



# Lfv310-XXRAPXVTX

Lfv300

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
LFV310-XXRAPXVTX	6069234

Other models and accessories → [www.sick.com/LFV300](http://www.sick.com/LFV300)

### Detailed technical data

#### Features

<b>Medium</b>	Fluids
<b>Measurement</b>	Switch
<b>Probe length</b>	66 mm
<b>Process pressure</b>	-1 bar ... 64 bar
<b>Process temperature</b>	-50 °C ... +150 °C
<b>Fill material density</b>	0.5 g/cm <sup>3</sup> ... 2.5 g/cm <sup>3</sup>

#### Performance

<b>Accuracy of sensor element</b>	± 2 mm
<b>Reproducibility</b>	≤ 1 mm
<b>Viscosity</b>	0.1 mPas ... 10,000 mPas
<b>Response time</b>	500 ms
<b>MTBF</b>	9,73*10 <sup>6</sup> h

#### Electronics

<b>Residual ripple</b>	≤ 5 V <sub>pp</sub>
<b>Power consumption</b>	< 10 mA
<b>Initialization time</b>	< 2 s
<b>VDE protection class 2</b>	✓
<b>Connection type</b>	M20 x 1.5
<b>Output signal</b>	1 x PNP/NPN
<b>Supply voltage</b>	Volt-free transistor output PNP/ NPN: 10 V DC ... 55 V DC
<b>Hysteresis</b>	2 mm
<b>Output current</b>	< 300 mA
<b>Inductive load</b>	1 H
<b>Capacitive load</b>	100 nF
<b>Enclosure rating</b>	IP66 / IP67
<b>Temperature drift</b>	0,03 mm/K

Mechanics

<b>Wetted parts</b>	Stainless steel 316L (optional Ra ≤ 0.8 μm)
<b>Process connection</b>	DIN 40 pipe connection (PN 40, DIN 11851/316L, R <sub>a</sub> < 0.8 μm)
<b>Housing material</b>	Stainless steel (investment casting) 316L
<b>Sensor material</b>	Stainless steel 1.4404

Ambient data

<b>Ambient operating temperature</b>	-40 °C ... +70 °C
<b>Ambient temperature, storage</b>	-40 °C ... +80 °C

Classifications

<b>ECLASS 5.0</b>	27273202
<b>ECLASS 5.1.4</b>	27273202
<b>ECLASS 6.0</b>	27273202
<b>ECLASS 6.2</b>	27273202
<b>ECLASS 7.0</b>	27273202
<b>ECLASS 8.0</b>	27273202
<b>ECLASS 8.1</b>	27273202
<b>ECLASS 9.0</b>	27273202
<b>ECLASS 10.0</b>	27273202
<b>ECLASS 11.0</b>	27273202
<b>ECLASS 12.0</b>	27273106
<b>ETIM 5.0</b>	EC002654
<b>ETIM 6.0</b>	EC002654
<b>ETIM 7.0</b>	EC002654
<b>ETIM 8.0</b>	EC002654
<b>UNSPSC 16.0901</b>	41111938

Type code

LFV310 type code

<b>Certification</b>	
XX	Without
XA	WHG authorization
CA	ATEX II 1G, 1/2G, 2G Ex ia IIC T6 Ga, Ga/Gb, Gb +WHG
DA	ATEX II 1/2G Ex db IIC T6...T2 Ga/Gb +WHG
<b>Process connection / Material (see below)</b>	
<b>Spacer / Process temperature</b>	
X	Without / -50 °C ... +150 °C
T	With / -50 °C ... +250 °C
<b>Housing / Cable gland</b>	
P	Plastic IP 66, IP 67 / M20 x 1.5
N	Plastic IP 66, IP 67 / ½" NPT
M	Aluminum IP 66, IP 67 / M20 x 1.5
U	Aluminum IP 66, IP 67 / ½" NPT
V	Stainless steel (investment casting) 316L, IP 66, IP 67 / M20 x 1.5
A	Stainless steel (investment casting) 316L, IP 66, IP 67 ½" NPT
8	Stainless steel (electropolished) 316L, IP 66, IP 67 / M20 x 1.5



