



# LFP0350-B5NMC

LFP Cubic

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



IO-Link



## Ordering information

| Type          | Part no. |
|---------------|----------|
| LFP0350-B5NMC | 1097860  |

Other models and accessories → [www.sick.com/LFP\\_Cubic](http://www.sick.com/LFP_Cubic)

## Detailed technical data

### Features

|                            |                    |
|----------------------------|--------------------|
| <b>Medium</b>              | Fluids             |
| <b>Measurement</b>         | Switch, Continuous |
| <b>Design</b>              | Standard           |
| <b>Probe type</b>          | Rod probe          |
| <b>Probe length</b>        | 350 mm             |
| <b>Process pressure</b>    | -1 bar ... 10 bar  |
| <b>Process temperature</b> | -20 °C ... +100 °C |
| <b>RoHS certificate</b>    | ✓                  |
| <b>IO-Link</b>             | ✓                  |
| <b>CULus certificate</b>   | ✓                  |

### Performance

|                                               |                                                            |
|-----------------------------------------------|------------------------------------------------------------|
| <b>Accuracy of sensor element</b>             | ± 5 mm <sup>1)</sup>                                       |
| <b>Reproducibility</b>                        | ≤ 2 mm                                                     |
| <b>Resolution</b>                             | < 2 mm                                                     |
| <b>Response time</b>                          | < 400 ms                                                   |
| <b>Dielectricity constant</b>                 | ≥ 5 for rod probe / cable probe<br>≥ 1.8 with coaxial tube |
| <b>Conductivity</b>                           | No limitation                                              |
| <b>Maximum level change</b>                   | ≤ 500 mm/s                                                 |
| <b>Deactivated area at process connection</b> | 25 mm <sup>2)</sup>                                        |

<sup>1)</sup> With water under reference conditions.

<sup>2)</sup> With parameterized container with water under reference conditions, otherwise 40 mm.

|                                         |                              |
|-----------------------------------------|------------------------------|
| <b>Deactivated area at end of probe</b> | $\geq 10 \text{ mm}^{1)}$    |
| <b>MTTF</b>                             | 194.3 years (EN ISO 13849-1) |

<sup>1)</sup> With water under reference conditions.

<sup>2)</sup> With parameterized container with water under reference conditions, otherwise 40 mm.

## Electronics

|                            |                                                                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supply voltage</b>      | 12 V DC ... 30 V DC <sup>1)</sup>                                                                                                            |
| <b>Power consumption</b>   | $\leq 100 \text{ mA}$ at 24 V DC without output load                                                                                         |
| <b>Initialization time</b> | $\leq 5 \text{ s}$                                                                                                                           |
| <b>Protection class</b>    | III                                                                                                                                          |
| <b>Connection type</b>     | M12 round connector x 1, 8-pin                                                                                                               |
| <b>Output signal</b>       | 1 x PNP + 3 x PNP/NPN + 4 mA ... 20 mA / 0 V ... 10 V                                                                                        |
| <b>Output load</b>         | 4 mA ... 20 mA < 500 Ohm at $U_v > 15 \text{ V}$ , 4 mA ... 20 mA < 350 Ohm at $U_v > 12 \text{ V}$ , 0 V ... 10 V > 750 Ohm at $U_v \geq V$ |
| <b>Hysteresis</b>          | Min. 2 mm, free adjustable                                                                                                                   |
| <b>Signal voltage HIGH</b> | $V_s - 2 \text{ V}$                                                                                                                          |
| <b>Signal voltage LOW</b>  | $\leq 2 \text{ V}$                                                                                                                           |
| <b>Output current</b>      | $< 100 \text{ mA}$                                                                                                                           |
| <b>Inductive load</b>      | $< 1 \text{ H}$                                                                                                                              |
| <b>Capacitive load</b>     | 100 nF                                                                                                                                       |
| <b>Enclosure rating</b>    | IP67: EN 60529                                                                                                                               |
| <b>Temperature drift</b>   | $< 0.1 \text{ mm/K}$                                                                                                                         |
| <b>Lower signal level</b>  | 3.8 mA ... 4 mA                                                                                                                              |
| <b>Upper signal level</b>  | 20 mA ... 20.5 mA                                                                                                                            |
| <b>EMC</b>                 | EN 61326-2-3, 2014/30/EU                                                                                                                     |

<sup>1)</sup> All connections are polarity protected. All outputs are overload and short-circuit protected.

