

CAPACITIVE LEVEL SWITCH



Type: **LS280**

- HYSTERESIS $\pm 1\text{ mm}$
- PEEK AND 316L WETTED PARTS
- SURFACE $R_a \leq 0.8\text{ }\mu\text{m}$
- PNP OR NPN · NO OR NC



ORDER CODE

Code	Field	Meaning
FKKA	series	capacitive level switch
L030 · L035 · L050 · L100 · L250 · LXX	probe length	30 · 35 · 50 · 100 · 250 mm · custom length
M · Z · 1 · 2	connection	M12 x 1 connector · fixed cable outlet · cable 1 m · 2 m
– · N	output	PNP · NPN
– · C	switching logic	normally open (NO) · normally closed (NC)
– · ED	seal	standard · ED seal
– · T	temperature	–20 ... +80 °C · cooling version –40 ... +130 °C

Example: FKKA-L030-M — probe length 30 mm, M12 connector, PNP, normally open, standard version.



OVERVIEW

A point level switch that needs no moving part and no window: the electrode in the probe tip forms a capacitor with its surroundings, the capacitance follows the dielectric constant of whatever stands against the tip, and a resonant circuit behind it turns the shift in frequency into a switching signal. Anything with a dielectric constant above 1.5 is detected — water, oils, lyes, pastes and powders alike. Hysteresis and repeatability are ± 1 mm, the response takes a tenth of a second, and the switching point is taught with a magnetic pen in one step, without opening anything. Probe tip and process connection are PEEK and 316L stainless steel with a surface of $Ra \leq 0.8 \mu\text{m}$, so the same switch serves an industrial vessel and a hygienic pipe; a cooling version carries the electronics away from media up to 130°C .

DETECTION

- Frequency-scanning capacitive principle — no moving part
- Detects any medium with a dielectric constant above 1.5
- Hysteresis and repeatability ± 1 mm
- Response 0.1 s typical, 0.2 s maximum
- Damping adjustable from 0 to 10 s against splashing and foam
- PNP or NPN, normally open or normally closed
- Switching state shown by the LED in the head
- Supply 12 ... 30 V DC over the M12 connector or a fixed cable

PROCESS AND MOUNTING

- G1/2 process connection, hex ES 22, any position in the vessel
- Probe lengths 30 · 35 · 50 · 100 · 250 mm, custom lengths available
- Wetted parts PEEK natural and stainless steel 316L (1.4404)
- Surface of the wetted parts $Ra \leq 0.8 \mu\text{m}$ — suited to hygienic duty
- Overfill protection at the top, dry-run protection at the outlet
- Taught with a magnetic pen — no opening, no tool, one step
- Cooling version for media from -40 to $+130^\circ\text{C}$
- Sanitary clamp adapter and weld-in socket available



TECHNICAL DATA

MEASUREMENT

Principle	capacitive point level switch, frequency scanning
Medium	dielectric constant DC > 1.5
Hysteresis	± 1 mm
Repeatability	± 1 mm
Response time	0.1 s typical · 0.2 s maximum
Damping time	0 ... 10 s, adjustable

PROCESS CONNECTION

Process connection	G1/2
Hexagon	ES 22
Probe length	30 ... 250 mm · custom
Wetted parts	PEEK natural · 316L (1.4404)
Surface roughness	Ra ≤ 0.8 µm
Seal	ED seal, optional

OUTPUT AND SUPPLY

Output type	PNP or NPN
Switching logic	normally open (NO) or normally closed (NC)
Supply voltage	12 ... 30 V DC
Setting	magnetic pen, one step
Indication	LED in the sensor head
Connection	M12 x 1, 5-pin · or fixed cable 1 m / 2 m

ENVIRONMENT

Medium temperature	–20 °C ... +80 °C, standard
Medium temperature	–40 °C ... +130 °C, cooling version
EMC emission	EN 61326
EMC immunity	EN 61326
Measuring condition	in a closed metal vessel

MOUNTING

Tightening torque, G thread	max. 30 N·m · adapter or weld-in socket 15 ... 20 N·m · hygienic connection 10 ... 15 N·m
Sealing	seal the G thread with PTFE tape · at hygienic process connections use neither PTFE tape nor elastomers
Position	any point of the vessel — at the top as overfill protection, further down as limit level, at the outlet as dry-run protection
Teaching	hold the probe against the medium and the magnetic pen at the sensing point; the point is set when red and green flash alternately



ACCESSORIES

Sanitary clamp adapter	for a standard outside diameter of 50.5 mm
Weld-in socket	G1/2, welded into the vessel or pipe wall
Connecting cable	M12 x 1, 5-pin, PUR or PVC, 2 · 5 · 10 m, straight or angled
ED seal	for the G1/2 process connection

Accessories are ordered by description; please state the sensor type with the enquiry.

