



LFP4000-F5BMC

LFP Cubic

TDR LEVEL SENSOR

SICK
Sensor Intelligence.



Ordering information

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

Other models and accessories → www.sick.com/LFP_Cubic

Illustration may differ



Detailed technical data

Features

| | |
|----------------------------|---------------------------------------|
| Medium | Fluids |
| Measurement | Switch, Continuous |
| Design | Remote amplifier, length of cable 1 m |
| Probe type | Cable probe |
| Probe length | 4,000 mm |
| Process pressure | -1 bar ... 10 bar |
| Process temperature | -20 °C ... +100 °C |
| RoHS certificate | ✓ |
| IO-Link | ✓ |
| cULus certificate | ✓ |

Performance

| | |
|---|--|
| Accuracy of sensor element | ± 5 mm ¹⁾ |
| Reproducibility | ≤ 2 mm |
| Resolution | < 2 mm |
| Response time | < 400 ms |
| Dielectricity constant | ≥ 5 for rod probe / cable probe ≥ 1.8 with coaxial tube |
| Conductivity | No limitation |
| Maximum level change | ≤ 500 mm/s |
| Deactivated area at process connection | 25 mm ²⁾ |
| Deactivated area at end of probe | ≥ 10 mm ¹⁾ |
| MTTF | 194.3 years (EN ISO 13849-1) |
| Display | ✓ |

¹⁾ With water under reference conditions.

²⁾ With parameterized container with water under reference conditions, otherwise 40 mm.

Electronics

| | |
|----------------------------|---|
| Supply voltage | 12 V DC ... 30 V DC ¹⁾ |
| Power consumption | ≤ 100 mA at 24 V DC without output load |
| Initialization time | ≤ 5 s |
| Protection class | III |
| Connection type | M12 round connector x 1, 8-pin |
| Length of cable | 1 m |
| Output signal | 1 x PNP + 3 x PNP/NPN + 4 mA ... 20 mA / 0 V ... 10 V |
| Output load | 4 mA ... 20 mA < 500 Ohm at U _v > 15 V, 4 mA ... 20 mA < 350 Ohm at U _v > 12 V, 0 V ... 10 V > 750 Ohm at U _v 14 ≥ V |
| Hysteresis | Min. 2 mm, free adjustable |
| Output current | < 100 mA |
| Inductive load | < 1 H |
| Capacitive load | 100 nF |
| Enclosure rating | IP67: EN 60529 |
| Temperature drift | < 0.1 mm/K |
| Lower signal level | 3.8 mA ... 4 mA |
| Upper signal level | 20 mA ... 20.5 mA |
| EMC | EN 61326-2-3, 2014/30/EU |

¹⁾ All connections are polarity protected. All outputs are overload and short-circuit protected.

Mechanics

| | |
|-------------------------------|---------------------|
| Wetted parts | 1.4404, PTFE FKM |
| Process connection | ¾" NPT |
| Housing material | Plastic PBT |
| Max. probe load | ≤ 6 Nm |
| Material coaxial cable | PVC |
| Length coaxial cable | 1 m |