## Mechanics

|                           |                     |
|---------------------------|---------------------|
| <b>Wetted parts</b>       | 1.4404, PTFE, FKM   |
| <b>Process connection</b> | $\frac{3}{4}$ " NPT |
| <b>Housing material</b>   | Plastic PBT         |
| <b>Max. probe load</b>    | $\leq 6 \text{ Nm}$ |

## Ambient data

|                                      |                                                                   |
|--------------------------------------|-------------------------------------------------------------------|
| <b>Ambient operating temperature</b> | $-20 \text{ }^{\circ}\text{C} \dots +60 \text{ }^{\circ}\text{C}$ |
| <b>Ambient storage temperature</b>   | $-40 \text{ }^{\circ}\text{C} \dots +80 \text{ }^{\circ}\text{C}$ |

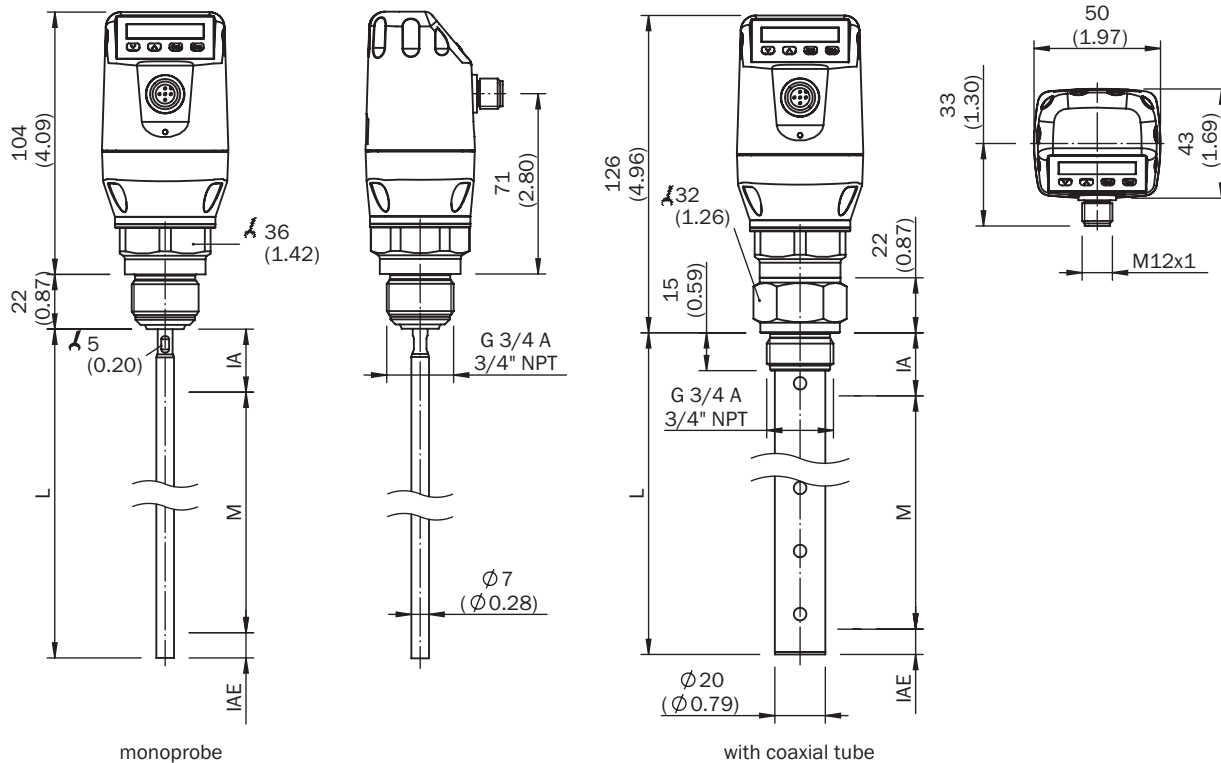
## Classifications

|                     |          |
|---------------------|----------|
| <b>ECI@ss 5.0</b>   | 27200513 |
| <b>ECI@ss 5.1.4</b> | 27200513 |
| <b>ECI@ss 6.0</b>   | 27200513 |
| <b>ECI@ss 6.2</b>   | 27200513 |
| <b>ECI@ss 7.0</b>   | 27200513 |
| <b>ECI@ss 8.0</b>   | 27200513 |



