Product family overview

LFP Inox

The clean solution

SICK
Sensor Intelligence.

Advantages

Precise level measurement and point level measurement in hygienic applications

The LFP Inox level sensor combines high performance with hygienic design. This device can be used to continuously measure both level and point levels. The sensor switching points for this are freely definable. Thanks to multiple output signals, it is possible to measure fill and point levels either together or separately. The rugged sensor is ideal for use in CIP and SIP applications in food and beverage production as well as in the pharmaceutical industry. Whether viscous, sticky or deposit-forming – LFP Inox measures all liquids reliably. With its intelligent "foam blanking" function, the sensor can even measure levels in highly foaming media.

Powerful "foam blanking" function
When foam mode is activated, the LFP Inox simply blanks out foam. This enables the sensor to deliver accurate fill and point level data even for media with an especially thick foam.

Resistant to cleaning agents
The sensor can be used anywhere where hygienic cleanliness is ensured by means of CIP and SIP. Thanks to the IP69 enclosure rating, PEEK seal, and rugged stainless-steel housing, the sensor can withstand even aggressive cleaning agents.

Certified for use in the food industry
Thanks to its specific design and FDA compliant materials, the EHEDG and 3-A certified sensor meets especially stringent hygiene requirements. Since the LFP Inox also meets the requirements of the EU 1935/2004 standard, it can be used without hesitation in the food industry.

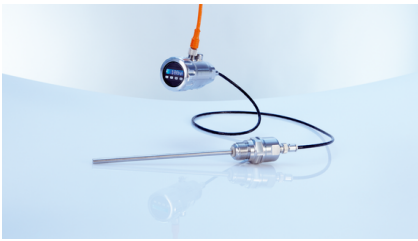
Hygiene and performance go hand-in-hand with the LFP Inox and ensure a high reliability.

The right solution for many installation situations

Whether in the tank or in the bypass: Thanks to the variety of process connections and numerous accessories available, the LFP Inox can be integrated into many different applications. The fast and simple commissioning of the sensor via the integrated display involves hardly any cost. And in conjunction with a coaxial tube, the probe of the sensor delivers very accurate val-

ues even for measurements in plastic tanks. The rod probe can be shortened as needed – and can therefore be ideally adapted to the specific requirements of an application.

Numerous connections
Thanks to a wide variety of hygiene adapters and weld-in flanges for the process connections, the LFP Inox can even be integrated into demanding hygienic and pharmaceutical applications.



Flexible mounting, even where space is limited
When used in high-temperature applications up to 180 °C or in tight installation spaces, the electronics can be located in a separate housing to the probe but still remain connected to it via a coaxial cable.

Coaxial tube for level measurement in oils
A coaxial tube is optionally available for the LFP Inox, using which the precise level measurement can also be performed in media with a low electrical conductivity, such as oils or oil-based liquids.

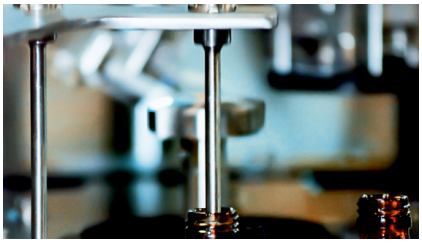
High flexibility and numerous application possibilities.

Special variants for the pharmaceutical industry

SICK also offers the LFP Inox in a variant that caters to the special requirements of pharmaceutical applications. The hygienically designed sensor has a gap-free PEEK seal that completely separates the process from the sensor and corresponds to enclosure rating IP69. The seal is also rugged, temperature insensitive and chemically resistant. To enable you to meet your documentation obligations, the devices come with a 3.1 Material Certificate as well as a calibration certificate.

High safety thanks to 3.1 Material Certificate
The probe of the LFP Inox is available with a 3.1 Material Certificate. The certificate specifies, among other things, the exact composition of the steel used in the sensor. It also includes a batch assignment to ensure full traceability.

ADI-free device
The seal contains no materials of animal origin. The device therefore cannot contain any BSE pathogens and thus meets the relevant requirements of the pharmaceutical industry.



No chance of deposit formation
The average roughness of the polished housing surfaces is 0.4 µm. This ensures the surfaces are smooth, no highly viscous media can adhere to them, and no deposits can form on them.

End-to-end safety – in particular for demanding pharmaceutical applications.