Ambient data

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

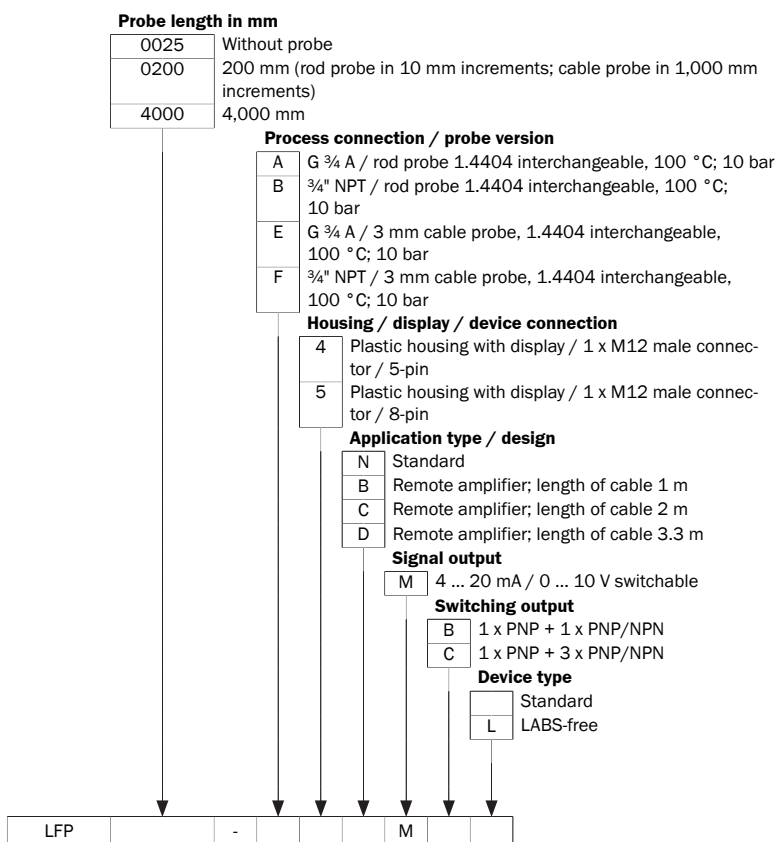
Classifications

| | |
|---------------------|----------|
| ECLASS 5.0 | 27200513 |
| ECLASS 5.1.4 | 27200513 |
| ECLASS 6.0 | 27200513 |
| ECLASS 6.2 | 27200513 |
| ECLASS 7.0 | 27200513 |
| ECLASS 8.0 | 27200513 |
| ECLASS 8.1 | 27200513 |
| ECLASS 9.0 | 27200513 |

| | |
|-----------------------|----------|
| ECLASS 10.0 | 27200513 |
| ECLASS 11.0 | 27200513 |
| ECLASS 12.0 | 27200513 |
| ETIM 5.0 | EC001447 |
| ETIM 6.0 | EC001447 |
| ETIM 7.0 | EC001447 |
| ETIM 8.0 | EC001447 |
| UNSPSC 16.0901 | 41113710 |

Type code

Type code



Not all variants of the type code can be combined!

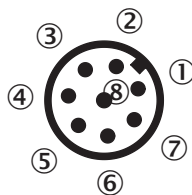
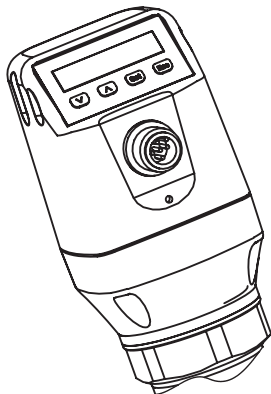
Dependence between length of coaxial cable and probe length

| 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⁺: Supply voltage
- ② Q₂: Switching output 2, PNP/NPN
- ③ M: Ground, reference ground for current-/voltage output
- ④ C/Q₁: Switching output 1, PNP/IO-Link-communication
- ⑤ Q₃: Switching output 3, PNP/NPN
- ⑥ Q₄: Switching output 4, PNP/NPN
- ⑦ Q_A: Analog current-/voltage output
- ⑧ No function

Instruction for installation

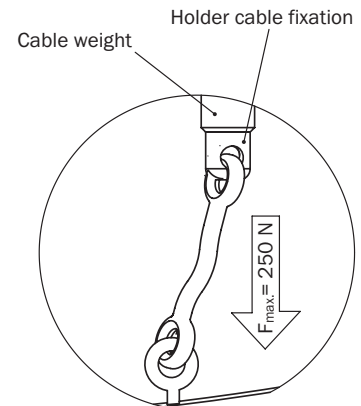


Mono rod probe mounted in metal tank

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

| | 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

| | Type | Part no. |
|--|------------------------|------------|
| Function Block Factory | | |
| <ul style="list-style-type: none"> • Description: The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&R. More information on the FBF can be found <a _blank"="" href="https://fbf.cloud.sick.com target=">here. • Note: You can configure your function block at <a _blank"="" href="https://fbf.cloud.sick.com target=">Function Block Factory. As a login please use your SICK ID. | Function Block Factory | On request |

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