



# LMS111-10190

Bulkscan

LASER VOLUME FLOWMETER

**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

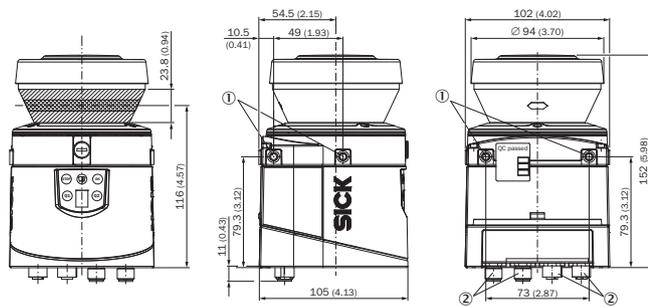
## Classifications

<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

<b>ETIM 7.0</b>	EC002580
<b>ETIM 8.0</b>	EC002580
<b>UNSPSC 16.0901</b>	41112501

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

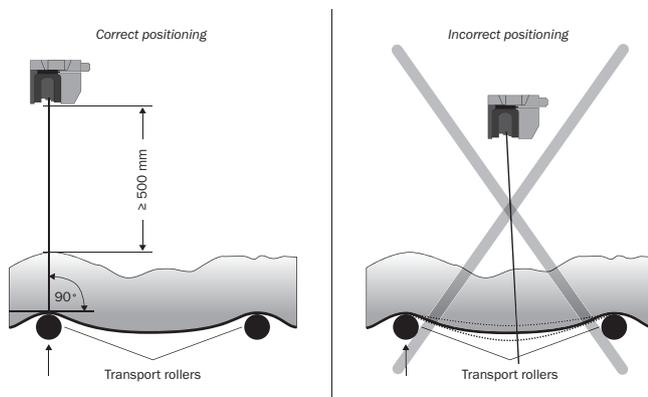
Bulkscan LMS111



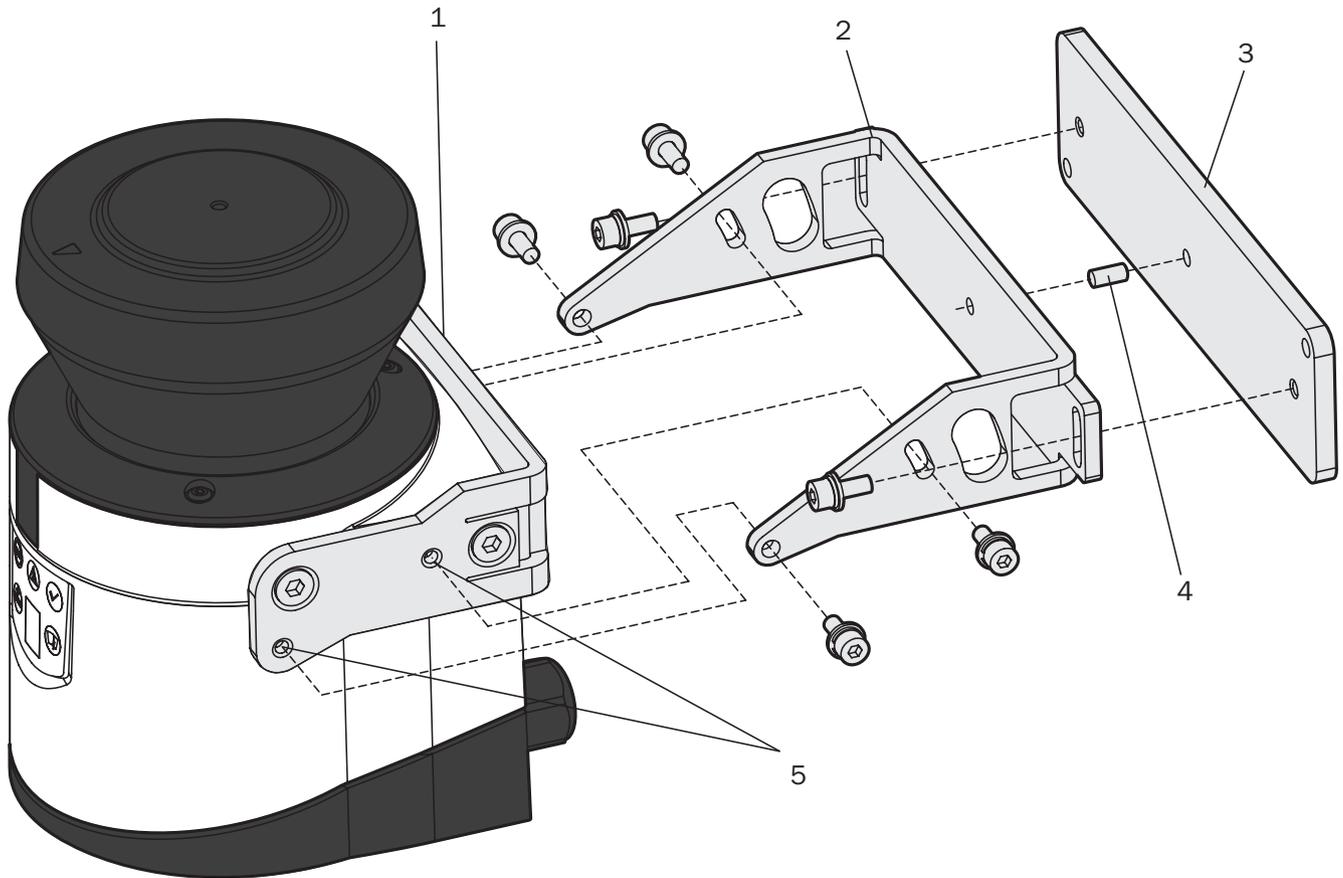
- ① Mounting hole M5 x 7.5
- ② Connector M12