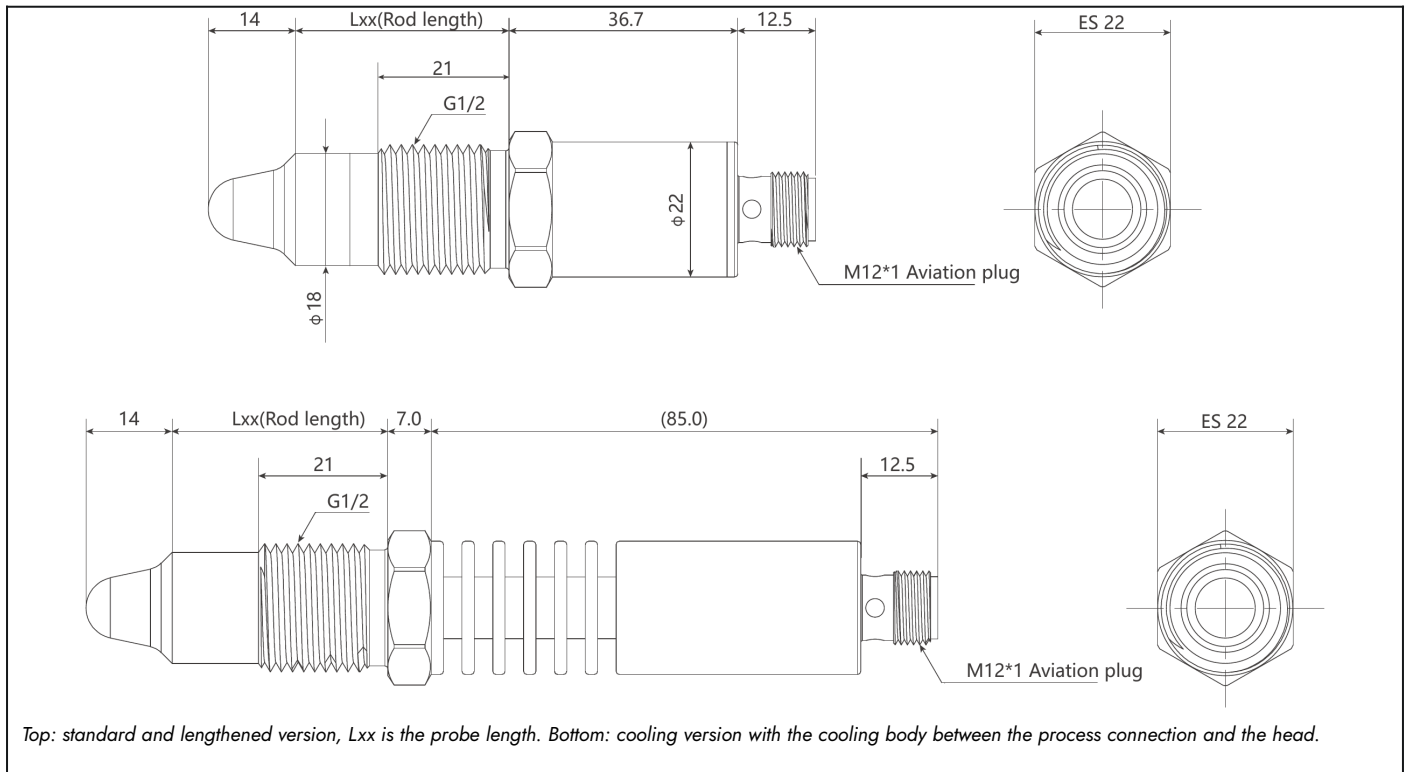
COMPLIANCE

 Stainless Steel AISI 316L - 1.4404	Wetted parts	PEEK natural and stainless steel 316L (1.4404), surface Ra ≤ 0.8 µm
 M12	Electrical connection	M12 x 1, 5-pin, to IEC 61076-2-101 — or a fixed cable outlet

Electromagnetic compatibility to EN 61326, emission and immunity, measured with the sensor installed in a closed metal vessel. No further approval is documented for this device.



DIMENSIONS (mm)



ELECTRICAL CONNECTIONS

