



# LFBV310-XXGBVXPTX

LFBV300

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type             | Part no. |
|------------------|----------|
| LFV310-XXGBVXPTX | 6037888  |

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> | G ¾ A PN 64 / 1.4404                        |
| <b>Housing material</b>   | Plastic                                     |
| <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

**Certification**

|    |  |
|----|--|
| 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            |

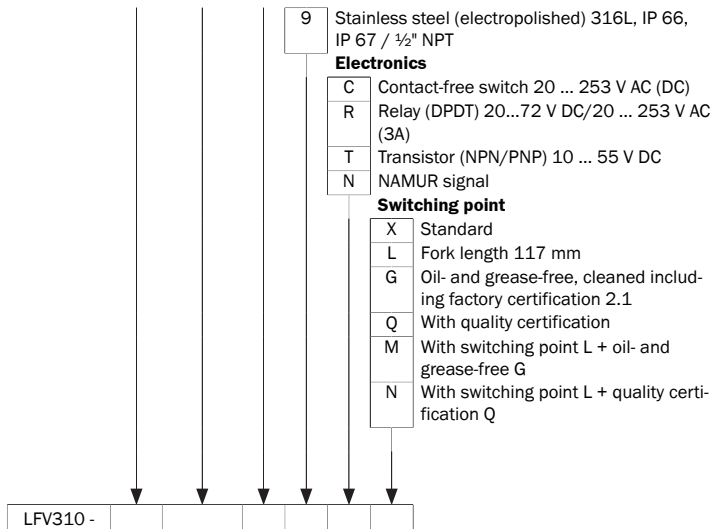
**Process connection / Material (see below)**

**Spacer / Process temperature**

|   |                              |
|---|------------------------------|
| X | Without / -50 °C ... +150 °C |
| T | With / -50 °C ... +250 °C    |

**Housing / Cable gland**

|   |   |
|---|---|
| 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    |



Not all variants of the type code can be combined! Not all available variants are shown.

