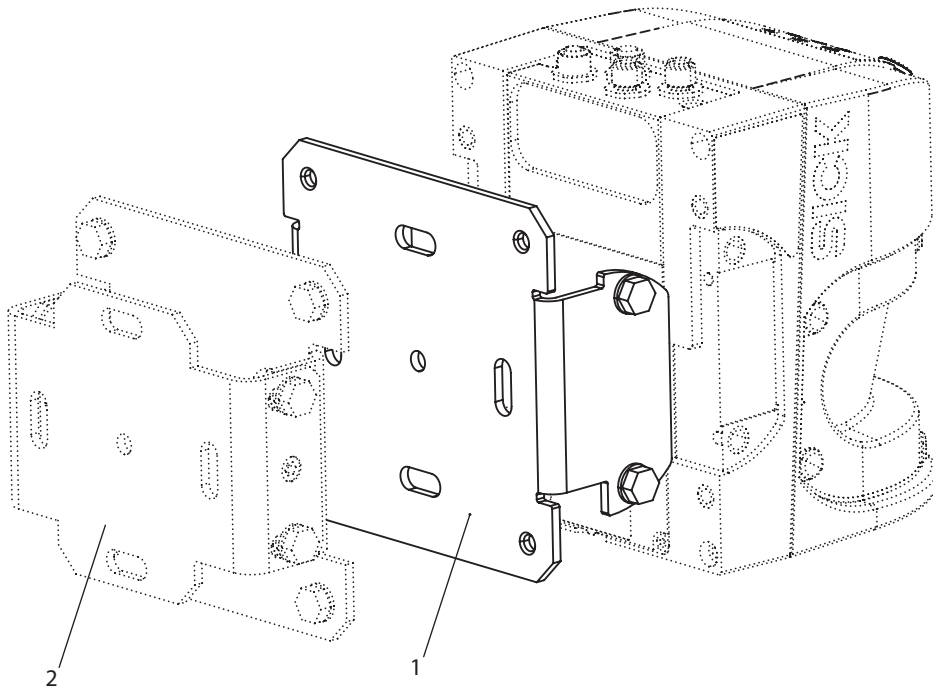


- Dimensions in mm (inch)
- ① 4 screw holes M8 x 9
  - ② do not block front screen
  - ③ 4 screw holes M6 x 8

