



# LMS511-20190

Bulkscan

LASER VOLUME FLOWMETER

**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

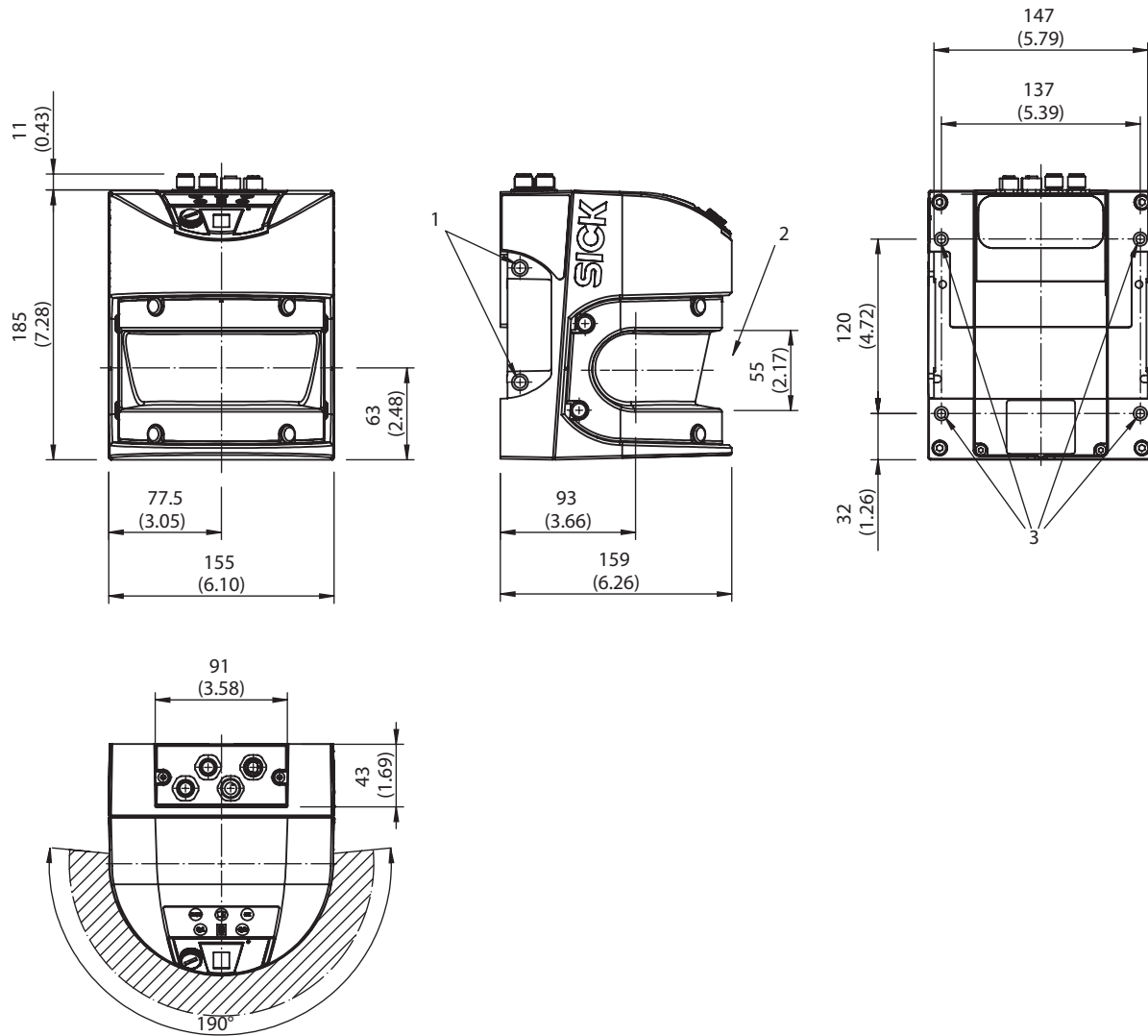
## Classifications

<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

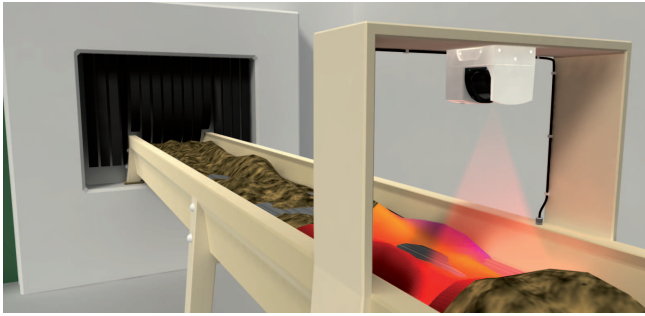
### Dimensional drawing (Dimensions in mm (inch))