SAP	Neumo biocontrol size 50PN16 / 316L, Ra < 0.8 µm
SCP	Neumo biocontrol Gr.65PN16 / 316L, Ra < 0.8 µm
SDP	Neumo biocontrol Gr.80PN16 / 316L, Ra < 0.8 µm
RUP	SÜDMO W500 DN50PN10 / 316L, Ra < 0.8 µm
PCV	Flange, DN 40, PN 40, form N, DIN 2501 / 316L
MEV	Flange, DN 50, PN 40, form D, DIN 2501 / 316L
OEV	Flange, DN 50, PN 40, form F, DIN 2501 / 316L
PEV	Flange, DN 50, PN 40, form N, DIN 2501 / 316L
IEV	Flange, DN 50, PN 40, form E, DIN 2501 / 316L
UEV	Flange, DN 50, PN 40, V13, DIN 2501 / 316L
EEV	Flange, DN 50, PN 40, R13, DIN 2501 / 316L
ONV	Flange, DN 50, PN 64, form F, DIN 2501 / 316L
INV	Flange, DN 50, PN 64, form E, DIN 2501 / 316L
HNV	Flange, DN 50, PN 64, form L, DIN 2501 / 316L
IYV	Flange, DN 50, PN 100, form E, DIN 2501 / 316L
HYV	Flange, DN 50, PN 100, form L, DIN 2501 / 316L
FGV	Flange, DN 65, PN 40, form C, DIN 2501 / 316L
OGV	Flange, DN 65, PN 40, form F, DIN 2501 / 316L
lIV	Flange, DN 65, PN 40, form E, DIN 2501 / 316L
FIV	Flange, DN 80, PN 40, form C, DIN 2501 / 316L
OIV	Flange, DN 80, PN 40, form F, DIN 2501 / 316L
PIV	Flange, DN 80, PN 40, form N, DIN 2501 / 316L
FJC	Flange, DN 100, PN 16, form B1, EN1092-1 / 316L
FKC	Flange, DN 100, PN 40, form B1, EN1092-1 / 316L
OKC	Flange, DN 100, PN 40, form C, EN1092-1 / 316L
PKC	Flange, DN 100, PN 40, form D, EN1092-1 / 316L
PSC	Flange, DN 100, PN 63, form D, EN1092-1 / 316L
ISC	Flange, DN 100, PN 63, form B2, EN1092-1 / 316L
FMC	Flange, DN 150, PN 16, form B1, EN1092-1 / 316L
FVC	Flange, DN 150, PN 40, form B1, EN1092-1 / 316L
IVC	Flange, DN 150, PN 40, form B2, EN1092-1 / 316L
WPM	Flange 1" 150 lb RF, ANSI B16.5 / 316L
ANV	Flange 1" 300 lb RF, ANSI B16.5 / 316L
AQV	Flange 1" 600 lb RF, ANSI B16.5 / 316L
YQV	Flange 1" 600 lb LG, ANSI B16.5 / 316L
AAV	Flange 1 ½" 150 lb RF, ANSI B16.5 / 316L
ABV	Flange 1 ½" 300 lb RF, ANSI B16.5 / 316L
3BV	Flange 1 ½" 300 lb SM, ANSI B16.5 / 316L
ACV	Flange 2" 150 lb RF, ANSI B16.5 / 316L
QCV	Flange 2" 150 lb FF, ANSI B16.5 / 316L
1CV	Flange 2" 150 lb ST, ANSI B16.5 / 316L
2CV	Flange 2" 150 lb SG, ANSI B16.5 / 316L
3CV	Flange 2" 150 lb SM, ANSI B16.5 / 316L
ADV	Flange 2" 300 lb RF, ANSI B16.5 / 316L
BDV	Flange 2" 300 lb RJF, ANSI B16.5 / 316L
1DV	Flange 2" 300 lb ST, ANSI B16.5 / 316L
YDV	Flange 2" 300 lb LG, ANSI B16.5 / 316L
WDV	Flange 2" 300 lb LT, ANSI B16.5 / 316L
AOV	Flange 2" 600 lb RF, ANSI B16.5 / 316L
BOV	Flange 2" 600 lb RJF, ANSI B16.5 / 316L
YOV	Flange 2" 600 lb LG, ANSI B16.5 / 316L
BZV	Flange 2" 900 lb RJF, ANSI B16.5 / 316L
AEV	Flange 2 ½" 150 lb RF, ANSI B16.5 / 316L
AFV	Flange 2 ½" 300 lb RF, ANSI B16.5 / 316L
AGV	Flange 3" 150 lb RF, ANSI B16.5 / 316L
QGV	Flange 3" 150 lb FF, ANSI B16.5 / 316L

