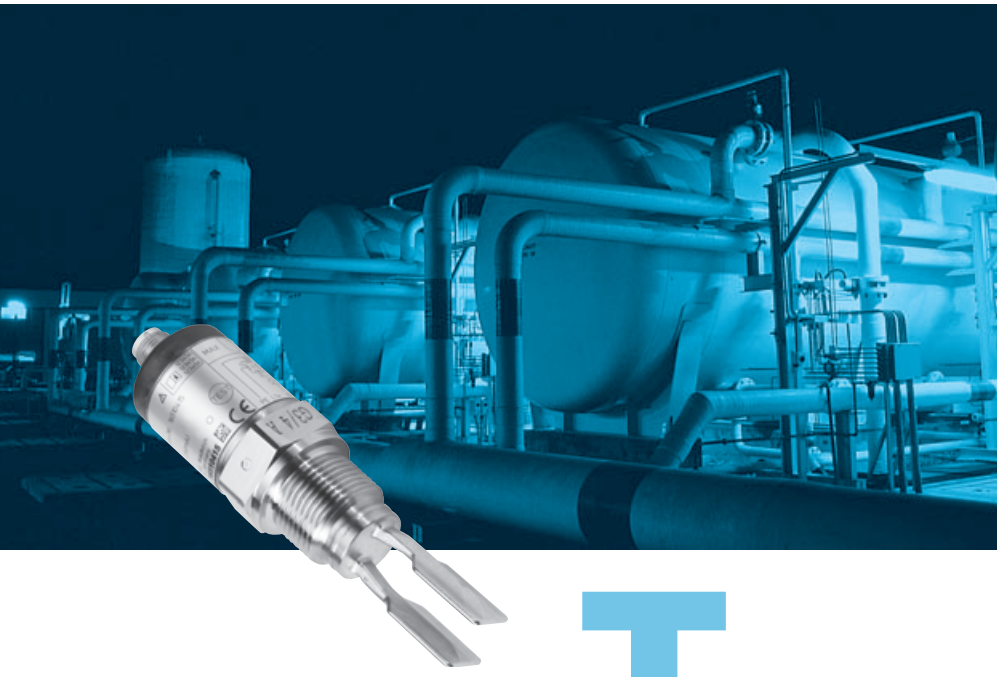
Fill level switch LFV200 – Reliable Overfilling, Dry Run and Pump Protection

DATA SHEET



Limit switch for full or empty messages

Piezo-electric resonance switch

The LFV200 is an all-purpose limit switch with which pre-defined fill levels can be detected in systems for liquids precisely to a millimeter. Regardless of maximum fill amounts in containers as full messages to prevent overfilling, empty messages to prevent dry running switching signal for refilling or as idle message for pump protection, the LFV200 runs independently of the liquid and is wear-free and maintenance-free.

Measurement principle

The LFV200 works according to the piezo-electric resonance principle. The sturdy oscillating fork made of stainless steel is oscillated piezo-electrically. The actual resonance of the oscillating fork changes significantly when it is immersed in a liquid. This frequency change is converted very reliably into a switching signal in integrated electronics applications. The LFV200 can be put into operation directly without any adjustment. The switching state is visible from the outside via a two-color LED.

Area of use

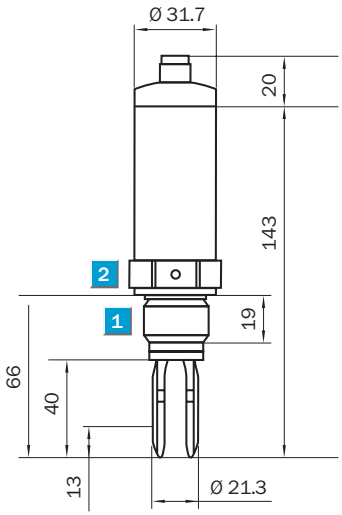
Because the LFV200 can measure all liquids reliably with a density greater than 0.7 g/m^3, there are hardly any limits to its areas of use. Its high surface quality (Ra <0.8 µm) in connection with the available process connections makes optimum and unrestricted purity possible, even in applications with maximum hygiene requirements regardless of whether for permissible overfilling protection, full and empty messages, dry running or pump protection.