### Instruction for installation

Bulkscan LMS511 / Bulkscan LMS111

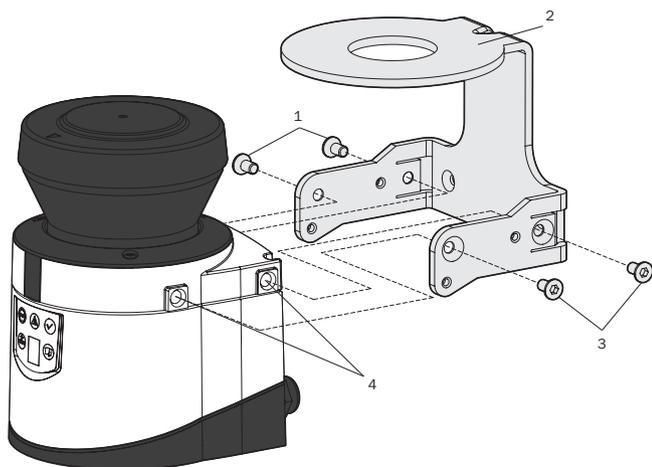


Mounting kit 2



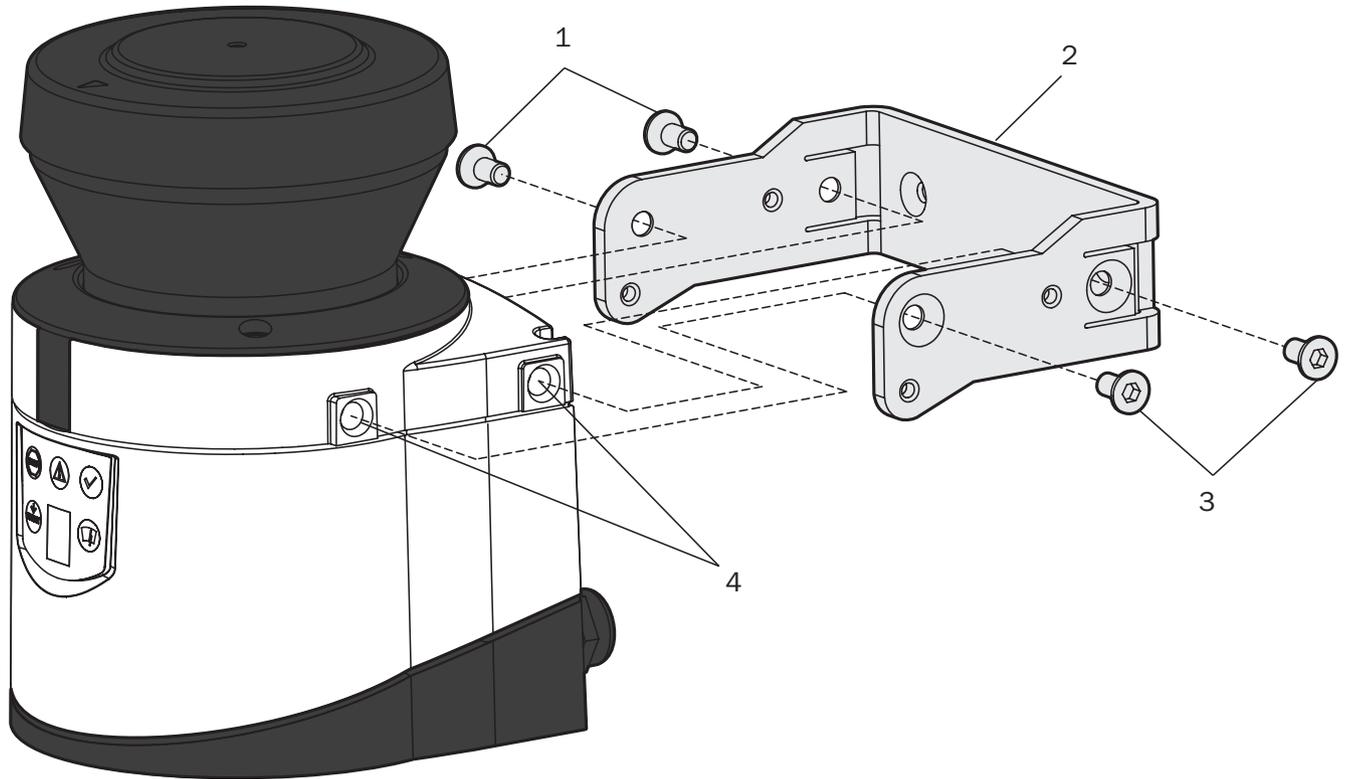
- ① Mounting kit 1a
- ② Mounting kit 2
- ③ Mounting kit 3
- ④ Centring pin
- ⑤ Threaded holes M4

Mounting kit 1b



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

### Mounting kit 1a



- ① Mounting screws
- ② Mounting kit 1a
- 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.
<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 hood, 190°	Weather protection cover 190°	2046459

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Spring arm / mounting arm for DFV60	DFV60 spring arm	2056155
	Standard mounting set for weather hood	Mounting bracket	2046025
	1 piece, mounting bracket for rear mounting on wall or machine	Mounting kit 1a	2034324
	1 piece, mounting bracket for rear mounting on wall or machine with protection of optics hood	Mounting kit 1b	2034325
	1 piece, mounting bracket, adjustable lateral axis, only in conjunction with mounting kit 1a (2034324) or 1b (2034325)	Mounting kit 2	2039302
	1 piece, mounting plate, adjustable longitudinal axis, only in conjunction with mounting kit 2 (2039302)	Mounting kit 3	2039303
<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, 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> 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> Zones with oils and lubricants, 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> 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> </ul>	YF2A28-200UA6XLEAX	6036154
	<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

	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> </ul>	YF2Z15-100UE1XLEAX	6042565
	<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, 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> Zones with oils and lubricants, 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> </ul>	YM2A28-100UA6XLEAX	6036156
	<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> </ul>	YM2A28-200UA6XLEAX	6036157
	<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>	YM2D24-100EA1MRJA4	6030928
	<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
Terminal and alignment brackets			
	Pole bracket requires additionally adapter bracket (2059271) or mounting set (2018303)	Mast mounting bracket	2018304
	Quick-action lock system for weather hood	Quick release	2046989
	Power supply DC 24 V / 10 A	Power supply	6020875

	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</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
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.”

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