



LBV311-XXAGPTVMX

LBV301

VIBRATING LEVEL SWITCH

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|------------------|----------|
| LBV311-XXAGPTVMX | 6074935 |

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 |

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

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

Mechanics

| | |
|---------------------------|--|
| Process connection | G 1 ½, DIN 3852-A, PN 16 / 316L, Ra < 0.8 µm |
|---------------------------|--|

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

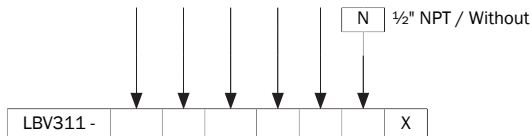
Classifications

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



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

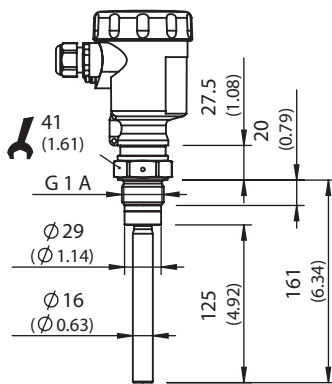
Process connection / Material

| | |
|----|---|
| GC | Thread G 1, DIN 3852-A, PN 16 / 316L |
| GR | Thread G 1, DIN 3852-A, PN 16 / 316L, Ra < 0.8 µm |
| GG | Thread G 1 ½, DIN 3852-A, PN 16 / 316L |
| GP | Thread G 1 ½, DIN 3852-A, PN 16 / 316L, Ra < 0.8 µm |
| NC | Thread 1" NPT, ASME B1.20.1, PN 16 / 316L |
| NR | Thread 1" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm |
| NH | Thread 1 ¼" NPT, ASME B1.20.1, PN 16 / 316L |
| NI | Thread 1 ¼" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm |
| NG | Thread 1 ½" NPT, ASME B1.20.1, PN 16 / 316L |
| NP | Thread 1 ½" NPT, ASME B1.20.1, PN 16 / 316L, Ra < 0.8 µm |
| CT | Tri-Clamp 1 ½" / 316L, Ra < 0.8 µm |
| CV | Tri-Clamp 2" / 316L, Ra < 0.8 µm |
| CQ | Tri-Clamp 2 ½" / 316L, Ra < 0.8 µm |
| CM | Tri-Clamp 3 ½" / 316L, Ra < 0.8 µm |
| RP | Pipe connection DN 40, PN 40, DIN 11851 / 316L, Ra < 0.8 µm |
| RF | Pipe connection DN 40, PN 40, DIN 11864-1, form A / 316L, Ra < 0.8 µm |
| RH | Pipe connection DN 65, PN 25, DIN 11851 / 316L, Ra < 0.8 µm |
| TV | Tuchenhagen Varivent DN 32.1 ½", PN 25 / 316L, Ra < 0.8 µm |
| C2 | Bundle clamp DN 40, PN 40, DIN 11864-3, form A / 316L, Ra < 0.8 µm |
| BF | Flange DN 32, PN 40, form C, DIN 2501 / 316L |
| DF | Flange DN 40, PN 40, form C, DIN 2501 / 316L |
| AU | Flange DN50 10K RF, JIS / 316L |
| HU | Flange DN65 10K RF, JIS / 316L |

| | |
|----------|--|
| EF | Flange DN 50, PN 40, form C, DIN 2501 / 316L |
| 4F | Flange DN 65, PN 16, form C, DIN 2501 / 316L |
| No error | Flange DN 80, PN 40, form C, DIN 2501 / 316L |
| ZF | Flange DN 100, PN 6, form C, DIN 2501 / 316L |
| MF | Flange DN 100, PN 16, form C, DIN 2501 / 316L |
| OF | Flange DN 100, PN 40, form C, DIN 2501 / 316L |
| 3F | Flange DN 125, PN 6, form C, DIN 2501 / 316L |
| QF | Flange DN 150, PN 16, form C, DIN 2501 / 316L |
| 2F | Flange DN 200, PN 10, form C, DIN 2501 / 316L |
| EB | Flange DN 50, PN 40, EN 1092-1, form B1 / 316L |
| DA | Flange 1 ½" 150 lb RF, ANSI B16.5 / 316L |
| EA | Flange 1 ½" 300 lb RF, ANSI B16.5 / 316L |
| HA | Flange 2" 150 lb RF, ANSI B16.5 / 316L |
| IA | Flange 2" 300 lb RF, ANSI B16.5 / 316L |
| OA | Flange 3" 150 lb RF, ANSI B16.5 / 316L |
| OE | Flange 3" 150 lb FF, ANSI B16.5 / 316L |
| PA | Flange 3" 300 lb RF, ANSI B16.5 / 316L |
| PE | Flange 3" 300 lb FF, ANSI B16.5 / 316L |
| JA | Flange 3 ½" 150 lb RF, ANSI B16.5 / 316L |
| SA | Flange 4" 150 lb RF, ANSI B16.5 / 316L |
| UA | Flange 4" 300 lb RF, ANSI B16.5 / 316L |
| BU | Flange DN80 10K RF, JIS / 316L |
| CU | Flange DN100 10K RF, JIS / 316L |

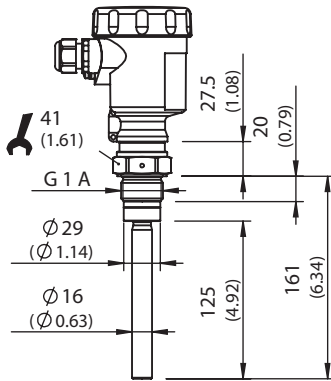
Dimensional drawing (Dimensions in mm (inch))

LBV311 threaded version G 1 ½ A



All dimensions in mm (inch)

LBV311 threaded version G 1 A



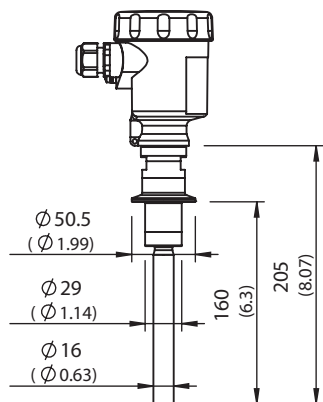
All dimensions in mm (inch)

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



All dimensions in mm (inch)

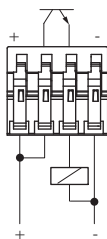
LBV311 threaded version Tri-Clamp



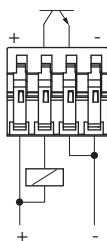
All dimensions in mm (inch)

Connection diagram

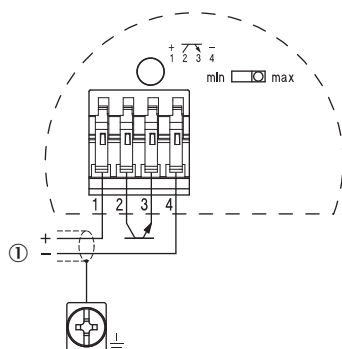
PNP action



NPN action



Transistor 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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