



LBV311-CXAZFNVMX

LBV301

VIBRATING LEVEL SWITCH

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|------------------|----------|
| LBV311-CXAZFNVMX | 6053263 |

Other models and accessories → www.sick.com/LBV301

Detailed technical data

Features

| | |
|------------------------------|---|
| Medium | Bulk solids |
| Measurement | Switch |
| Probe length | 160 mm |
| Process pressure | -1 bar ... 16 bar |
| Process temperature | -50 °C ... +150 °C |
| Fill material density | ≥ 0.02 g/cm ³ |
| ATEX approval | ATEX II 1G, 1/2G, 2G Ex ia IIC T6 Ga, Ga/Gb, Gb |
| Type examination | PTB 17 ATEX 2016 X |

Performance

| | |
|-----------------------------------|---|
| Accuracy of sensor element | ± 10 mm |
| Reproducibility | ≤ 5 mm |
| Response time | 500 ms when covered / 1,000 ms when uncovered |
| MTBF | 4,17*10 ⁶ h |

Electronics

| | |
|-------------------------------|------------------------------------|
| Power consumption | 1 mA / 2,5 mA |
| Initialization time | < 2 s |
| VDE protection class 2 | ✓ |
| Connection type | M20 x 1.5 |
| Output signal | NAMUR signal |
| Supply voltage | NAMUR signal: 4.5 V DC ... 12 V DC |
| Hysteresis | 10 mm |
| Output current | 1 mA / 2,5 mA |
| Enclosure rating | IP66 / IP67 |

Mechanics

| | |
|---------------------------|---|
| Process connection | Flange DN 100 PN 6 Form C, DIN2501/ 316L |
| Housing material | Stainless steel (investment casting) 316L |

| | |
|------------------------|----------------------------|
| Sensor material | Stainless steel 316L, 318S |
|------------------------|----------------------------|

Ambient data

| | |
|--------------------------------------|-------------------|
| Ambient operating temperature | -40 °C ... +70 °C |
| Ambient temperature, storage | -40 °C ... +80 °C |

Classifications

| | |
|-----------------------|----------|
| ECLASS 5.0 | 27273202 |
| ECLASS 5.1.4 | 27273202 |
| ECLASS 6.0 | 27273202 |
| ECLASS 6.2 | 27273202 |
| ECLASS 7.0 | 27273202 |
| ECLASS 8.0 | 27273202 |
| ECLASS 8.1 | 27273202 |
| ECLASS 9.0 | 27273202 |
| ECLASS 10.0 | 27273202 |
| ECLASS 11.0 | 27273202 |
| ECLASS 12.0 | 27273106 |
| ETIM 5.0 | EC002654 |
| ETIM 6.0 | EC002654 |
| ETIM 7.0 | EC002654 |
| ETIM 8.0 | EC002654 |
| UNSPSC 16.0901 | 41111938 |

Type code

LBV311 type code

Certification

| | |
|----|--|
| XX | without |
| CX | ATEX II 1G, ½ G, 2G Ex ia IIC T6 |
| CK | ATEX II 1G, ½ G, 2G Ex ia IIC T6 + 1D, 1/2D, 2D Ex tD IP66 T |
| LX | ATEX II ½ G, 2G Ex d IIC T6 |
| LK | ATEX II ½ G, 2G Ex d IIC T6 + 1D, ½ D, 2D Ex tD IP66 T |
| GX | ATEX II 1D, ½ D, 2D Ex tD IP66 T |

Execution / Process temperature

| | |
|---|---|
| A | Standard / -50 °C ... +150 °C |
| B | With spacer / -50 °C ... +250 °C |
| C | Detection of solids in water / -50 °C ... +150 °C |

Process connection / Material (see below)

Electronics

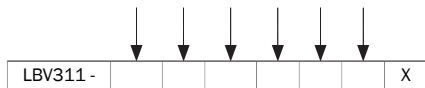
| | |
|---|--|
| C | Contact-free switch 20 ... 253 V AC (DC) |
| R | Relay (DPDT) 20 ... 72 V DC / 20 ... 253 V AC (3A) |
| T | Transistor (NPN/PNP) 10 ... 55 V DC |
| N | NAMUR signal |

