



# IMC12-04BPPVC0SA70

IMC

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
IMC12-04BPPVC0SA70	1079287

**Included in delivery:** BEF-MU-M12N (1)

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

Illustration may differ



### Detailed technical data

#### Features

<b>Housing</b>	Metric
<b>Thread size</b>	M12 x 1
<b>Diameter</b>	Ø 12 mm
<b>Sensing range <math>S_n</math></b>	0 mm ... 4 mm <sup>1)</sup>
<b>Safe sensing range <math>S_a</math></b>	3.24 mm
<b>Number of switching points</b>	Up to 4 adjustable switching points or windows
<b>Switching modes</b>	Single point, Window mode, Two point mode, Visual adjustment indicator
<b>Switching frequency Qint.1 / Qint.2 on Pin2</b>	1,000 Hz
<b>Installation type</b>	Flush
<b>Connection type</b>	Male connector M12, 4-pin <sup>2)</sup>
<b>Switching output</b>	PNP
<b>Switching output detail</b>	PNP
<b>Output Q/C</b>	Switching output or IO-Link mode
<b>Output MFC</b>	Switching output or input
<b>Output function</b>	NC / NO
<b>Output characteristic</b>	Programmable
<b>Electrical wiring</b>	DC 4-wire
<b>Enclosure rating</b>	IP68 <sup>3)</sup> IP69K <sup>4)</sup>
<b>Special features</b>	Smart Task, Resistant against coolant lubricants, IO-Link

<sup>1)</sup> Adjustable.

<sup>2)</sup> With gold plated contact pins.

<sup>3)</sup> According to EN 60529.

<sup>4)</sup> According to ISO 20653:2013-03.

<b>Special applications</b>	Zones with coolants and lubricants, Difficult application conditions
<b>Special characteristic</b>	Resistant against coolant lubricants
<b>Pin 2 configuration</b>	External input, Teach-in, switching signal
<b>Items supplied</b>	Mounting nut, V2A stainless steel, with locking teeth (2x)

- 1) Adjustable.  
2) With gold plated contact pins.  
3) According to EN 60529.  
4) According to ISO 20653:2013-03.

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	≤ 10 %
<b>Voltage drop</b>	≤ 2 V <sup>2)</sup>
<b>Hysteresis</b>	Programmable <sup>3)</sup>
<b>Reproducibility</b>	≤ 5 % <sup>4)</sup> <sup>5)</sup>
<b>Temperature drift (of S<sub>r</sub>)</b>	± 10 %
<b>EMC</b>	According to EN 60947-5-2
<b>Continuous current I<sub>a</sub></b>	≤ 200 mA <sup>6)</sup>
<b>Short-circuit protection</b>	✓
<b>Power-up pulse protection</b>	✓
<b>Shock and vibration resistance</b>	100 g / 2 ms / 500 cycles; 150 g / 1 Mio cycles; 10 Hz ... 55 Hz / 1 mm; 55 Hz ... 500 Hz / 60 g
<b>Ambient operating temperature</b>	-40 °C ... +75 °C
<b>Housing material</b>	Stainless steel V2A, DIN 1.4305 / AISI 303
<b>Sensing face material</b>	Plastic, LCP
<b>Housing length</b>	65 mm
<b>Thread length</b>	48 mm
<b>Tightening torque, max.</b>	Typ. 32 Nm <sup>7)</sup>
<b>UL File No.</b>	E181493
<b>Teach-in accuracy</b>	+/- 3% of Sr
<b>Resolution, typical (range)</b>	10 µm (0 mm ... 1 mm) 20 µm (1 mm ... 3 mm) 40 µm (3 mm ... 4 mm)
<b>Resolution, maximum (area)</b>	20 µm (0 mm ... 1 mm) 40 µm (1 mm ... 3 mm) 75 µm (3 mm ... 4 mm)

- 1) IO-Link mode: 18 VDC ... 30 VDC.  
2) At I<sub>a</sub> max.  
3) To comply with EN 60947-5-2, a hysteresis of approx. 10% must be set.  
4) Supply voltage U<sub>B</sub> and constant ambient temperature Ta.  
5) Of Sr.  
6) 200 mA total for both switching outputs.  
7) Valid if toothed side of nut is used.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	688 years
<b>DC<sub>avg</sub></b>	0 %
<b>T<sub>M</sub> (mission time)</b>	20 years