Technical data overview

Measurement principle	TDR sensor
Detection principle	Contact
Medium	Fluids
Measurement	Switch, Continuous
Process temperature	–20 °C ... +180 °C (depending on type)
Process pressure	–1 bar ... 16 bar
Output signal	1 x PNP + 1 x PNP/NPN + 4 mA ... 20 mA / 0 V ... 10 V / 1 x PNP + 3 x PNP/NPN + 4 mA ... 20 mA / 0 V ... 10 V (depending on type)
Accuracy of sensor element	± 5 mm

Product description

The LFP Inox is a hygienic level sensor for liquids using TDR technology – a process for determining the time of flight of electromagnetic waves. The time difference between the sent pulse and the reflected pulse is used to generate a level signal, both as a continuous value (analog output) and a freely positionable switching point (switching output). The use of FDA-compliant materials in an EHEDG-certified design means that the LFP Inox can be relied upon for optimum and unrestricted cleaning, even in applications with the most stringent hygiene requirements. Its modular connection system allows simple and flexible installation in any application. Thanks to high temperature and pressure resistance, unrestricted use is possible under CIP and SIP conditions. This impressive profile is topped off with communication capability via IO-Link to the superordinate control units.

At a glance

- Level measurement in hygienic applications
- Rod probe can be cut to size manually up to 4,000 mm in length with Ra ≤ 0.8 µm (optionally with Ra ≤ 0.4 µm)
- Process temperature up to 180 °C, process pressure up to 16 bar
- CIP/SIP-resistant
- High enclosure rating IP 67 and IP 69
- Interchangeable hygienic process connections
- 3 in 1: combines display, analog output, and binary output
- Remote amplifier with process connection, autoclavable
- IO-Link 1.1

Your benefits

- Rugged design increases service life
- High flexibility – rod probe can be cut to length and connection concept is interchangeable
- Cost savings as a result of multiple output signals: one system for both point level and continuous level measurement
- Maintenance-free and easy to commission without calibration, saving time and money
- Remote display of measured values and saves space

Fields of application

- Level monitoring in buffer tanks of filling systems and filling machines
- Level monitoring in rinsing systems
- Level monitoring in CIP systems
- Level measurement in mixing systems in the cosmetics and pharmaceuticals industry
- Level monitoring in industrial processes with difficult ambient conditions

Type code

Other models and accessories ➜ www.sick.com/LFP_Inox

Type code

Probe length in mm

0025	Without probe
0200	200 mm (in increments of 10 mm)
4000	4,000 mm

Process connection/probe version

C	G ¾ A; probe rod 1.4404 interchangeable; 150 °C 16 bar
D	¾" NPT; probe rod 1.4404 interchangeable; 150 °C 16 bar
G	G ¾ A (connection for hygienic adapters) / probe rod made from 1.4404
N	¾" NPT/probe rod from 1.4404
P	G ¾ A (connection for pharmaceutical process connection) / probe rod made of 1.4404, Ra ≤ 0.4 µm (verification), 150 °C, 16 bar, 3.1 material certificate, calibration certificate

Housing/display/device connection

1	Stainless-steel housing with display, cover with sight glass / 1 x 5-pin M12 male connector
2	Stainless-steel housing with display, solid cover / 1 x 5-pin M12 male connector
3	Stainless-steel housing 3-A-compliant with display, solid cover / 1 x 5-pin M12 male connector
6	Stainless-steel housing with display, cover with sight glass / 1 x 8-pin M12 male connector
7	Stainless-steel housing with display, solid cover / 1 x 8-pin M12 male connector
A	Stainless-steel housing with display, cover with sight glass/cable connection, 5-pin
B	Stainless-steel housing with display, solid cover/cable connection, 5-pin
C	Stainless-steel housing with display, cover with sight glass/cable connection, 8-pin
D	Stainless-steel housing with display, solid cover/cable connection, 8-pin

Application type/design

N	Standard
B	Remote amplifier; length of cable 1 m
C	Remote amplifier; length of cable 2 m
D	Remote amplifier; length of cable 3.3 m

Signal output

M	4 ... 20 mA / 0 ...10 V, switchable

Switching output

B	1 x PNP + 1 x PNP/NPN
C	1 x PNP + 3 x PNP/NPN

Device type

	Standard
L	LABS-cleaned

LFP		-				M		

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

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

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