



# LFV310-CAGBVX8NX

LFV300

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type             | Part no. |
|------------------|----------|
| LFV310-CAGBVX8NX | 6049096  |

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

Illustration may differ



### 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, See safety notes for ATEX devices |
| <b>Fill material density</b> | 0.5 g/cm³ ... 2.5 g/cm³                               |
| <b>ATEX approval</b>         | ATEX II 1G, 1/2G, 2G Ex ia IIC T6 Ga, Ga/Gb, Gb +WHG  |
| <b>Type examination</b>      | PTB 16 ATEX 2008 X                                    |
| <b>WHG approval</b>          | ✓                                                     |

#### 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                   |

#### Electronics

|                               |                                    |
|-------------------------------|------------------------------------|
| <b>Residual ripple</b>        | ≤ 5 V <sub>pp</sub>                |
| <b>Power consumption</b>      | 1 mA / 2,5 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>          | NAMUR signal                       |
| <b>Supply voltage</b>         | NAMUR signal: 4.5 V DC ... 12 V DC |
| <b>Hysteresis</b>             | 2 mm                               |
| <b>Output current</b>         | 1 mA / 2,5 mA                      |
| <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>   | Stainless steel (electropolished)           |
| <b>Sensor material</b>    | Stainless steel 1.4404                      |

## Ambient data

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

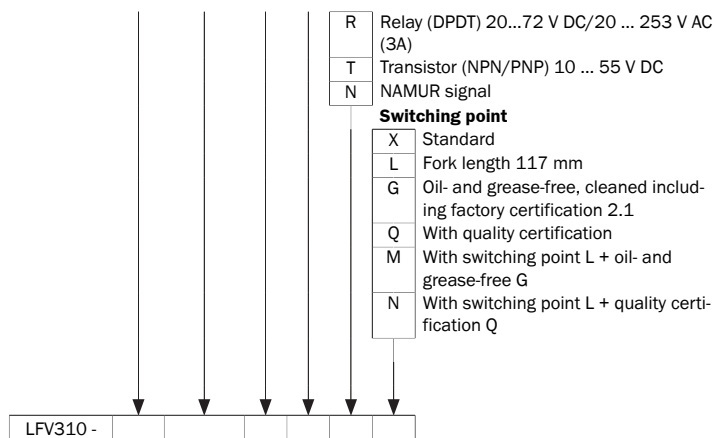
## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.0</b>     | 27273202 |
| <b>ECI@ss 5.1.4</b>   | 27273202 |
| <b>ECI@ss 6.0</b>     | 27273202 |
| <b>ECI@ss 6.2</b>     | 27273202 |
| <b>ECI@ss 7.0</b>     | 27273202 |
| <b>ECI@ss 8.0</b>     | 27273202 |
| <b>ECI@ss 8.1</b>     | 27273202 |
| <b>ECI@ss 9.0</b>     | 27273202 |
| <b>ECI@ss 10.0</b>    | 27273202 |
| <b>ECI@ss 11.0</b>    | 27273202 |
| <b>ETIM 5.0</b>       | EC002654 |
| <b>ETIM 6.0</b>       | EC002654 |
| <b>ETIM 7.0</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    |
| 9                                                | Stainless steel (electropolished) 316L, IP 66, IP 67 / ½" NPT       |
| <b>Electronics</b>                               |                                                                     |
| C                                                | Contact-free switch 20 ... 253 V AC (DC)                            |