### Process connection / Material

|     |   |     |  |
|-----|---|-----|--|
| GBV | Thread G 3/4 A, PN 64 / 316L                                | PLV | Flange, DN 125, PN 40 form N, DIN 2501 / 316L                      |
| GBP | Thread G 3/4 A, PN 64 / 316L, Ra < 0.8µm                    | FMV | Flange, DN 150, PN 16 form C, DIN 2501 / 316L                      |
| NBV | Thread 3/4" NPT, PN 64 / 316L                               | MMV | Flange, DN 150, PN 16 form D, DIN 2501 / 316L                      |
| NBP | Thread 3/4" NPT, PN 64 / 316L, Ra < 0.8 µm                  | FVV | Flange, DN 150, PN 40, form C, DIN 2501 / 316L                     |
| GAV | Thread G 1 A, PN 64 / 316L                                  | OVV | Flange, DN 150, PN 40, form F, DIN 2501 / 316L                     |
| GAP | Thread G 1 A, PN 64 / 316L, Ra < 0.8 µm                     | PVV | Flange, DN 150, PN 40, form N, DIN 2501 / 316L                     |
| NAV | Thread 1" NPT, PN 64 / 316L                                 | FQV | Flange, DN 200, PN 16, form C, DIN 2501 / 316L                     |
| NAP | Thread 1" NPT, PN 64 / 316L, Ra < 0.8µm                     | F5V | Flange, DN 250, PN 10, form C, DIN 2501 / 316L                     |
| GCV | Thread G 1 1/2 A, PN 64 / 316L                              | UCV | Flange, DN 40, PN 40, V13, DIN 2501 / 316L                         |
| NCV | Thread 1 1/2" NPT, PN 64 / 316L                             | FEV | Flange, DN 50, PN 40, form C, DIN 2501 / 316L                      |
| TAP | Varivent N50-40 / 316L, Ra < 0.8 µm                         | RCP | Pipe connection, DN 25, PN 40, DIN 11851 / 316L, Ra < 0.8 µm       |
| TNP | Varivent N25-100 / 316L, Ra < 0.8 µm                        | REP | Pipe connection, DN 32, PN 40, DIN 11851 / 316L, Ra < 0.8 µm       |
| CCP | Tri-Clamp 1", PN 16 / 316L, Ra < 0.8 µm                     | RAP | Pipe connection, DN 40, PN 40, DIN 11851 / 316L, Ra < 0.8 µm       |
| CBP | Tri-Clamp 1 1/2", PN 16 / 316L, Ra < 0.8 µm                 | RFP | Pipe connection, DN 40, PN 40, DIN 11864-1A / 316L, Ra < 0.8 µm    |
| CAP | Tri-Clamp 2", PN 16 / 316L, Ra < 0.8 µm                     | RBP | Pipe connection, DN 50, PN 25, DIN11851 / 316L, Ra < 0.8 µm        |
| CDP | Tri-Clamp 2 1/2" PN 10 / 316L, Ra < 0.8 µm                  | RDP | Pipe connection, DN 50, PN 25, DIN11864-1A / 316L, Ra < 0.8 µm     |
| CEP | Tri-Clamp 3", PN 10 / 316L, Ra < 0.8 µm                     | SMP | Small flange DN50PN1.5 DIN28403 / 316L pol.Ra < 0.8 µm             |
| GBN | Thread G 3/4 A, PN 64 / 316L, Ra < 0.3 µm                   | SNP | Small flange DN40PN1.5 DIN28403 / 316L pol.Ra < 0.8 µm             |
| GCP | Thread G 1 1/2 A, PN 64 / 316L, Ra < 0.8 µm                 | RIP | Ingold connection PN16 / 316L Ra < 0.8 µm                          |
| NCP | Thread G 1 1/2" NPT PN 64 / 316L, Ra < 0.8 µm               | LGP | DB50L / 316L, Ra < 0.8 µm  |
| GEV | Thread G 2 A PN64 / 316L                                    | SGD | Bundle clamp DN33, 7PN40, DIN11864-3-A / 316L, BN2, Ra < 0.8 µm    |
| GDV | Thread M27x1.5 PN64 / 316L                                  | SHP | Aseptic lapped flange DN50PN16, DIN11864-3-A / 316 L, Ra < 0.8 µm  |
| GFV | Thread M27x2 PN64 / 316L                                    | SJP | Aseptic lapped flange DN100PN16, DIN11864-3-A / 316 L, Ra < 0.8 µm |
| KAP | Cone DN25 PN40 / 316L, Ra < 0.8 µm                          | FTV | Flange, DN 25, PN 6, form C, DIN 2501 / 316L                       |
| KBP | Cone M52 PN40 / 316 L, Ra < 0.8 µm                          | FPV | Flange, DN 25, PN 40, form C, DIN 2501 / 316L                      |
| LAP | Aseptic with union nut F40P-N25 / 316L, Ra < 0.8 µm, ZB3052 | FRV | Flange, DN 25, PN 40, form D, DIN 2501 / 316L                      |
| DAV | DRD flange PN40 / 316L, ZB3007                              | OPV | Flange, DN 25, PN 40, form F, DIN 2501 / 316L                      |
| RRP | SMS DN38PN6 / 316L, Ra < 0.8 µm                             | PPV | Flange, DN 25, PN 40, form N, DIN 2501 / 316L                      |
| RTP | SMS DN51PN6 / 316L, Ra < 0.8 µm                             | UPV | Flange, DN 25, PN 40, V13, DIN 2501 / 316L                         |
| SBA | Neumo biocontrol size 25PN16 / 316L, Ra < 0.8 µm            | FBV | Flange, DN 32, PN 40, form C, DIN 2501 / 316L                      |

|     |  |
|-----|--|
| 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           |

