



# LFP2000-A5NMC

LFP Cubic

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
LFP2000-A5NMC	1062263

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>	2,000 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 ≥ 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>	≥ 10 mm <sup>1)</sup>
<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>	≤ 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>Output signal</b>	4 mA ... 20 mA, 0 V ... 10 V automatic switching depending on the load. <sup>1)</sup> 1 PNP transistor output (Q1) and 3 PNP/NPN transistor outputs (Q2 to Q4) switchable <sup>1)</sup> 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>Signal voltage HIGH</b>	V <sub>s</sub> - 2 V
<b>Signal voltage LOW</b>	≤ 2 V
<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, FKM
<b>Process connection</b>	G <sup>3</sup> / <sub>4</sub> A
<b>Housing material</b>	Plastic PBT
<b>Max. probe load</b>	≤ 6 Nm

## Ambient data

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

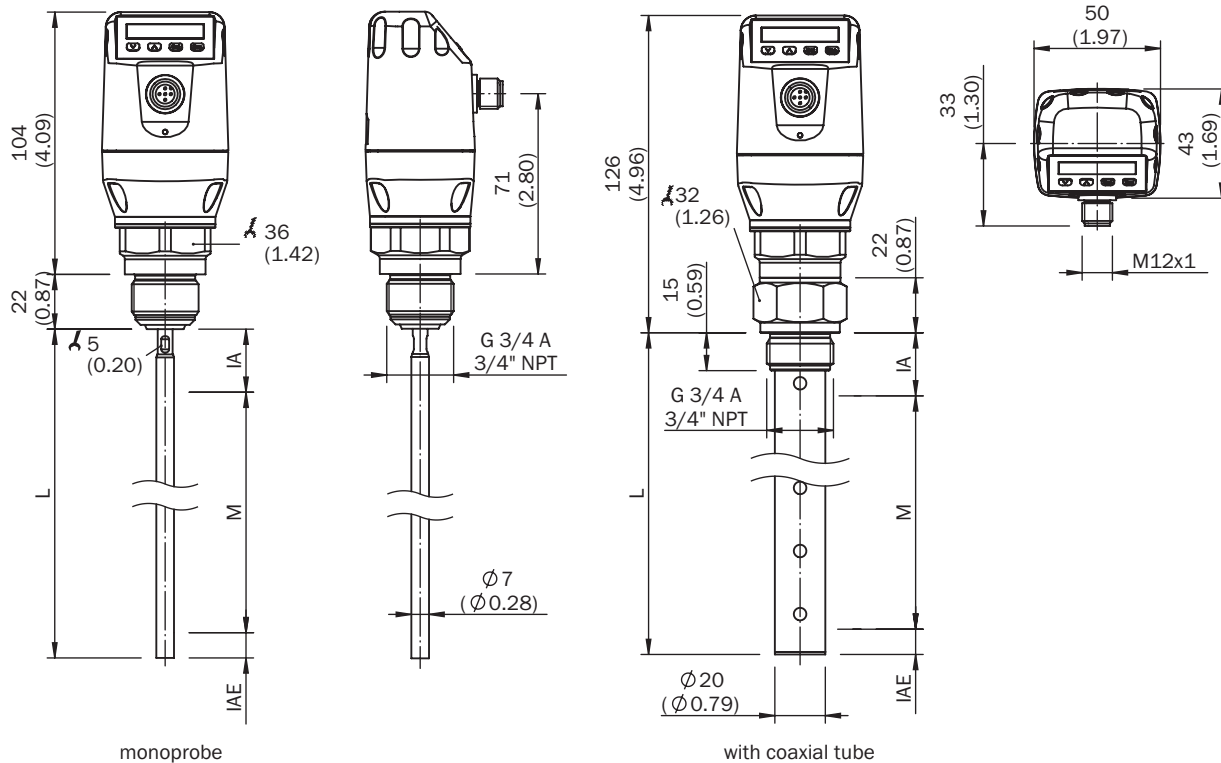
## Classifications

<b>ECl@ss 5.0</b>	27371813
<b>ECl@ss 5.1.4</b>	27371813
<b>ECl@ss 6.0</b>	27371813
<b>ECl@ss 6.2</b>	27371813
<b>ECl@ss 7.0</b>	27371813