Housing / Enclosure rating

| | |
|---|--|
| K | Plastic / IP 66, IP 67 |
| A | Aluminum / IP 66, IP 67 |
| V | Stainless steel (investment casting) 316L / IP 66, IP 67 |
| 8 | Stainless steel (electropolished) 316L / IP 66, IP 67 |

Cable entry / Male connector connection

| | |
|---|---------------------|
| M | M20 x 1.5 / Without |
| N | ½" NPT / Without |



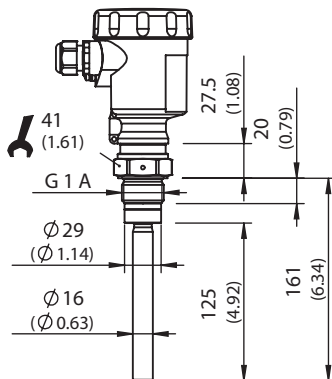
Not all variants of the type code can be combined! Not all available variants are shown.

Process connection / Material

| | | | |
|----|---|----------|--|
| GC | Thread G 1, DIN 3852-A, PN 16 / 316L | EF | Flange DN 50, PN 40, form C, DIN 2501 / 316L |
| GR | Thread G 1, DIN 3852-A, PN 16 / 316L, Ra < 0.8 µm | 4F | Flange DN 65, PN 16, form C, DIN 2501 / 316L |
| GG | Thread G 1 ½, DIN 3852-A, PN 16 / 316L | No error | Flange DN 80, PN 40, form C, DIN 2501 / 316L |
| GP | Thread G 1 ½, DIN 3852-A, PN 16 / 316L, Ra < 0.8 µm | ZF | Flange DN 100, PN 6, form C, DIN 2501 / 316L |
| NC | Thread 1" NPT, ASME B1.20.1, PN 16 / 316L | MF | Flange DN 100, PN 16, form C, DIN 2501 / 316L |
| NR | Thread 1" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm | OF | Flange DN 100, PN 40, form C, DIN 2501 / 316L |
| NH | Thread 1 ¼" NPT, ASME B1.20.1, PN 16 / 316L | 3F | Flange DN 125, PN 6, form C, DIN 2501 / 316L |
| NI | Thread 1 ¼" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm | QF | Flange DN 150, PN 16, form C, DIN 2501 / 316L |
| NG | Thread 1 ½" NPT, ASME B1.20.1, PN 16 / 316L | 2F | Flange DN 200, PN 10, form C, DIN 2501 / 316L |
| NP | Thread 1 ½" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm | EB | Flange DN 50, PN 40, EN 1092-1, form B1 / 316L |
| CT | Tri-Clamp 1 ½" / 316L, Ra < 0.8 µm | DA | Flange 1 ½" 150 lb RF, ANSI B16.5 / 316L |
| CV | Tri-Clamp 2" / 316L, Ra < 0.8 µm | EA | Flange 1 ½" 300 lb RF, ANSI B16.5 / 316L |
| CQ | Tri-Clamp 2 ½" / 316L, Ra < 0.8 µm | HA | Flange 2" 150 lb RF, ANSI B16.5 / 316L |
| CM | Tri-Clamp 3 ½" / 316L, Ra < 0.8 µm | IA | Flange 2" 300 lb RF, ANSI B16.5 / 316L |
| RP | Pipe connection DN 40, PN 40, DIN 11851 / 316L, Ra < 0.8 µm | OA | Flange 3" 150 lb RF, ANSI B16.5 / 316L |
| RF | Pipe connection DN 40, PN 40, DIN 11864-1, form A / 316L, Ra < 0.8 µm | OE | Flange 3" 150 lb FF, ANSI B16.5 / 316L |
| RH | Pipe connection DN 65, PN 25, DIN 11851 / 316L, Ra < 0.8 µm | PA | Flange 3" 300 lb RF, ANSI B16.5 / 316L |
| TV | Tuchenhagen Varivent DN 32.1 ½", PN 25 / 316L, Ra < 0.8 µm | PE | Flange 3" 300 lb FF, ANSI B16.5 / 316L |
| C2 | Bundle clamp DN 40, PN 40, DIN 11864-3, form A / 316L, Ra < 0.8 µm | JA | Flange 3 ½" 150 lb RF, ANSI B16.5 / 316L |
| BF | Flange DN 32, PN 40, form C, DIN 2501 / 316L | SA | Flange 4" 150 lb RF, ANSI B16.5 / 316L |
| DF | Flange DN 40, PN 40, form C, DIN 2501 / 316L | UA | Flange 4" 300 lb RF, ANSI B16.5 / 316L |
| AU | Flange DN50 10K RF, JIS / 316L | BU | Flange DN80 10K RF, JIS / 316L |
| HU | Flange DN65 10K RF, JIS / 316L | CU | Flange DN100 10K RF, JIS / 316L |