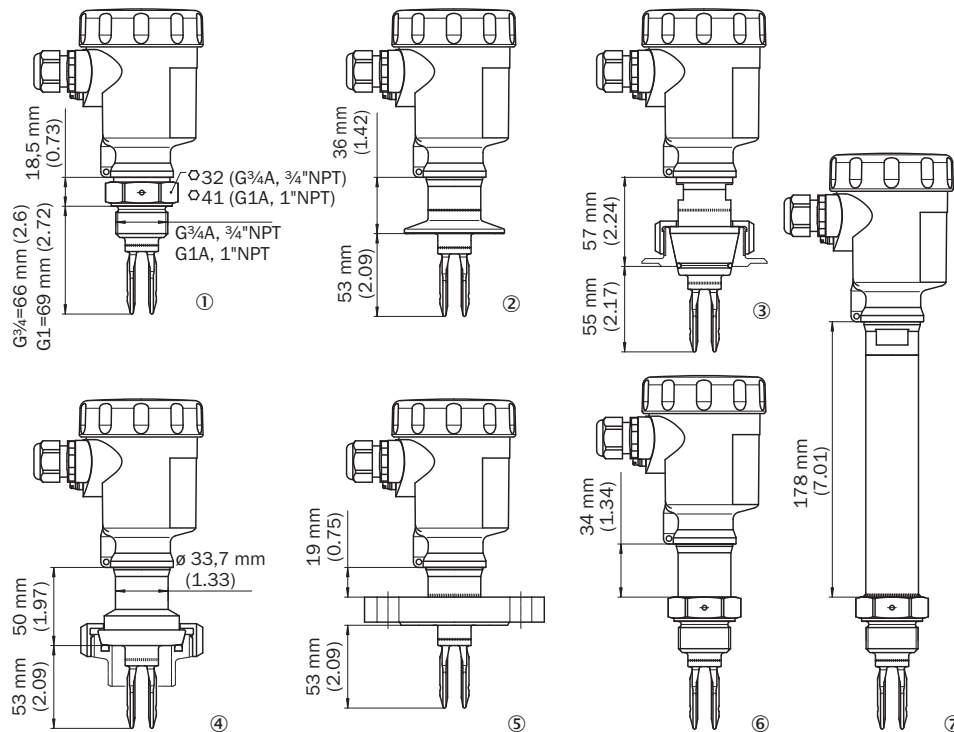
|     |   |
|-----|---|
| OBV | Flange, DN 32, PN 40, form F, DIN 2501 / 316L   |
| FOV | Flange, DN 40, PN 6, form C, DIN 2501 / 316L    |
| FCV | Flange, DN 40, PN 40, form C, DIN 2501 / 316L   |
| OCV | Flange, DN 40, PN 40, form F, DIN 2501 / 316L   |
| ICV | Flange, DN 40, PN 40, form E, DIN 2501 / 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

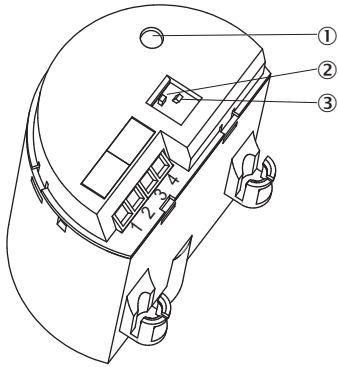
#### Marking on the welded flange



- ① Marking

## Connection diagram

Transistor - electronic module

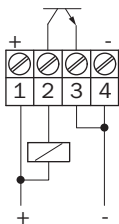


- ① Signal lamp (LED)
- ② DIL switch for mode adjustment
- ③ DIL-switch for sensitivity adjustment

PNP action



NPN action



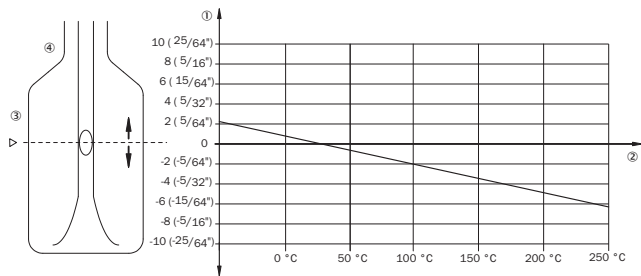
## Instruction for installation

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)