



# IQC12-04BPPKQ8SA70

IMC

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type               | part no. |
|--------------------|----------|
| IQC12-04BPPKQ8SA70 | 1083797  |

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

### Detailed technical data

#### Features

|                                                    |                                                                        |
|----------------------------------------------------|------------------------------------------------------------------------|
| <b>Housing</b>                                     | Rectangular                                                            |
| <b>Dimensions (W x H x D)</b>                      | 12 mm x 40 mm x 26 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>                             | Cable with M12 male connector, 4-pin, 0.2 m <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>                                                     |
| <b>Special features</b>                            | Smart Task, IO-Link                                                    |
| <b>Pin 2 configuration</b>                         | External input, Teach-in, switching signal                             |

<sup>1)</sup> Adjustable.

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

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

## 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><br><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>No load current</b>                      | 35 mA                                |
| <b>Short-circuit protection</b>             | ✓                                    |
| <b>Power-up pulse protection</b>            | ✓                                    |
| <b>Shock and vibration resistance</b>       | 30 g, 11 ms / 10 ... 55 Hz, 1 mm     |
| <b>Ambient operating temperature</b>        | -25 °C ... +75 °C                    |
| <b>Housing material</b>                     | Plastic, VISTAL®                     |
| <b>Sensing face material</b>                | Plastic, VISTAL®                     |
| <b>Tightening torque, max.</b>              | < 1 Nm                               |
| <b>Teach-in accuracy</b>                    | +/- 3% of Sr                         |
| <b>Resolution, typical (range)</b>          | 20 µm (0 mm ... 4 mm)                |
| <b>Resolution, maximum (area)</b>           | 40 µm (0 mm ... 4 mm)                |

<sup>1)</sup> IO-Link mode: 18 VDC ... 30 VDC.

<sup>2)</sup> At I<sub>a</sub> max.

<sup>3)</sup> To comply with EN 60947-5-2, a hysteresis of approx. 10% must be set.

<sup>4)</sup> Supply voltage U<sub>B</sub> and constant ambient temperature Ta.

<sup>5)</sup> Of Sr.

<sup>6)</sup> 200 mA total for both switching outputs.

## 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><br>Bit 1 = switching signal Q <sub>L2</sub><br>Bit 2 = switching signal Q <sub>Int3</sub><br>Bit 3 = switching signal Q <sub>Int4</sub><br>Bit 18 ... 31 = time value |
| <b>Factory setting</b>                | Switching Point 1: reference value 1<br>Output: normally open<br>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>A</b>      | 0 mm                                  |
| <b>B</b>      | 12 mm                                 |
| <b>C</b>      | 12 mm                                 |
| <b>D</b>      | 12 mm                                 |
| <b>E</b>      | 0 mm                                  |
| <b>F</b>      | 32 mm                                 |
| <b>G</b>      | 0 mm                                  |

### Smart Task

|                                                                                    |                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Smart Task name</b>                                                             | Time measurement + debouncing                                                                                                                                                                            |
| <b>Logic function</b>                                                              | Window<br>Direct                                                                                                                                                                                         |
| <b>Timer function</b>                                                              | Deactivated<br>Switch-on delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)                                                                                                                    |
| <b>Inverter</b>                                                                    | Adjustable                                                                                                                                                                                               |
| <b>Time measurement accuracy</b>                                                   | SIO Logic: $(-1,2 \dots 0) \times \text{time base} \pm 1 \% \text{ of time measurement value } ^{1)}$<br>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: $-11,2 \text{ ms} \dots 10 \text{ ms}$                                                                                                                                                   |
| <b>Resolution time measuring value</b>                                             | 1 ms                                                                                                                                                                                                     |
| <b>Debounce time max.</b>                                                          | SIO Logic: $30 \text{ s } ^{1)}$<br>IOL: $30 \text{ s } ^{2)}$                                                                                                                                           |
| <b>Switching signal</b>                                                            |                                                                                                                                                                                                          |
| Switching signal $Q_{L1}$                                                          | Output type (dependant on the adjusted threshold)                                                                                                                                                        |
| Switching signal $Q_{L2}$                                                          | 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.

