



# LFP0650-A5NMC

LFP Cubic

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	part no.
LFP0650-A5NMC	1109255

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 amplifier
<b>Probe type</b>	Rod probe
<b>Probe length</b>	650 mm
<b>Process pressure</b>	-1 bar ... 10 bar
<b>Process temperature</b>	-20 °C ... +100 °C

#### 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>
<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>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 < 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>	≥ 2 mm <sup>2)</sup>
<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.

<sup>2)</sup> Freely adjustable.

## Mechanics

<b>Wetted parts</b>	Stainless steel 1.4404 / 316L PTFE FKM
<b>Process connection</b>	G ¾ 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 temperature, storage</b>	-40 °C ... +80 °C

## Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓
<b>IO-Link certificate</b>	✓
<b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b>	✓

## Classifications

<b>ECLASS 5.0</b>	27200513
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<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

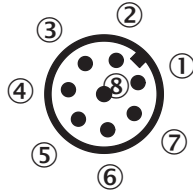
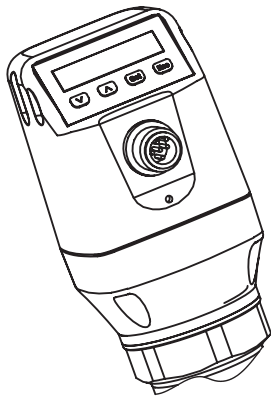
### Dimensional drawing: rod probe



Dimensions in mm (inch)

- 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

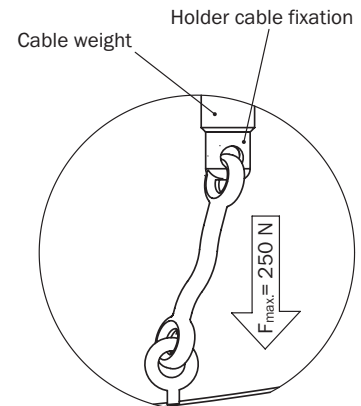


#### Mono rod probe mounted in metal tank

$M$  = 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")



Instruction for installation Installation in a metal immersion tube or metal bypass



### Instruction for installation Installation in a metal tank



Unit with mono probe mounted in metal tank

Installation in nozzle:  
 $D \geq DN 25 (1")$   
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 systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4301 (AISI 304)</li> <li><b>Items supplied:</b> Mounting hardware included</li> </ul>	BEF-FL-304LFP-HLDR	2077391
	<ul style="list-style-type: none"> <li><b>Description:</b> Spare probe for LFP Cubic, probe length 1000 mm, material 1.4404/316L, diameter 7 mm</li> </ul>	BEF-ER-SN1000-LFPC	2065700
	<ul style="list-style-type: none"> <li><b>Description:</b> Spare probe for LFP Cubic, probe length 2000 mm, material 1.4404/316L, diameter 7 mm</li> </ul>	BEF-ER-SN2000-LFPC	2065701
	<ul style="list-style-type: none"> <li><b>Description:</b> Process connection adapter G 3/4 to G1</li> </ul>	BEF-HA-G1BSP1-LFP1	2067603
	<ul style="list-style-type: none"> <li><b>Description:</b> Weld-in flange G 3/4"</li> </ul>	BEF-FL-GEWG34-LFP1	2082150

	Brief description	Type	part no.
device protection and care			
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1000G1	2065702
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-2000G1	2065703
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1100G1	2068148
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1200G1	2068149
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1300G1	2068150
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1400G1	2068151
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1600G1	2068153
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1700G1	2068154
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1500G1	2068152
	<ul style="list-style-type: none"> <li><b>Description:</b> 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 1800 mm</li> </ul>	LFPCT-1800G1	2068155
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-1900G1	2068156
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-0200G1	2068141
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-0300G1	2068142
	<ul style="list-style-type: none"> <li><b>Description:</b> 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</li> </ul>	LFPCT-0400G1	2068143

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</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, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A28-020VA6XLEAX	2096243
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A28-030VA6XLEAX	2145695
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A28-C60VA6XLEAX	2145385
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, shielded</li> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 8-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A28-010VA6XLEAX	2145386

## 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.”

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