### Application

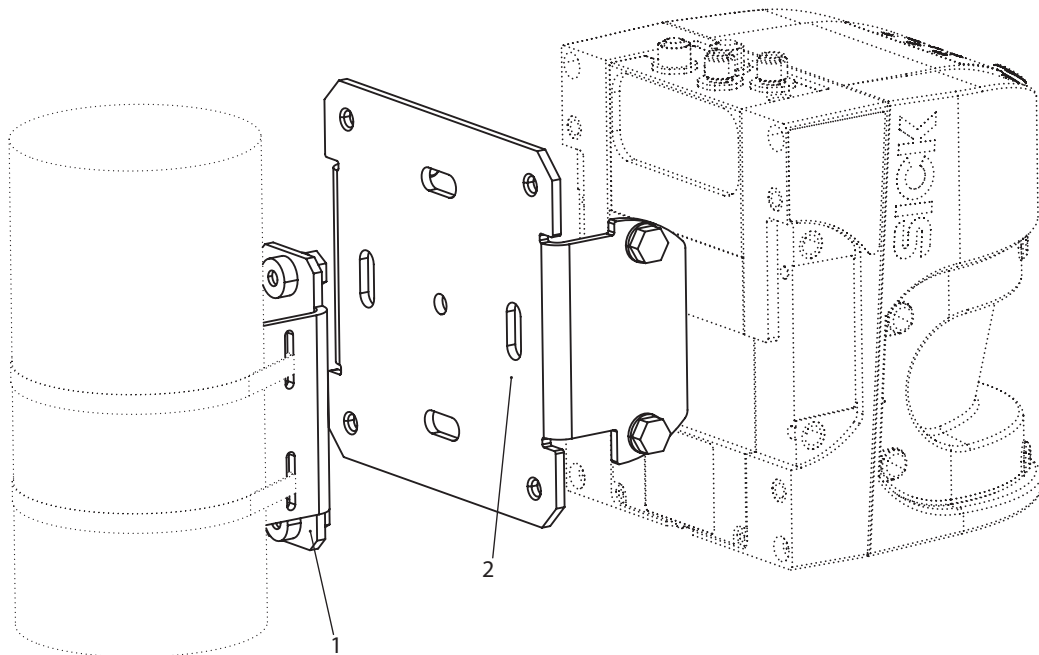


### Instruction for installation Mounting bracket



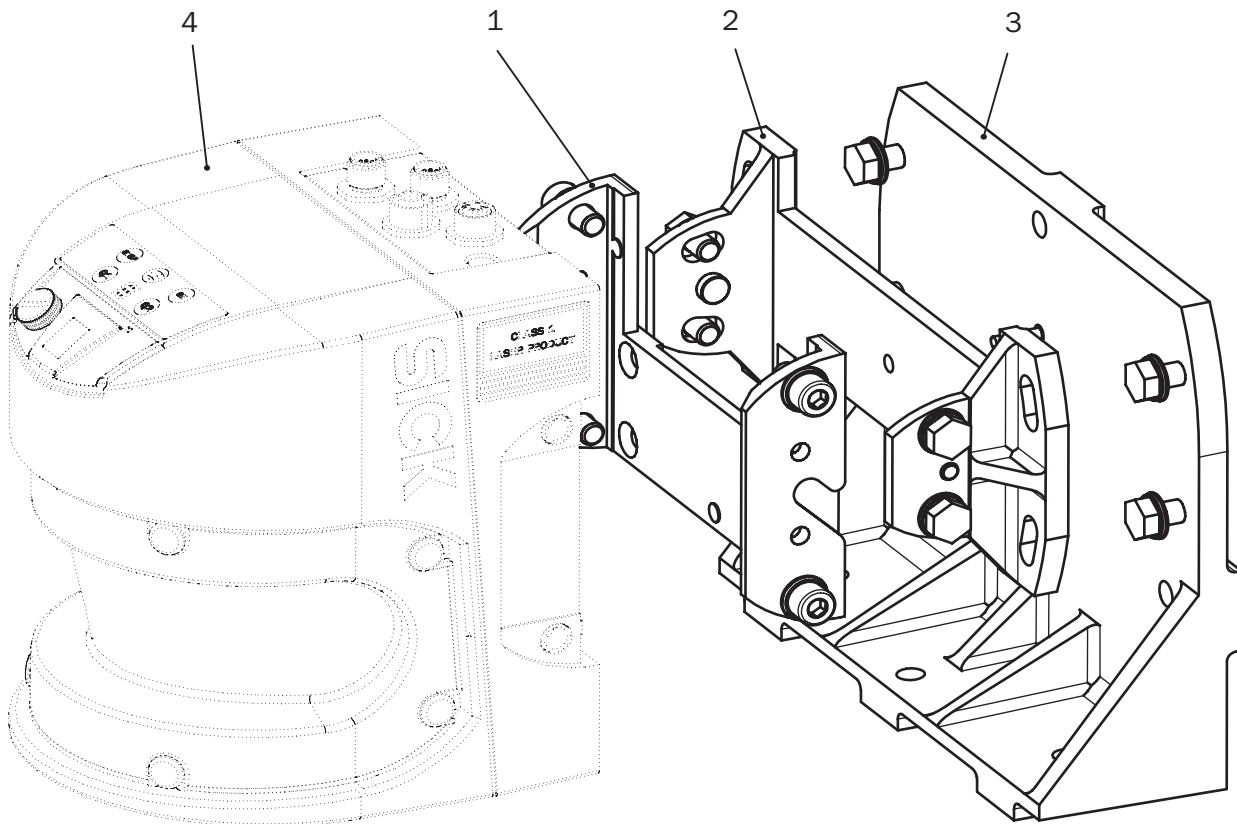
- ① mounting bracket
- ② Mounting set for LMS2xx Part no. 2018303

### Instruction for installation Post bracket



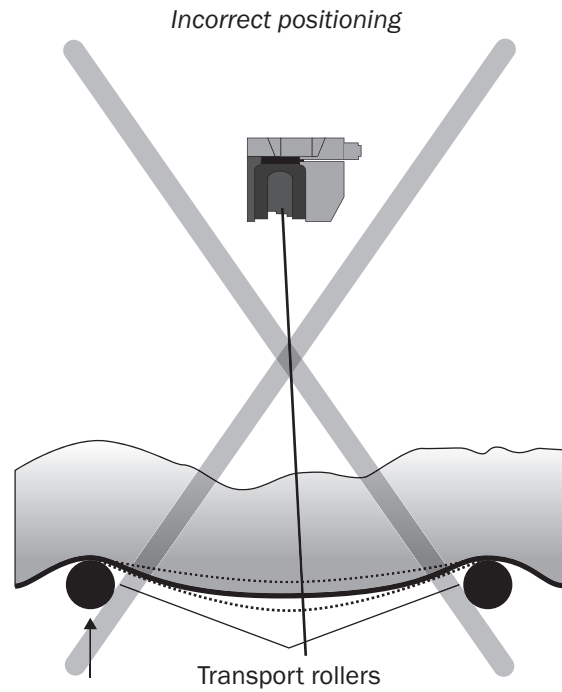
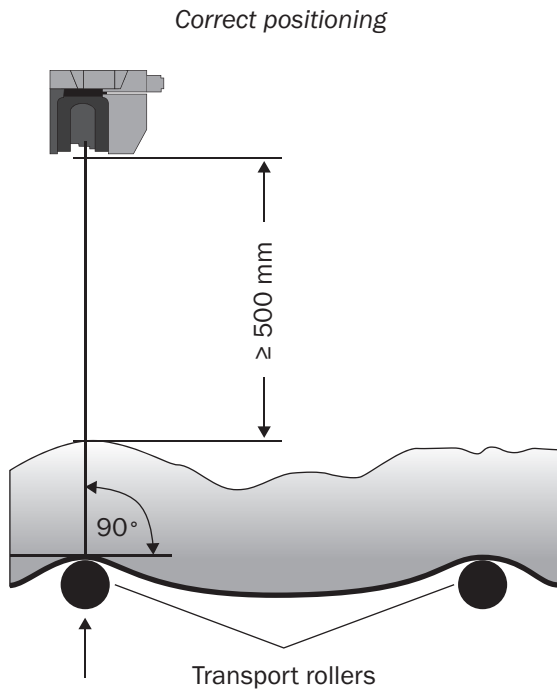
- ① Post bracket
- ② Adapter bracket

### 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







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>Description:</b> Weather protection hood (180°), vertical mounting. 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>   | YF2A64-050XXXLEAX   | 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  |
|    | <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, 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>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 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  |
| 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)