Bulkscan LMS511



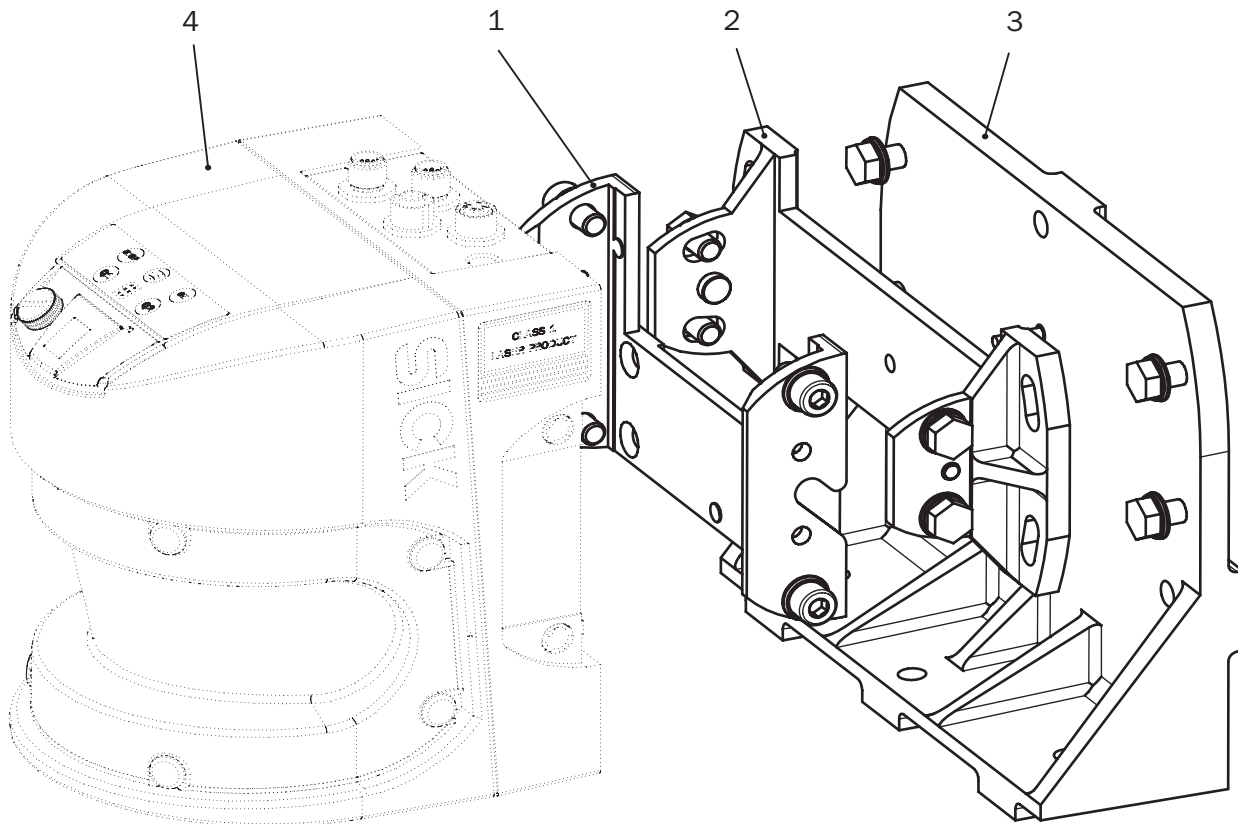
- ① 4 screw holes M8 x 9
- ② Do not block front screen
- ③ 4 screw holes M6 x 8