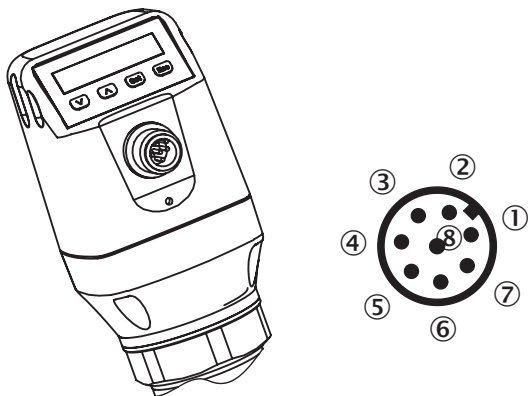
## Dimensional drawing (Dimensions in mm (inch))

Dimensional drawing: rod probe



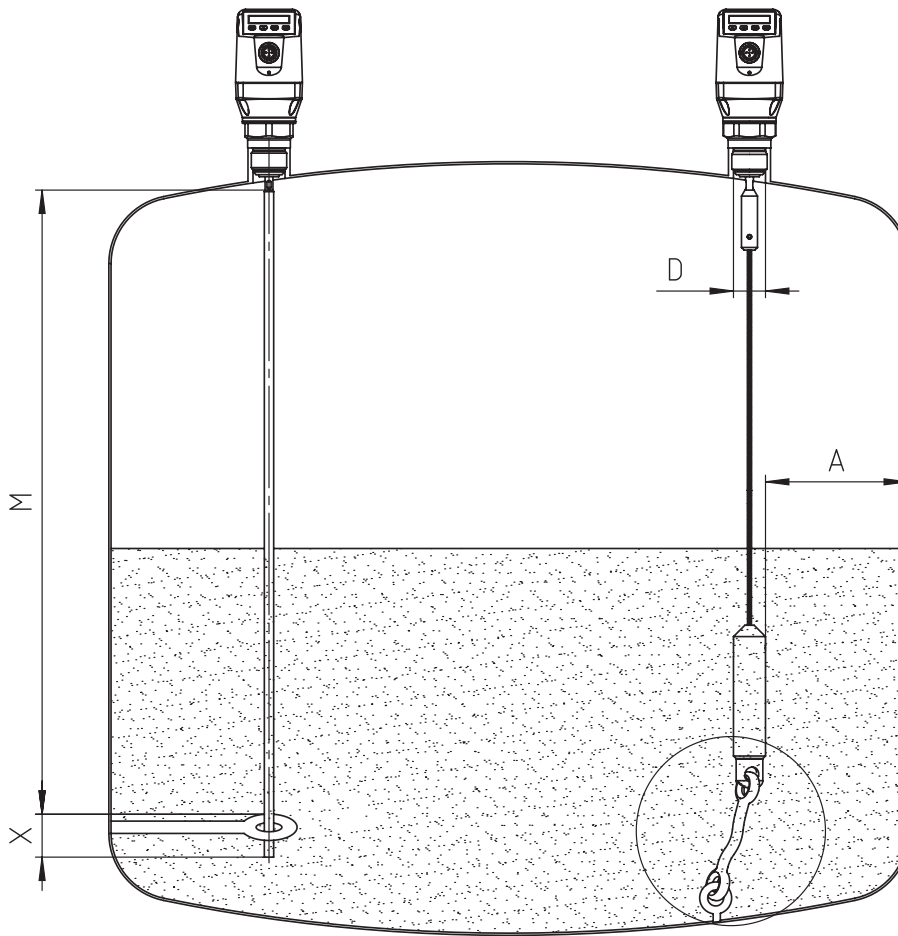
- ① M: measuring range
- ② L: Probe length
- ③ IA: Inactive area at process connection 25 mm (0.98")
- ④ IAE: Inactive area at probe end 10 mm (0.39")