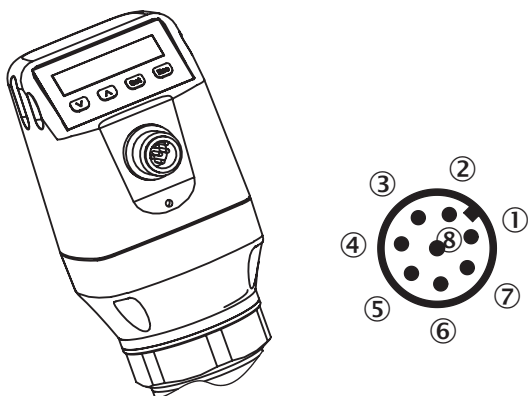
## Dimensional drawing (Dimensions in mm (inch))

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

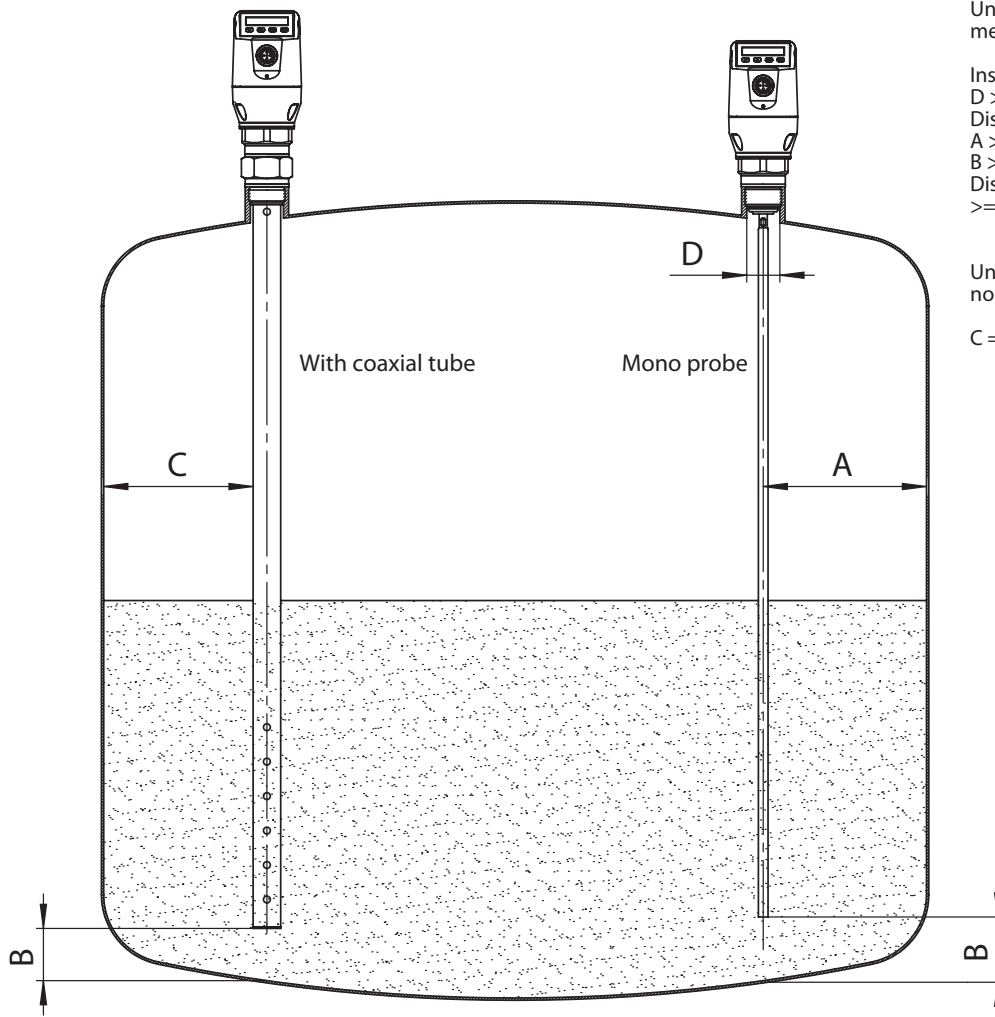
Installation in nozzle:  
 $D \geq \text{DN } 25$  (1")  
Distance tank wall/tank bottom:  
 $A \geq 50 \text{ mm}$  (1.97")  
Distance to other tank fittings:  
 $\geq 100 \text{ mm}$  (3.94")