Advantages

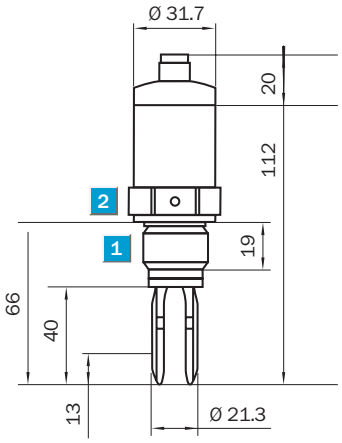
- Operation startup without adjustment
- Product-independent switching point
- Very high degree of reproducibility
- Wear and maintenance free
- Minimum assembly dimensions
- High degree of surface quality (Ra <0.8 µm)
- Optimum for CIP and SIP cleaning

SICK

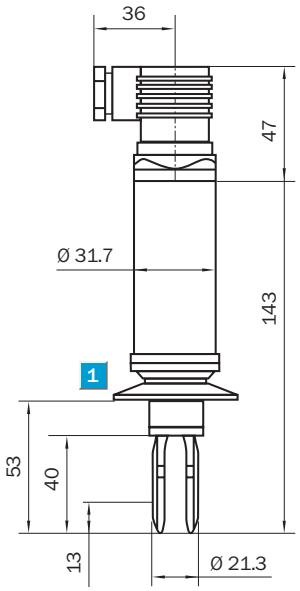
Dimensional drawing



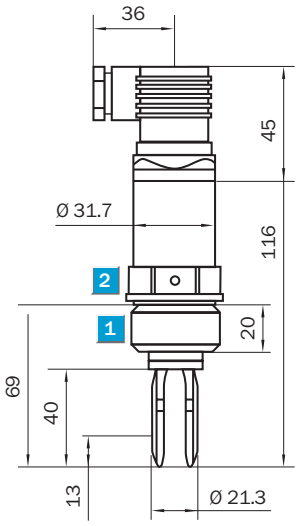
1: Process connection G 3/4”
2: Wrench size 32
Temperature range
–40 ... 150 °C
Electric connection
M12/IP 67



1: Process connection G 3/4”
2: Wrench size 32
Temperature range
–40 ... 100 °C
Electric connection
M12/IP 67

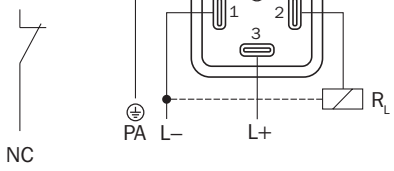
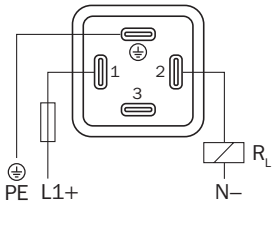
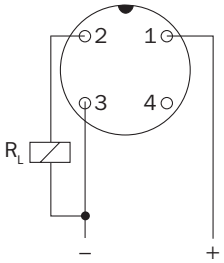
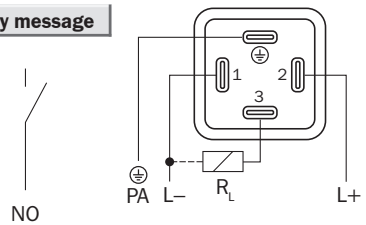
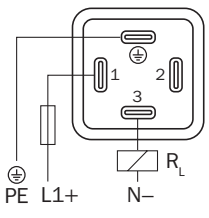
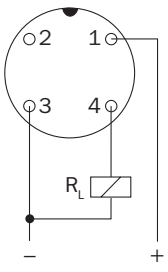


1: Process connection
Triclamp 1 and Triclamp 2
Pipe connection DIN11851,
DN 25, 40, 50
Temperature range
–40 ... 150 °C
Electric connection
Plug DIN43650/IP 65



1: Process connection G 3/4 ”
2: Wrench size 32
Temperature range
–40 ... 100 °C
Electric connection
Plug DIN43650/IP 65

Connection type

	Electronic T Enclosure rating V	Electronic C Enclosure rating V	Electronic T Enclosure rating M
Full message			
Empty message			

Technical data

Electric data	
Process pressure	–1 ... 64 bar
Process temperature	–40 ... +100 °C (optional +150 °C)
Fill material density	From 0.7 g/cm³
Viscosity	0.1 ... 10000 mPas
Material, in contact with medium	1.4404 (optional Ra < 0.8 µm)
Material, housing	1.4404, plastic PEI
Response time	500 ms
Approval	Overfill protection according to WHG
Process connection	G ¾", G1", Triclamp 1", Triclamp 2", pipe connection DIN 11851 DN25, 40, 50
Accuracy	± 2 mm
Reproducibility	± 1 mm
Hysteresis Switching output	2 mm
Temperature drift	0.03 mm/K
Ambient temperature Operation	–40 ... +70 °C
Ambient temperature Storage	–40 ... +80 °C
Enclosure rating	M12 connection IP 67, DIN 43650 plug IP 65

	Electronic (Version T)	Electronic (Version C)
Switching output		
Signal voltage HIGH	U_V – 3 V	
Signal voltage LOW	0 V ± 1 V	
Output current I_A < 250 mA	< 250 mA	
Output load		
Capacitive load	100 nF	100 nF
Inductive load	1 H	1 H
Supply voltage	10 ... 55 V DC	20 ... 253 V UC
Residual ripple	≤ 5 V_{PP}	
Current consumption	< 10 mA	< 4.2 mA
Current requirements	Approx. 3 mA (via load circuit)	
Initialization time< 2 s	< 3 s	
Protection class	⧈	⏚