## Connection type



- ① L<sup>+</sup>: Supply voltage
- ② Q<sub>2</sub>: Switching output 2, PNP/NPN
- ③ M: Ground, reference ground for current-/voltage output
- ④ C/Q<sub>1</sub>: Switching output 1, PNP/IO-Link-communication
- ⑤ Q<sub>3</sub>: Switching output 3, PNP/NPN
- ⑥ Q<sub>4</sub>: Switching output 4, PNP/NPN
- ⑦ Q<sub>A</sub>: Analog current-/voltage output
- ⑧ No function

### Instruction for installation

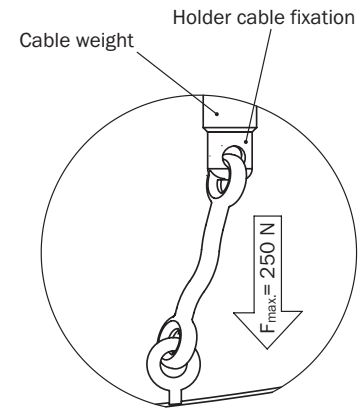


#### Mono rod probe mounted in metal tank

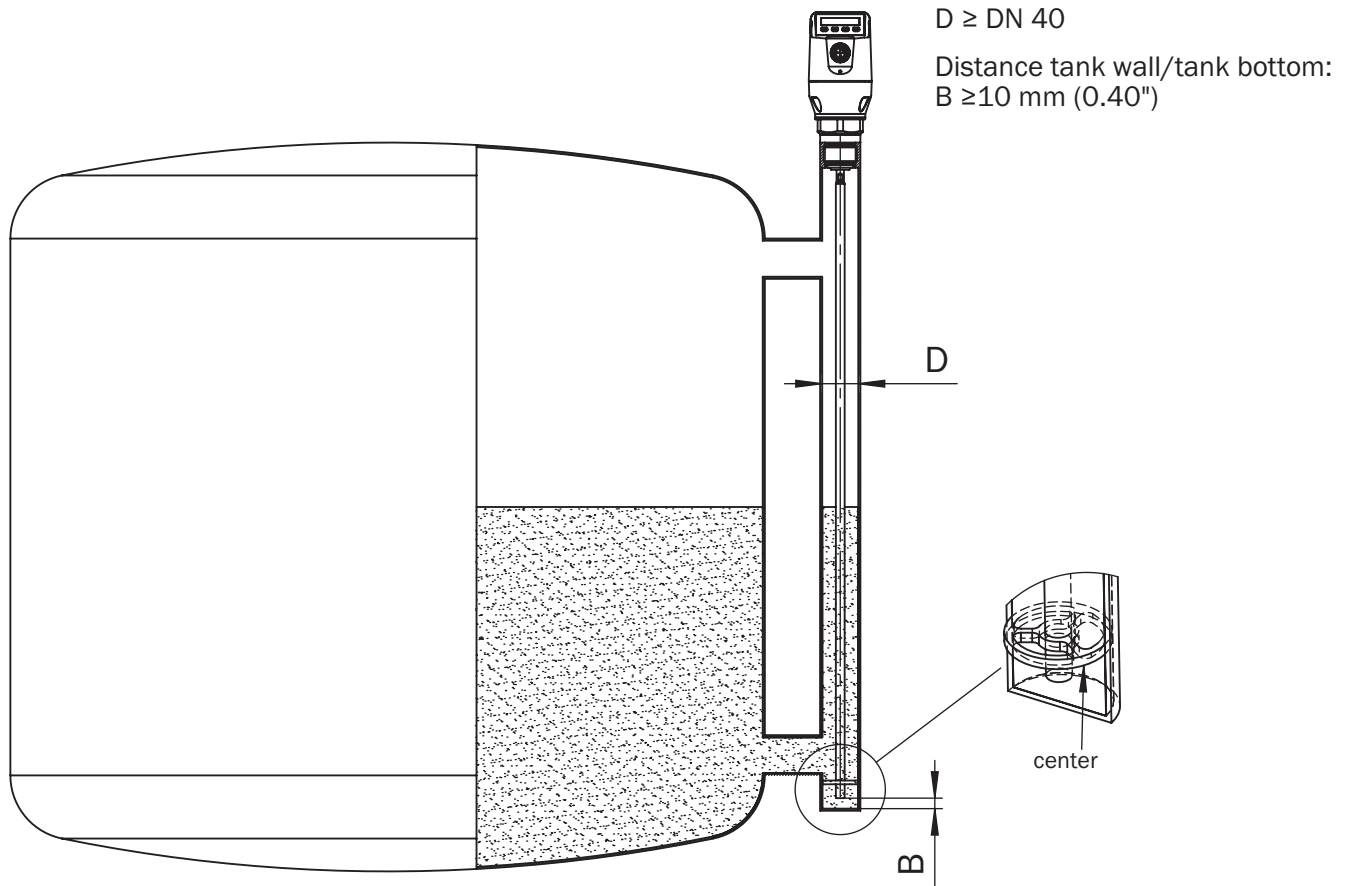
$M$  = Measuring range  
 $X$  = Inactive area at probe end  
 No measurement possible