### Communication interface

<b>Communication interface</b>	IO-Link V1.1
<b>Communication Interface detail</b>	COM2 (38,4 kBaud)
<b>Cycle time</b>	5 ms
<b>Process data length</b>	32 Bit
<b>Process data structure</b>	Bit 0 = switching signal Q <sub>L1</sub> Bit 1 = switching signal Q <sub>L2</sub> Bit 2 = switching signal Q <sub>Int3</sub> Bit 3 = switching signal Q <sub>Int4</sub> Bit 18 ... 31 = time value
<b>Factory setting</b>	Switching Point 1: reference value 1 Output: normally open Pin 2 configuration: input

### Reference values

<b>Note</b>	Reference value in Digits for switching point in mm stored in the sensor
<b>Reference value 1</b>	4 mm
<b>Reference value 2</b>	3 mm
<b>Reference value 3</b>	2 mm
<b>Reference value 4</b>	1 mm

### Reduction factors

<b>Stainless steel (V2A, 304)</b>	Approx. 0.7
<b>Aluminum (Al)</b>	Approx. 0.4
<b>Copper (Cu)</b>	Approx. 0.3
<b>Brass (Br)</b>	Approx. 0.4

### Installation note

<b>Remark</b>	Associated graphic see "Installation"
<b>B</b>	12 mm
<b>C</b>	12 mm
<b>D</b>	12 mm
<b>F</b>	32 mm

### Smart Task

<b>Smart Task name</b>	Time measurement + debouncing
<b>Logic function</b>	Window Direct
<b>Timer function</b>	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)

<sup>1)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>2)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

<b>Inverter</b>	Adjustable
<b>Time measurement accuracy</b>	SIO Logic: $(-1,2 \dots 0) \times \text{time base} \pm 1 \% \text{ of time measurement value } ^{1)}$ IOL: $(-1,2 \dots 0) \times \text{time base} \pm 1 \% \text{ of time measurement value } ^{2)}$
<b>Time measurement accuracy (e.g. accuracy for time measurement value = 1 s )</b>	Time base 1 ms: -11,2 ms ... 10 ms
<b>Resolution time measuring value</b>	1 ms
<b>Debounce time max.</b>	SIO Logic: 30 s <sup>1)</sup> IOL: 30 s <sup>2)</sup>
<b>Switching signal</b>	
Switching signal Q <sub>L1</sub>	Output type (dependant on the adjusted threshold)
Switching signal Q <sub>L2</sub>	Output type (dependant on the adjusted threshold)
<b>Measuring value</b>	Time measurement value

<sup>1)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>2)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

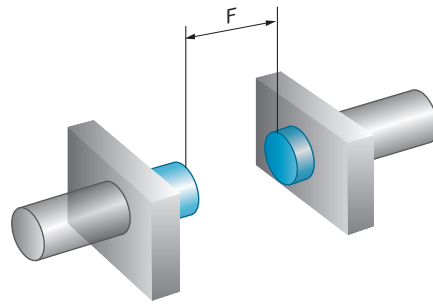
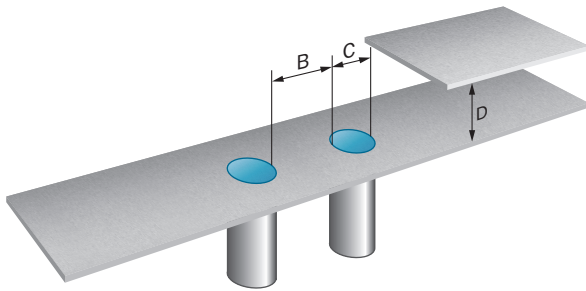
## Certificates