## Application



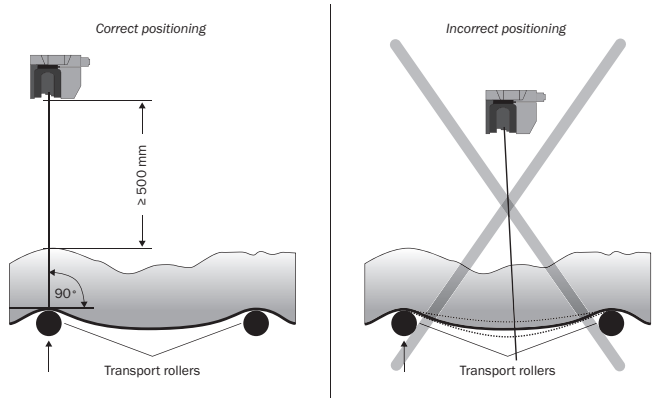
## Instruction for installation

### Mounting bracket

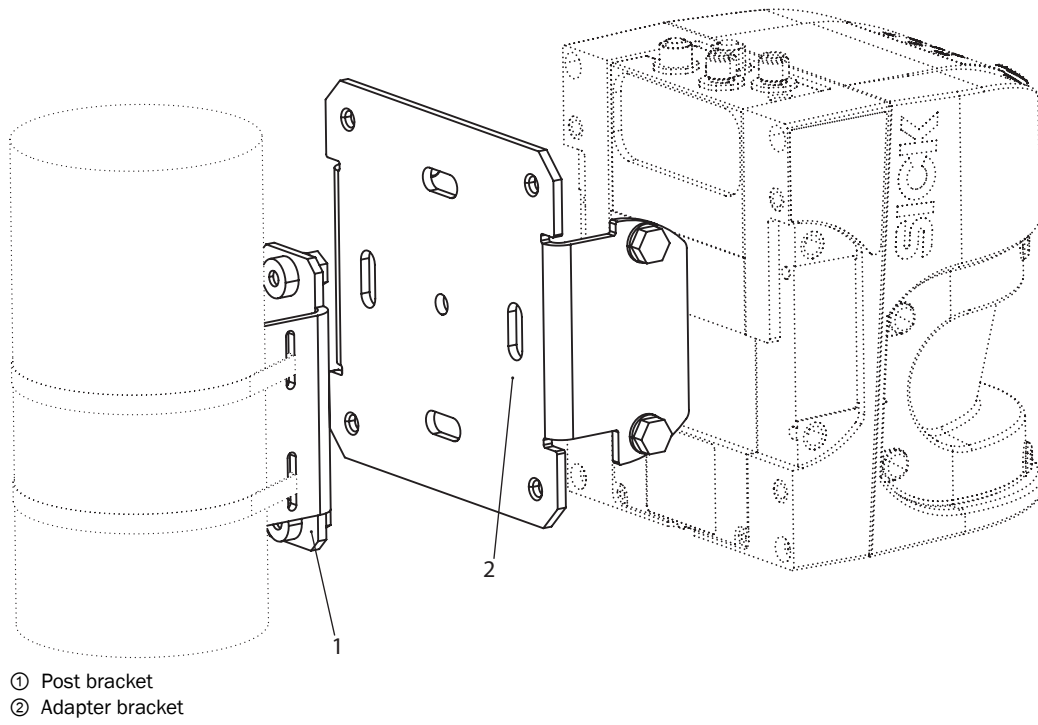


- ① Mounting kit 1
- ② Mounting kit 2
- ③ Mounting kit 3
- ④ Device

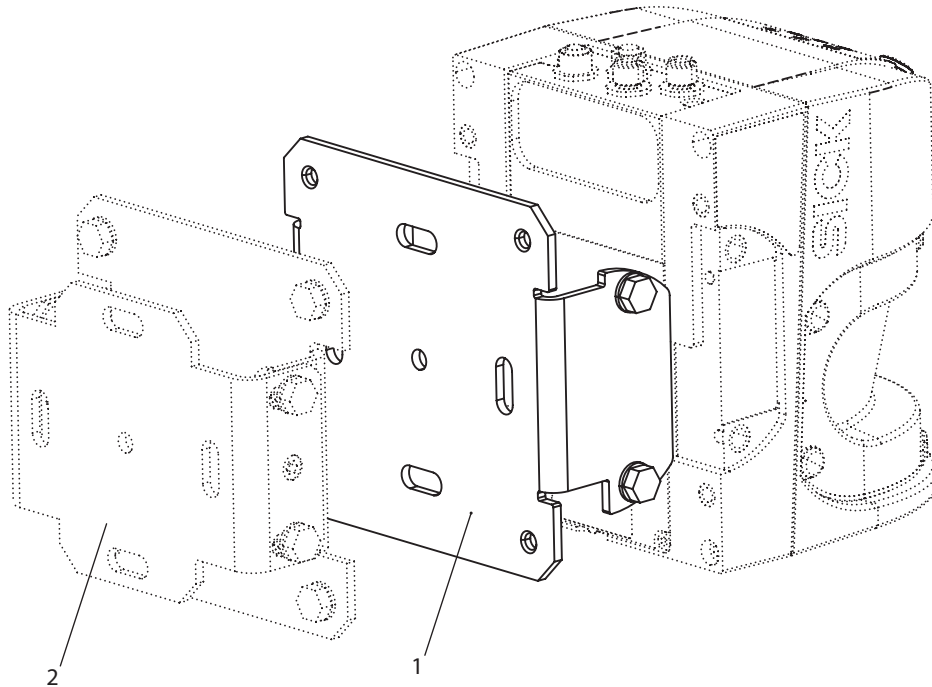
Bulkscan LMS511 / Bulkscan LMS111



Post bracket







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>Connection modules</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	BAM100-HE44K	2073296
<b>Optics cloths</b>			
	Cloth for cleaning optical surfaces	Lens cloth	4003353
<b>Device protection (mechanical)</b>			
	Weather protection hood (180°), vertical mounting. <sup>9</sup> In applications with high shock/vibration requirements, the optics cover must be checked regularly for damage., Aluminum (powder-coating)	Weather protection hood	2063050
<b>Mounting brackets and plates</b>			
	Spring arm / mounting arm for DFV60	DFV60 spring arm	2056155

	Brief description	Type	Part no.
	Mounting bracket for LMS5xx (for retrofitting, if 2018303 is already in use), Stainless steel V2A (1.4301)	Mounting bracket	2059271
	1 piece, mounting bracket for direct mounting, from the rear, on wall or machine, not adjustable, Aluminum	Mounting kit 1	2015623
	1 piece, mounting bracket for rear mounting on wall or machine, adjustable longitudinal and lateral axes, only in conjunction with mounting kit 1 (2015623), Aluminum	Mounting kit 2	2015624
	1 piece, 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), Aluminum	Mounting kit 3	2015625
<b>Other mounting accessories</b>			
	Strap lock	Adjustable strap lock	5306221
	Strap for mast bracket (sold by meter)	Tension strap	5306222
<b>Plug connectors and cables</b>			
	<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, I/O</li> <li>• <b>Cable:</b> 5 m, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, I/O, twisted pair, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YF2A2B-050UD3XLEAX	6042735
	<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, I/O</li> <li>• <b>Cable:</b> 10 m, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, I/O, twisted pair, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YF2A2B-100UD3XLEA	6042736
	<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, I/O</li> <li>• <b>Cable:</b> 20 m, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, I/O, twisted pair, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Zones with oils and lubricants</li> </ul>	YF2A2B-200UD3XLEAX	6042737