#### Rope probe mounted in metal tank

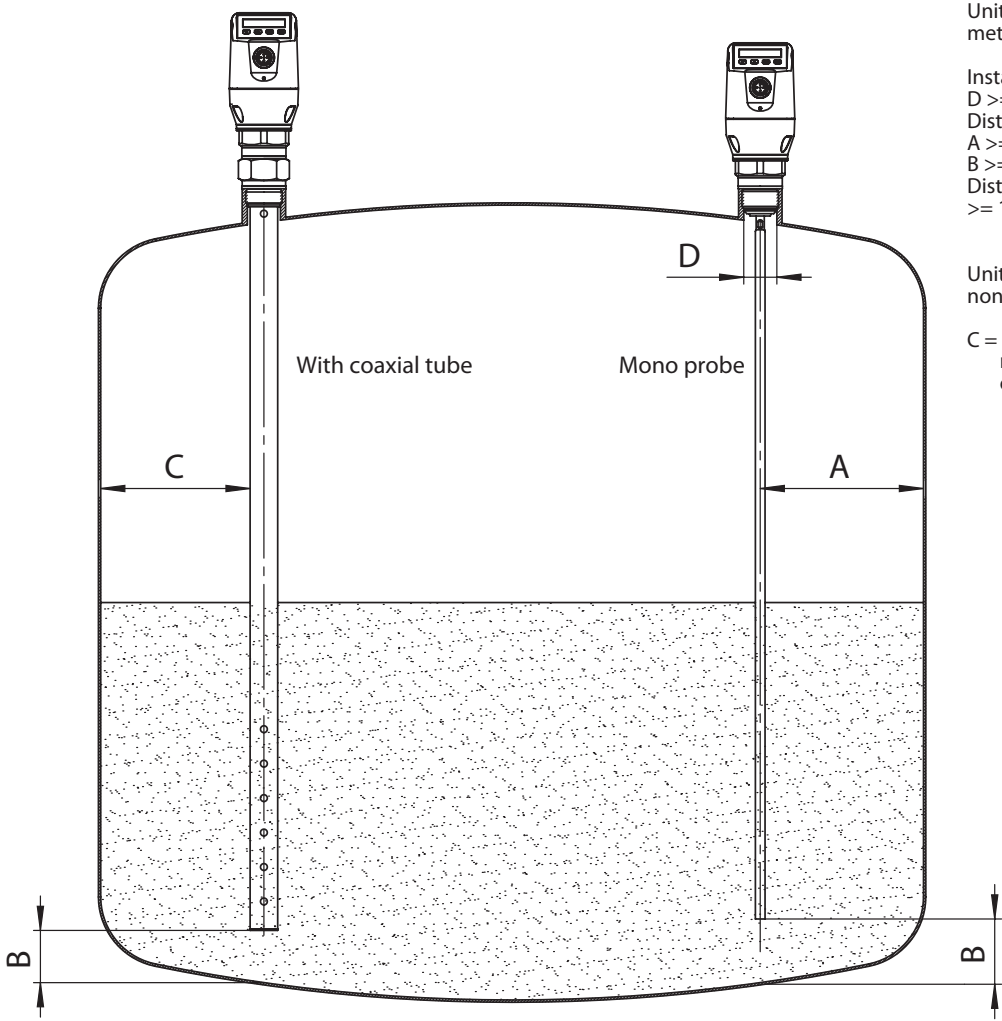
Installation in nozzle:  
 $D \geq \text{DN } 25 \text{ (1")}$   
 Distance tank wall/tank bottom:  
 $A \geq 50 \text{ mm (1.97")}$   
 Distance to other tank fittings:  
 $\geq 100 \text{ mm (3.94")}$