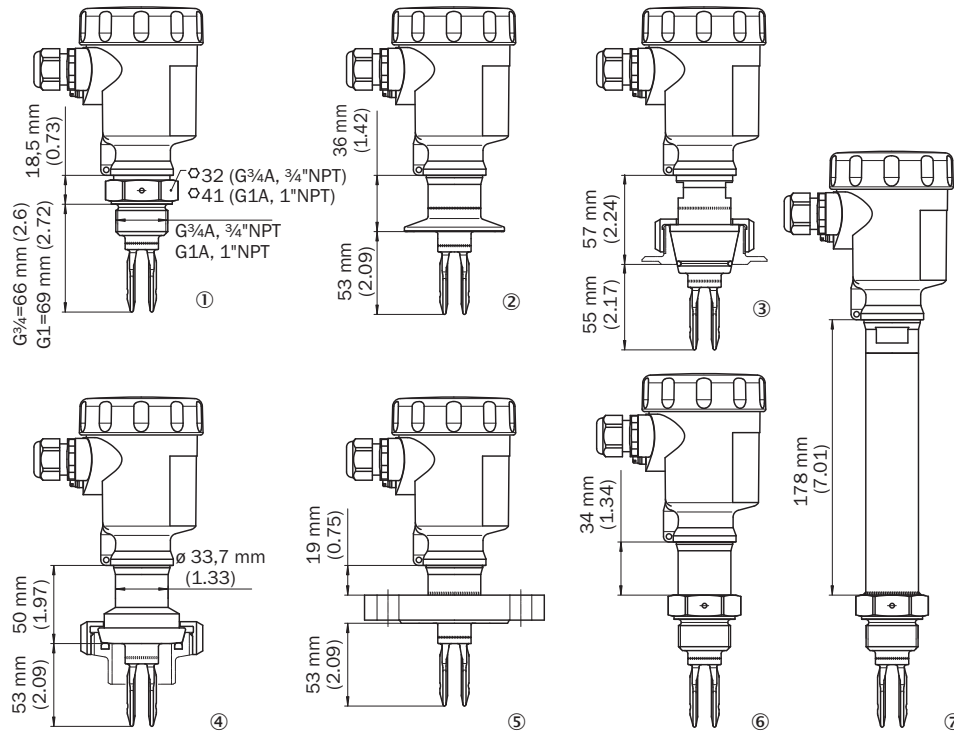
OBV	Flange, DN 32, PN 40, form F, DIN 2501 / 316L
FOV	Flange, DN 40, PN 6, form C, DIN 2501 / 316L
FCV	Flange, DN 40, PN 40, form C, DIN 2501 / 316L
OCV	Flange, DN 40, PN 40, form F, DIN 2501 / 316L
ICV	Flange, DN 40, PN 40, form E, DIN 2501 / 316L
U6V	Flange, DN 80, PN 64, V13, DIN 2501 / 316L
FJV	Flange, DN 100, PN 16, form C, DIN 2501 / 316L
MJV	Flange, DN 100, PN 16, form D, DIN 2501 / 316L
OJV	Flange, DN 100, PN 16, form F, DIN 2501 / 316L
PJV	Flange, DN 100, PN 16, form N, DIN 2501 / 316L
FKV	Flange, DN 100, PN 40, form C, DIN 2501 / 316L
OKV	Flange, DN 100, PN 40, form F, DIN 2501 / 316L
PKV	Flange, DN 100, PN 40, form N, DIN 2501 / 316L
UKV	Flange, DN 100, PN 40, V13, DIN 2501 / 316L
PSV	Flange, DN 100, PN 64, form N, DIN 2501 / 316L
ISV	Flange, DN 100, PN 64, form E, DIN 2501 / 316L
IUV	Flange, DN 100, PN 100, form E, DIN 2501 / 316L
HUV	Flange, DN 100, PN 100, form L, DIN 2501 / 316L
OZV	Flange, DN 125, PN 16, form F, DIN 2501 / 316L
FLV	Flange, DN 125, PN 40, form C, DIN 2501 / 316L
F4V	Flange, DN 150, PN 6, form C, DIN 2501 / 316L
FPC	Flange, DN 25, PN 40, form B1, EN1092-1 / 316L
IPC	Flange, DN 25, PN 40, form B2, EN1092-1 / 316L
EPC	Flange, DN 25, PN 40, form F, EN1092-1 / 316L
F3C	Flange, DN 25, PN 63, form B1, EN1092-1 / 316L
IWC	Flange, DN 25, PN 100, form B2, EN1092-1 / 316L