Type	Order no.	Type	Order no.	Type	Order no.	Type	Order no.
LFV200-XXSGBTPM	6036351	LFV200-XASGBTPM	6036359	LFV200-XXSGBCPV	6036367	LFV200-XASGBCPV	6036375
LFV200-XXSNBTPM	6036352	LFV200-XASNBTPM	6036360	LFV200-XXSNBCPV	6036368	LFV200-XASNBCPV	6036376
LFV200-XXSGATPM	6036353	LFV200-XASGATPM	6036361	LFV200-XXSGACPV	6036369	LFV200-XASGACPV	6036377
LFV200-XXSNATPM	6036354	LFV200-XASNATPM	6036362	LFV200-XXSNACPV	6036370	LFV200-XASNACPV	6036378
LFV200-XXTGBTPM	6036355	LFV200-XATGBTPM	6036363	LFV200-XXTGBCPV	6036371	LFV200-XATGBCPV	6036379
LFV200-XXTNBTPM	6036356	LFV200-XATNBTPM	6036364	LFV200-XXTNBCPV	6036372	LFV200-XATNBCPV	6036380
LFV200-XXTGATPM	6036357	LFV200-XATGATPM	6036365	LFV200-XXTGACPV	6036373	LFV200-XATGACPV	6036381
LFV200-XXTNATPM	6036358	LFV200-XATNATPM	6036366	LFV200-XXTNACPV	6036374	LFV200-XATNACPV	6036382

More versions on request

Accessories	
Type	**Order no.**
Weld-in supports G ¾	4054604
Weld-in supports G 1	4054605
Weld-in supports Triclamp 1	4054606
Weld-in supports Triclamp 2	4054607
Weld-in supports pipe connection DIN 11851, DN25/PN	5321527
Weld-in supports pipe connection DIN 11851, DN40/PN	5321459
Weld-in supports pipe connection DIN 11851, DN50/PN	5321528

Type code

LFV200 –								
Approval								
Without approval	X	X						
WHG approval	X	A						
Process temperature model								
Standard –40 ... 100 °C			S					
Expanded –40 ... 150 °C			T					
Hygiene application – 40 ... 150 °C			H					
Process connection /Material								
Thread G 3/4“ A PN64/316 L				G	B			
Thread G 3/4“ NPT PN64/316 L				N	B			
Thread G 1“ A PN64/316 L				G	A			
Thread G 1“ NPT PN64/316 L				N	A			
Tri-Clamp 1“ PN16/L Ra < 0.8 µm				C	L			
Tri-Clamp 2“ PN16/L Ra < 0.8 µm				C	N			
Pipe connection DN25 PN40 DIN11851/1.4404 Ra < 0.8 µm				R	L			
Pipe connection DN40 PN40 DIN11851/1.4404 Ra < 0.8 µm				R	M			
Pipe connection DN50 PN25 DIN11851/1.4404 Ra < 0.8 µm				R	N			
Electronic								
Contactless switch 20 ... 253 V AC/DC						C		
Transistor output PNP 10 ... 55 V AC/DC						T		
Housing								
1.4404							P	
Electrical connection/enclosure rating								
M12x1/IP 67								M
DIN43650 Plug/IP 65								V

Round connector M12 connecting cable, PVC, 4-pin

Type	Order no.	Description	Cable length (m)
DOL-1204-G02M	6009328	Female, straight	2
DOL-1204-G05M	6009866	Female, straight	5
DOL-1204-G10M	6010543	Female, straight	10
DOL-1204-W02M	6009383	Female, right angle	2
DOL-1204-W05M	6009867	Female, right angle	5
DOL-1204-W10M	6010541	Female, right angle	10

Round connector M12 connecting cable, PUR, halogenfree, 4-pin

Type	Order no.	Description	Cable length (m)
DOL-1204-G02MC	6025900	Female, straight	2
DOL-1204-G05MC	6025901	Female, straight	5
DOL-1204-G10MC	6025902	Female, straight	10
DOL-1204-W02MC	6025903	Female, right angle	2
DOL-1204-W05MC	6025904	Female, right angle	5
DOL-1204-W10MC	6025905	Female, right angle	10

Round connector M12 connecting cable, “Food & Beverage”, 4-pin

Type	Order no.	Description	Cable length (m)
DOL-1204-G02MN	6028128	Female, straight	2
DOL-1204-G05MN	6028130	Female, straight	5
DOL-1204-G10MN	6028132	Female, straight	10
DOL-1204-W02MN	6028129	Female, right angle	2
DOL-1204-W05MN	6028131	Female, right angle	5
DOL-1204-W10MN	6028133	Female, right angle	10

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