Installation in a metal immersion tube or metal bypass



Installation in a metal tank



Unit with mono probe mounted in metal tank

Installation in nozzle:

$D \geq \text{DN 25 (1")}$

Distance tank wall/tank bottom:

$A \geq 50 \text{ mm (1.97")}$

$B \geq 10 \text{ mm (0.40")}$

Distance to other tank fittings

$\geq 100 \text{ mm (3.94")}$

Unit with coaxial tube for metal and non metal tank

C = with a coaxial tube there are no minimum distances to the tank wall or to other tank fittings required

Recommended accessories

Other models and accessories → [www.sick.com/LFP\\_Cubic](http://www.sick.com/LFP_Cubic)

|                                                                                     | Brief description                                                                    | Type               | Part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------|----------|
| Mounting brackets and plates                                                        |                                                                                      |                    |          |
|  | Mounting bracket, stainless steel 1.4301 (AISI 304), mounting hardware included      | BEF-FL-304LFP-HLDR | 2077391  |
| Spare parts                                                                         |                                                                                      |                    |          |
|  | Spare probe for LFP Cubic, probe length 1000 mm, material 1.4404/316L, diameter 7 mm | BEF-ER-SN1000-LFPC | 2065700  |
|                                                                                     | Spare probe for LFP Cubic, probe length 2000 mm, material 1.4404/316L, diameter 7 mm | BEF-ER-SN2000-LFPC | 2065701  |

|                                                                                     | Brief description                                                                                                                                    | Type               | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Plug connectors and cables                                                          |                                                                                                                                                      |                    |          |
|    | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m  | YF2A18-020UA5XLEAX | 2095652  |
|                                                                                     | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m  | YF2A18-050UA5XLEAX | 2095653  |
|                                                                                     | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m | YF2A18-100UA5XLEAX | 2095654  |
|    | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, shielded, 2 m                  | YF2A28-020VA6XLEAX | 2096243  |
|                                                                                     | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, shielded, 5 m                  | YF2A28-050VA6XLEAX | 2096244  |
|                                                                                     | Head A: female connector, M12, 8-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, shielded, 10 m                 | YF2A28-100VA6XLEAX | 2096245  |
|    | Head A: female connector, M12, 8-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m    | YG2A18-020UA5XLEAX | 2095779  |
|                                                                                     | Head A: female connector, M12, 8-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m    | YG2A18-050UA5XLEAX | 2095780  |
|                                                                                     | Head A: female connector, M12, 8-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m   | YG2A18-100UA5XLEAX | 2095781  |
|  | Head A: female connector, M12, 8-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, shielded, 2 m                    | YG2A28-020VA6XLEAX | 2096218  |
|                                                                                     | Head A: female connector, M12, 8-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, shielded, 5 m                    | YG2A28-050VA6XLEAX | 2096219  |

## Recommended services

Additional services → [www.sick.com/LFP\\_Cubic](https://www.sick.com/LFP_Cubic)

|                                                                                                                                                                                                                                                                                                                                                                                       | Type                   | Part no.   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|
| Function Block Factory                                                                                                                                                                                                                                                                                                                                                                |                        |            |
| <ul style="list-style-type: none"> <li><b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&amp;R. More information on the FBF can be found <a _blank"&gt;="" a&gt;.<="" here&lt;="" href="https://fbf.cloud.sick.com-target=" li=""> </a></li></ul> | Function Block Factory | On request |

## 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)