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

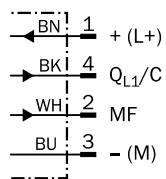
## Classifications

<b>ECLASS 5.0</b>	27270101
<b>ECLASS 5.1.4</b>	27270101
<b>ECLASS 6.0</b>	27270101
<b>ECLASS 6.2</b>	27270101
<b>ECLASS 7.0</b>	27270101
<b>ECLASS 8.0</b>	27270101
<b>ECLASS 8.1</b>	27270101
<b>ECLASS 9.0</b>	27270101
<b>ECLASS 10.0</b>	27270101
<b>ECLASS 11.0</b>	27270101
<b>ECLASS 12.0</b>	27274001
<b>ETIM 5.0</b>	EC002714
<b>ETIM 6.0</b>	EC002714
<b>ETIM 7.0</b>	EC002714
<b>ETIM 8.0</b>	EC002714
<b>UNSPSC 16.0901</b>	39122230

## Installation note Flush installation

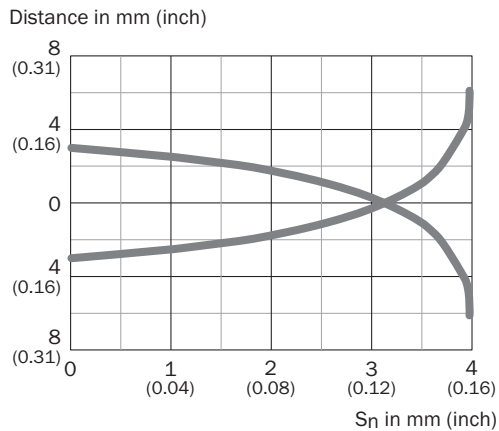


## Connection diagram Cd-526

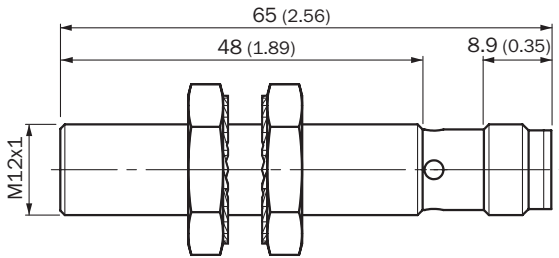


$Q_{L1}/C$  = Switching output,  
IO-Link communication  
MF = Multifunction

## Response diagram








## Dimensional drawing IMC12 Standard, connector, M12, flush
















Dimensions in mm (inch)

## Recommended accessories

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

	Brief description	Type	part no.
network devices			
		IOLA2US-01101 (SiLink2 Master)	1061790
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for M12 sensors</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Without mounting hardware</li> </ul>	BEF-WN-M12	5308447
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting plate for M12 sensors</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel</li> <li><b>Items supplied:</b> Without mounting hardware</li> </ul>	BEF-WG-M12N	5320950
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for M12 housing</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel</li> <li><b>Items supplied:</b> Without mounting hardware</li> </ul>	BEF-WN-M12N	5320949
	<ul style="list-style-type: none"> <li><b>Description:</b> Plate N05N for universal clamp bracket, M12</li> <li><b>Material:</b> Stainless steel, stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)</li> <li><b>Items supplied:</b> Universal clamp (5322627), mounting hardware</li> <li><b>Usable for:</b> IMA, IMF, M12 round sensors, UC4, V12-2, MultiV, MultiLine, W4-3, MultiV, MultiLine</li> </ul>	BEF-KHS-N05N	2051621

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight</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, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DOL-1204-G02MRN	6058291
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight</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, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DOL-1204-G05MRN	6058476
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled</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, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DOL-1204-W02MRN	6058474
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled</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, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DOL-1204-W05MRN	6058477
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled</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, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2), only suitable for PNP sensors</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DOL-1204-L02MRN	6058482
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled</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, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2), only suitable for PNP sensors</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DOL-1204-L05MRN	6058483
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> </ul>	DSL-1204-G02MRN	6058499

	Brief description	Type	part no.
	<ul style="list-style-type: none"> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>		
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DSL-1204-G05MRN	6058500
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DSL-1204-B02MRN	6058502
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	DSL-1204-B05MRN	6058503
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-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, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A14-050UB3XLEAX	2095608
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 20 m, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	YF2AP4-020PA2M2AP4	2143765
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-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, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 4-wire, PP</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li><b>Application:</b> Hygienic and washdown zones, Drag chain operation</li> </ul>	YG2AP4-030PA2M2AP4	2151191

## 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)