



# LFP4000-F5BMC

LFP Cubic

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

| Type          | Part no. |
|---------------|----------|
| LFP4000-F5BMC | 1072024  |

2077391 included in delivery

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>              | Remote amplifier, length of cable 1 m |
| <b>Probe type</b>          | Cable probe                           |
| <b>Probe length</b>        | 4,000 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>  |
| <b>Deactivated area at end of probe</b>       | ≥ 10 mm <sup>1)</sup>                                      |
| <b>MTTF</b>                                   | 194.3 years (EN ISO 13849-1)                               |
| <b>Display</b>                                | ✓  |

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

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

## Electronics

|                                |   |
|--------------------------------|---|
| <b>Communication interface</b> | IO-Link   |
| <b>Supply voltage</b>          | 12 V DC ... 30 V DC <sup>1)</sup>   |
| <b>Power consumption</b>       | ≤ 100 mA at 24 V DC without output load   |
| <b>Initialization time</b>     | ≤ 5 s   |
| <b>Protection class</b>        | III   |
| <b>Connection type</b>         | M12 round connector x 1, 8-pin  |
| <b>Length of cable</b>         | 1 m   |
| <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 <sub>v</sub> > 15 V, 4 mA ... 20 mA < 350 Ohm at U <sub>v</sub> > 12 V, 0 V ... 10 V > 750 Ohm at U <sub>v</sub> 14 ≥ V |
| <b>Hysteresis</b>              | Min. 2 mm, free adjustable  |
| <b>Output current</b>          | < 100 mA  |
| <b>Inductive load</b>          | < 1 H   |
| <b>Capacitive load</b>         | 100 nF  |
| <b>Enclosure rating</b>        | IP67: EN 60529  |
| <b>Temperature drift</b>       | < 0.1 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<br>FKM |
| <b>Process connection</b>     | ¾" NPT              |
| <b>Housing material</b>       | Plastic PBT         |
| <b>Max. probe load</b>        | ≤ 6 Nm              |
| <b>Material coaxial cable</b> | PVC                 |
| <b>Length coaxial cable</b>   | 1 m                 |

## Ambient data

|  |                   |
|--|-------------------|
| <b>Ambient operating temperature</b>     | -20 °C ... +60 °C |
| <b>Ambient temperature, storage</b>      | -40 °C ... +80 °C |
| <b>Ambient temperature coaxial cable</b> | -20 °C ... +60 °C |

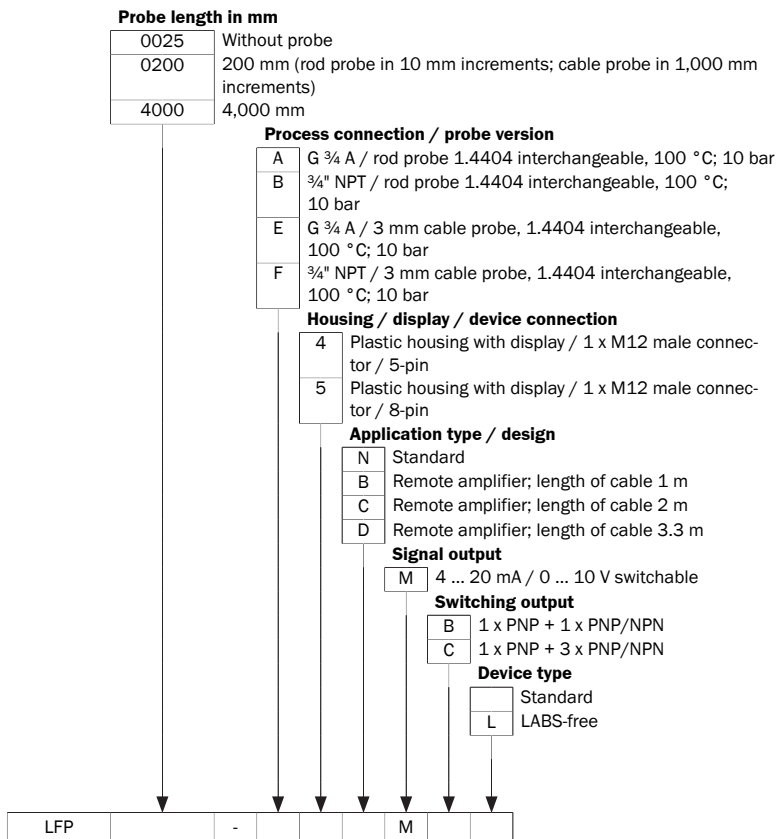
## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27200513 |
| <b>ECLASS 5.1.4</b> | 27200513 |
| <b>ECLASS 6.0</b>   | 27200513 |
| <b>ECLASS 6.2</b>   | 27200513 |
| <b>ECLASS 7.0</b>   | 27200513 |
| <b>ECLASS 8.0</b>   | 27200513 |
| <b>ECLASS 8.1</b>   | 27200513 |