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



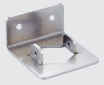


C = with a coaxial tube there are no minimum distances to the tank wall or to other tank fittings required

### Recommended accessories

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

	Brief description	Type	Part no.
Device protection (mechanical)			
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 200 mm	LFPCT-0200G1	2068141
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 200 mm	LFPCT-0200N1	2068165
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 300 mm	LFPCT-0300G1	2068142
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 300 mm	LFPCT-0300N1	2068166
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 400 mm	LFPCT-0400G1	2068143

	Brief description	Type	Part no.
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 400 mm	LFPCT-0400N1	2068167
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 500 mm	LFPCT-0500G1	2068144
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 500 mm	LFPCT-0500N1	2068168
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 600 mm	LFPCT-0600G1	2068145
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 600 mm	LFPCT-0600N1	2068169
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 700 mm	LFPCT-0700G1	2068146
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 700 mm	LFPCT-0700N1	2068170
	Coaxial tube for LFP with process connection G 3/4, process connection of coax probe G 3/4, material 1.4571/316TI, for probe length 800 mm	LFPCT-0800G1	2068147
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 800 mm	LFPCT-0800N1	2068171
	Coaxial probe for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 900 mm	LFPCT-0900G1	2067507
	Coaxial probe for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 900 mm	LFPCT-0900N1	2068172
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1000 mm	LFPCT-1000G1	2065702
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1000 mm	LFPCT-1000N1	2068173
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1100 mm	LFPCT-1100G1	2068148
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1100 mm	LFPCT-1100N1	2068174
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1200 mm	LFPCT-1200G1	2068149
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1200 mm	LFPCT-1200N1	2068175
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1300 mm	LFPCT-1300G1	2068150
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1300 mm	LFPCT-1300N1	2068176
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1400 mm	LFPCT-1400G1	2068151
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1400 mm	LFPCT-1400N1	2068177
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1500 mm	LFPCT-1500G1	2068152
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1500 mm	LFPCT-1500N1	2068178
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1600 mm	LFPCT-1600G1	2068153
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1600 mm	LFPCT-1600N1	2068179
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1700 mm	LFPCT-1700G1	2068154

	Brief description	Type	Part no.
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1700 mm	LFPCT-1700N1	2068180
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 1500 mm	LFPCT-1800G1	2068155
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1800 mm	LFPCT-1800N1	2068181
	Coaxial tube for LFP with process connection G 3/4, process connection of coax probe G 3/4, material 1.4571/316TI, for probe length 1900 mm	LFPCT-1900G1	2068156
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 1900 mm	LFPCT-1900N1	2068182
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube G 3/4, material 1.4571/316TI, for probe length 2000 mm	LFPCT-2000G1	2065703
	Coaxial tube for LFP with process connection G 3/4, process connection of coaxial tube 3/4" NPT, material 1.4571/316TI, for probe length 2000 mm	LFPCT-2000N1	2068183
<b>Flanges</b>			
	Process connection adapter G 3/4 to G1	BEF-HA-G1BSP1-LFP1	2067603
	Weld-in flange G 3/4"	BEF-FL-GEWG34-LFP1	2082150
<b>Mounting brackets and plates</b>			
	Mounting bracket, stainless steel 1.4301 (AISI 304), mounting hardware included	BEF-FL-304LFP-HLDR	2077391
<b>Plug connectors and cables</b>			
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, shielded, 2 m	YF2A28-020VA6XLEAX	2096243
<b>Spare parts</b>			
	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

### Recommended services

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

	Type	Part no.
<b>Function Block Factory</b>		
<ul style="list-style-type: none"> <li><b>Brief 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 &lt;a href="https://fbf.cloud.sick.com/target="_blank"&gt; here&lt;/a&gt;.</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)