	<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> 10 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Power, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>	YF2Z15-100UE1XLEAX	6042565



	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> 20 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Power, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>	YF2Z15-200UE1XLEAX	6042564
	<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, I/O</li> <li>• <b>Cable:</b> 5 m, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, I/O, twisted pair, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Drag chain operation</li> </ul>	YM2A2B-050UD3XLEAX	6042732
	<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, I/O</li> <li>• <b>Cable:</b> 10 m, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, I/O, twisted pair, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Drag chain operation</li> </ul>	YM2A2B-100UD3XLEAX	6042733
	<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, I/O</li> <li>• <b>Cable:</b> 20 m, 12-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, I/O, twisted pair, shielded</li> <li>• <b>Connection systems:</b> Flying leads</li> <li>• <b>Application:</b> Drag chain operation</li> </ul>	YM2A2B-200UD3XLEAX	6042734
	<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, 8-pin, straight</li> <li>• <b>Signal type:</b> Ethernet</li> <li>• <b>Cable:</b> 10 m, 4-wire, AWG26, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, twisted pair, shielded</li> </ul> <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>	YM2D24-100EA1MRJA4	6030928
YM2D24-200EA1MRJA4	6036158		
Terminal and alignment brackets			
	Pole bracket requires additionally adapter bracket (2059271) or mounting set (2018303)	Mast mounting bracket	2018304
	Power supply DC 24 V / 10 A	Power supply	6020875
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</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

	Brief description	Type	Part no.
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>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>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

## 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)