|                       |          |
|-----------------------|----------|
| <b>ECLASS 9.0</b>     | 27200513 |
| <b>ECLASS 10.0</b>    | 27200513 |
| <b>ECLASS 11.0</b>    | 27200513 |
| <b>ECLASS 12.0</b>    | 27200513 |
| <b>ETIM 5.0</b>       | EC001447 |
| <b>ETIM 6.0</b>       | EC001447 |
| <b>ETIM 7.0</b>       | EC001447 |
| <b>ETIM 8.0</b>       | EC001447 |
| <b>UNSPSC 16.0901</b> | 41113710 |

### Type code

#### Type code



Not all variants of the type code can be combined!

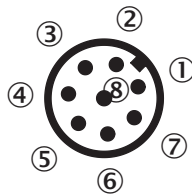
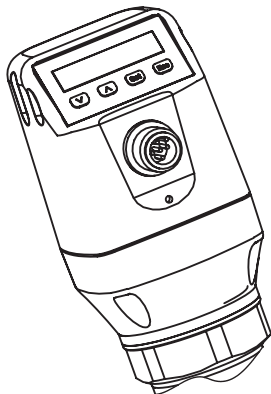
#### Dependence between length of coaxial cable and probe length

| Length of coaxial cable (mm) | Max. probe length (mm) foam mode deactivated | Max. probe length (mm) foam mode active |
|------------------------------|--|---|
| 1000                         | 4,000  | 2000                                    |
| 2000                         | 3,000  | 1500                                    |
| 3300                         | 1,000  | 500                                     |

Dimensional drawing (Dimensions in mm (inch))



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:  
 $D \geq \text{DN } 25$  (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:  
 $D \geq \text{DN } 25 \text{ (1")}$   
 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. |
|---|---|--------------------|----------|
| Spare parts   |   |                    |          |
|   | Spare cable probe for LFP Cubic, length 2 m                       | BEF-ER-SS2000-LFPC | 2078194  |
|   | Spare cable probe for LFP Cubic, length 4 m                       | BEF-ER-SS4000-LFPC | 2078195  |
|   | Spare cable probe for LFP Cubic, length 6 m                       | BEF-ER-SS6000-LFPC | 2082147  |
|  | Spare coaxial cable for LFP Cubic, separate amplifier, length 1 m | CBL-CX-001000-LFPC | 2077792  |



|   | 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  |

## Recommended services

Additional services → [www.sick.com/LFP\\_Cubic](http://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 is an engineering tool for creating device and environment-specific function blocks that enable IO-Link sensors to be integrated into programmable logic controllers. The Function Block Factory supports common programmable logic controllers (PLCs) of various manufacturers such as Siemens, Beckhoff, Rockwell Automation B&amp;R and more. More information on the FBF can be found <a href="https://fbf.cloud.sick.com" target="_blank">here</a>.</li> <li><b>Provision:</b> Customers can obtain access to the Function Block Factory and the license via <a href="https://fbf.cloud.sick.com" target="_blank">https://fbf.cloud.sick.com</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)