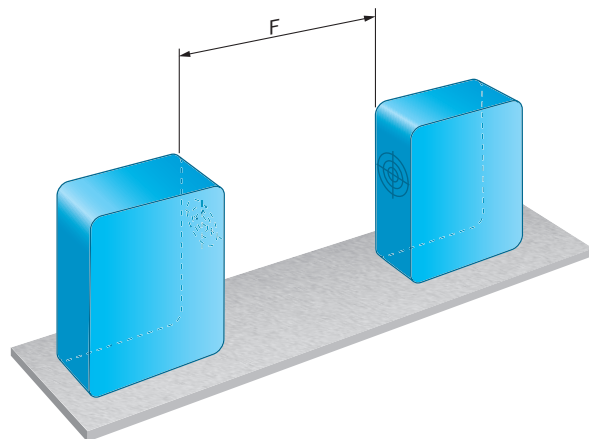
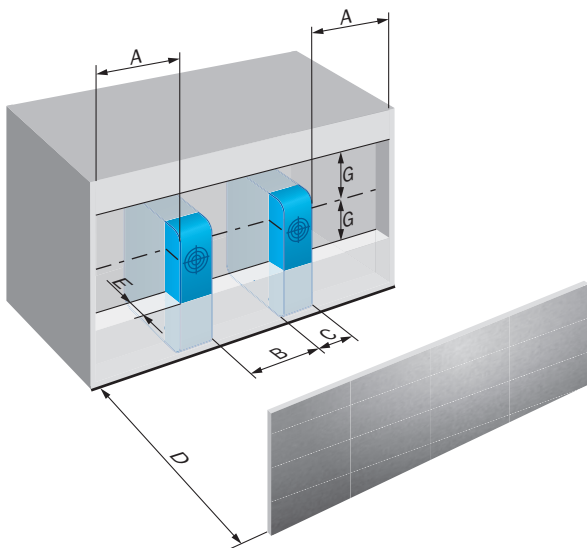
## Certificates

|                                       |   |
|---------------------------------------|---|
| <b>EU declaration of conformity</b>   | ✓ |
| <b>UK declaration of conformity</b>   | ✓ |
| <b>ACMA declaration of conformity</b> | ✓ |
| <b>China-RoHS</b>                     | ✓ |
| <b>cULus certificate</b>              | ✓ |
| <b>IO-Link</b>                        | ✓ |

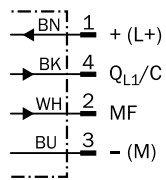
## Classifications

|                       |          |
|-----------------------|----------|
| <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



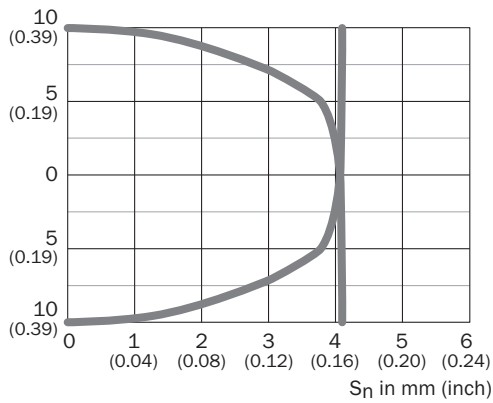
### Connection diagram Cd-526



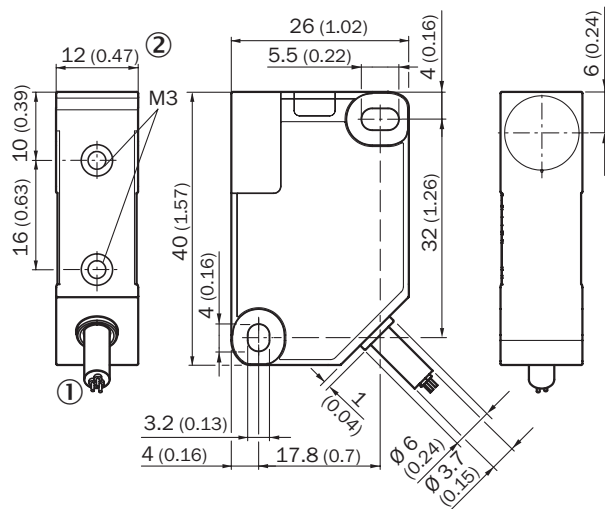
Q<sub>L1</sub>/C = Switching output,  
IO-Link communication  
MF = Multifunction

### Response diagram

Distance in mm (inch)



### Dimensional drawing IQ12, cable

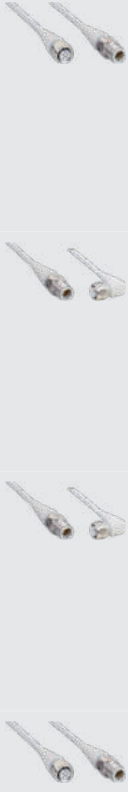


## Recommended accessories

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

|                                                                                   | Brief description | Type                              | part no. |
|-----------------------------------------------------------------------------------|-------------------|-----------------------------------|----------|
| network devices                                                                   |                   |                                   |          |
|  |                   | IOLA2US-01101<br>(SiLink2 Master) | 1061790  |

|                                                                                     | 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>                                                                                                                                                                                                                                                                                                                                | DSL-1204-G05MRN    | 6058500  |
|                                                                                    | <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-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> 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-B05MRN    | 6058503  |
|                                                                                    | <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>   | YF2AP4-020PA2M2AP4 | 2143765  |

## 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)