FCC	Flange, DN 40, PN 40, form B1, EN1092-1 / 316L
ICC	Flange, DN 40, PN 40, form B2, EN1092-1 / 316L
FEC	Flange, DN 50, PN 40, form B1, EN1092-1 / 316L
OEC	Flange, DN 50, PN 40, form C, EN1092-1 / 316L
PEC	Flange, DN 50, PN 40, form D, EN1092-1 / 316L
IEC	Flange, DN 50, PN 40, form B2, EN1092-1 / 316L
UEC	Flange, DN 50, PN 40, form E, EN1092-1 / 316L
EEC	Flange, DN 50, PN 40, form F, EN1092-1 / 316L
ONC	Flange, DN 50, PN 63, form C, EN1092-1 / 316L
FIC	Flange, DN 80, PN 40, form B1, EN1092-1 / 316L
IIC	Flange, DN 80, PN 40, form B2, EN1092-1 / 316L
ARV	Flange 1 ½" 600 lb RF, ANSI B16.5 / 316L
AYV	Flange 3 ½" 150 lb RF, ANSI B16.5 / 316L
AIV	Flange 4" 150 lb RF, ANSI B16.5 / 316L
WIV	Flange 4" 150 lb LT, ANSI B16.5 / 316L
AJV	Flange 4" 300 lb RF, ANSI B16.5 / 316L
BJV	Flange 4" 300 lb RJF, ANSI B16.5 / 316L
YJV	Flange 4" 300 lb LG, ANSI B16.5 / 316L
WJV	Flange 4" 300 lb LT, ANSI B16.5 / 316L
AUV	Flange 4" 600 lb RF, ANSI B16.5 / 316L
BUV	Flange 4" 600 lb RJF, ANSI B16.5 / 316L
TCR	Flange 6" 150 lb RF, ANSI B16.5 / 316L
BKV	Flange 6" 150 lb RJF, ANSI B16.5 / 316L
ALV	Flange 6" 300 lb RF, ANSI B16.5 / 316L
AMV	Flange 8" 150 lb RF, ANSI B16.5 / 316L
VPV	Flange 1" BS.10 Table E / 316L
VAV	Flange 1 ½" BS.10 Table E / 316L
VHV	Flange 3 ½" BS.10 Table E / 316L
JBV	Flange DN40, 10K, JIS / 316L
JCV	Flange DN50, 10K, JIS / 316L