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

### Process connection / Material

|     |                                                             |     |                                                                    |
|-----|-------------------------------------------------------------|-----|--------------------------------------------------------------------|
| GBV | Thread G ¾ A, PN 64 / 316L                                  | PLV | Flange, DN 125, PN 40 form N, DIN 2501 / 316L                      |
| GBP | Thread G ¾ A, PN 64 / 316L, Ra < 0.8µm                      | FMV | Flange, DN 150, PN 16 form C, DIN 2501 / 316L                      |
| NBV | Thread ¾" NPT, PN 64 / 316L                                 | MMV | Flange, DN 150, PN 16 form D, DIN 2501 / 316L                      |
| NBP | Thread ¾" 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 ½ A, PN 64 / 316L                                | UCV | Flange, DN 40, PN 40, V13, DIN 2501 / 316L                         |
| NCV | Thread 1 ½" 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 32, PN 40, DIN 11851 / 316L, Ra < 0.8 µm       |
| TNP | Varivent N25-100 / 316L, Ra < 0.8 µm                        | REP | Pipe connection, DN 25, 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 ½", 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 ½" 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 ¾ A, PN 64 / 316L, Ra < 0.3 µm                     | SNP | Small flange DN40PN1,5 DIN28403 / 316L pol.Ra < 0.8 µm             |
| GCP | Thread G 1 ½ A, PN 64 / 316L, Ra < 0.8 µm                   | RIP | Ingold connection PN16 / 316L Ra < 0.8 µm                          |
| NCP | Thread G 1 ½" 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            | OBV | Flange, DN 32, PN 40, form F, DIN 2501 / 316L                      |
| SCP | Neumo biocontrol Gr.65PN16 / 316L, Ra < 0.8 µm              | FOV | Flange, DN 40, PN 6, form C, DIN 2501 / 316L                       |
| SDP | Neumo biocontrol Gr.80PN16 / 316L, Ra < 0.8 µm              | FCV | Flange, DN 40, PN 40, form C, DIN 2501 / 316L                      |

|     |                                                 |
|-----|-------------------------------------------------|
| 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   |
| ILV | 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          |
| AHV | Flange 3" 300 lb RF, ANSI B16.5 / 316L          |
| ATV | Flange 3" 600 lb RF, ANSI B16.5 / 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                    |
| JGV | Flange DN80, 10K, JIS / 316L                    |
| JIV | Flange DN100, 10K, JIS / 316L                   |

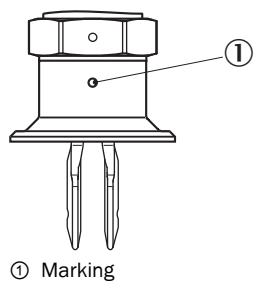
### Dimensional drawing (Dimensions in mm (inch))

#### LFV310



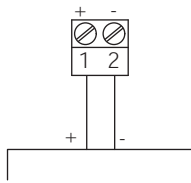
- ① Thread
- ② Tri-Clamp
- ③ DN 25 cone
- ④ Bolting D 40
- ⑤ Flange
- ⑥ Gas-tight leadthrough
- ⑦ Temperature adapter

#### Marking on the welded flange

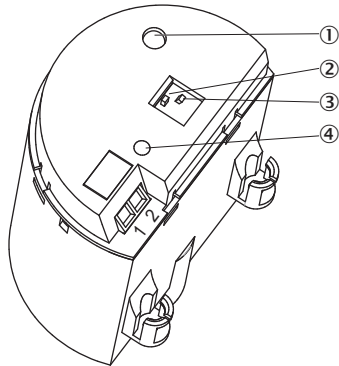


## Connection diagram

Namur connection diagram



Namur - electronic module



- ① Signal lamp (LED)
- ② DIL switch for characteristics reversal
- ③ DIL-switch for sensitivity adjustment
- ④ Simulation key

## 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. |
|------------------------------|-----------------------------------------------------------------------------------------|---------------------|----------|
| Flanges                      |                                                                                         |                     |          |
|                              | 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  |
| Mounting brackets and plates |                                                                                         |                     |          |
|                              | BEF-MU-316G10-ALFV                                                                      | BEF-MU-316G10-ALFV  | 5322463  |
| Electronic modules           |                                                                                         |                     |          |
|                              | Namur signal: 4.5 V DC ... 12 V DC                                                      | ECD-RE-LFV-NAM-0001 | 6038670  |

## 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)