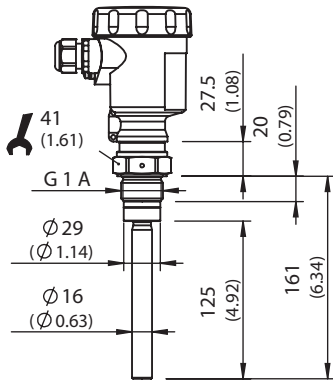
Dimensional drawing (Dimensions in mm (inch))

LBV311 threaded version G 1 ½ A



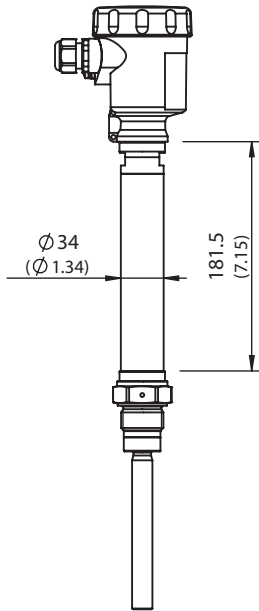
All dimensions in mm (inch)

LBV311 threaded version G 1 A



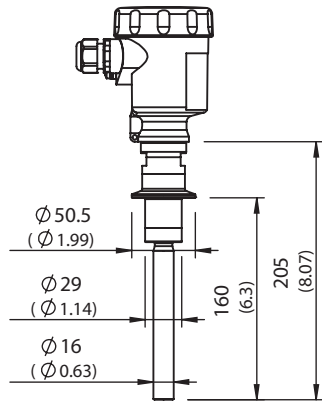
All dimensions in mm (inch)

LBV311 temperature adapter -50 °C ... +250 °C



All dimensions in mm (inch)

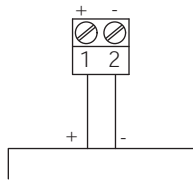
LBV311 threaded version Tri-Clamp



All dimensions in mm (inch)

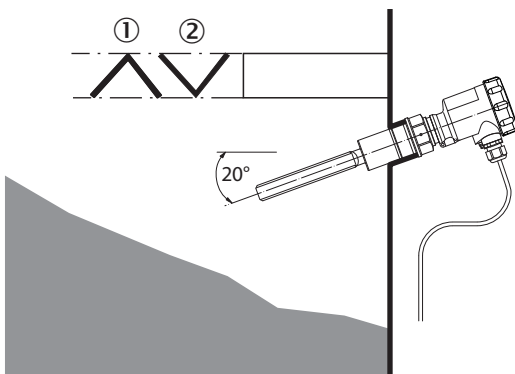
Connection diagram

Namur connection diagram



Instruction for installation

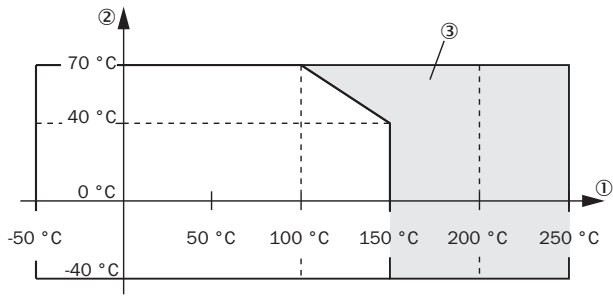
Horizontal mounting



- ① Protective sheet
- ② Concave protective sheet for abrasive solids

Characteristic curve

Ambient temperature - process temperature



- ① Process temperature in °C (°F)
- ② Ambient temperature in °C (°F)
- ③ Temperature range with temperature adapter

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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.”

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