AHV	Flange 3" 300 lb RF, ANSI B16.5 / 316L
ATV	Flange 3" 600 lb RF, ANSI B16.5 / 316L

JGV	Flange DN80, 10K, JIS / 316L
JIV	Flange DN100, 10K, JIS / 316L

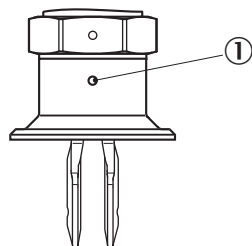
### Dimensional drawing (Dimensions in mm (inch))

#### LFV310



- ① Thread
- ② Tri-Clamp
- ③ DN 25 cone
- ④ Bolting D 40
- ⑤ Flange
- ⑥ Gas-tight leadthrough
- ⑦ Temperature adapter

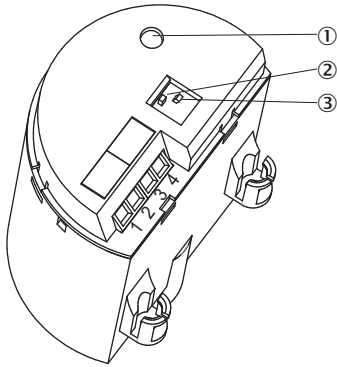
#### Marking on the welded flange



- ① Marking

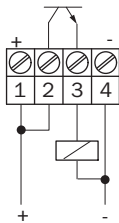
## Connection diagram

Transistor - electronic module

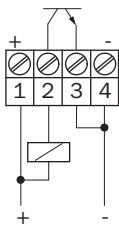


- ① Signal lamp (LED)
- ② DIL switch for mode adjustment
- ③ DIL-switch for sensitivity adjustment

PNP action

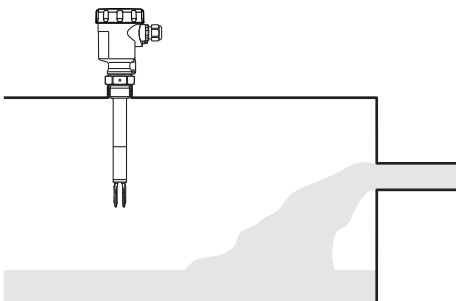


NPN action



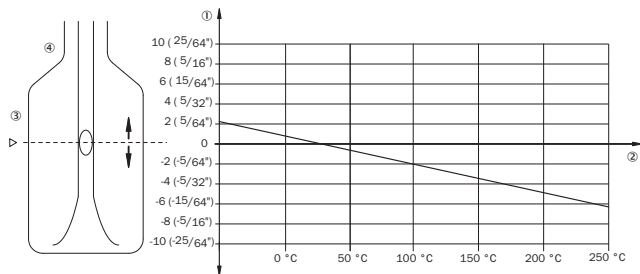
## Instruction for installation

Inflowing medium



### Characteristic curve






Influence of the process temperature on the switching point



- ① Shifting of the switching point in mm (in)
- ② Process temperature in °C (°F)
- ③ Switching point at reference conditions (notch)
- ④ Tuning fork

### Recommended accessories

Other models and accessories → [www.sick.com/LFV300](http://www.sick.com/LFV300)

	Brief description	Type	Part no.
<b>Electronic modules</b>			
	Transistor (PNP/NPN): 10 V DC ... 55 V DC	ECD-RE-LFVP-NP-0001	6038672
<b>Flanges</b>			
	Welded flange/welded connector, DIN11851-1, DN25 / PN40, Stainless steel 1.4404	BEF-FL-851D25-LFV2	5321527
	Welded flange/welded connector, process connection G 1, Stainless steel 1.4404	BEF-FL-GEWG10-LFV2	4054605
	Welded flange/welded connector, G 3/4 process connection, Stainless steel 1.4404	BEF-FL-GEWG34-LFV2	4054604
	Welded flange/welded connector, process connection Tri-Clamp 1", Stainless steel 1.4404	BEF-FL-TCLI10-LFV2	5321678
	Welded flange/welded connector, process connection Tri-Clamp 2", Stainless steel 1.4404	BEF-FL-TCLI20-LFV2	5321679
<b>Mounting brackets and plates</b>			
	BEF-MU-316G10-ALFV	BEF-MU-316G10-ALFV	5322463



## 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)