



# LBV331-XXBGCTKMx0650

LBV301

LEVEL SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type                 | Part no. |
|----------------------|----------|
| LBV331-XXBGCTKMX0650 | 6080776  |

Other models and accessories → [www.sick.com/LBV301](http://www.sick.com/LBV301)

### Detailed technical data

#### Features

|                              |  |
|------------------------------|--|
| <b>Medium</b>                | Bulk solids  |
| <b>Measurement</b>           | Switch   |
| <b>Probe length</b>          | 650 mm   |
| <b>Process pressure</b>      | -1 bar ... 16 bar  |
| <b>Process temperature</b>   | -50 °C ... +250 °C, Temperature range with temperature adapter |
| <b>Fill material density</b> | ≥ 0.02 g/cm <sup>3</sup>                                       |

#### Performance

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

#### Mechanics

|                           |         |
|---------------------------|---------|
| <b>Process connection</b> | G 1 A   |
| <b>Housing material</b>   | Plastic |

|                        |                            |
|------------------------|----------------------------|
| <b>Sensor material</b> | Stainless steel 316L, 318S |
|------------------------|----------------------------|

Ambient data

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

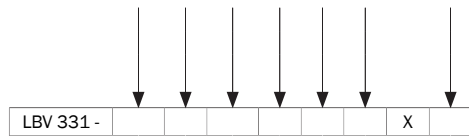
Classifications

|                       |          |
|-----------------------|----------|
| <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

LBV331 type code

|  |  |
|--|--|
| <b>Certification</b>                             |  |
| 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, 1/2 D, 2D Ex tD IP66 T     |
| GX   | ATEX II 1D, ½ D, 2D Ex tD IP66 T                             |
| <b>Execution / Process temperature</b>           |  |
| A  | Standard / -50 °C ... +150 °C                                |
| B  | With spacer / -50 °C ... +250 °C                             |
| C  | Detection of solids in water / -50 °C ... +150 °C            |
| <b>Process connection / Material (see below)</b> |  |
| <b>Electronics</b>                               |  |
| C  | Contact-free switch 20...253VAC(DC)                          |
| R  | Relay (DPDT) 20...72VDC / 20...253VAC(3A)                    |
| T  | Transistor (NPN/PNP) 10...55VDC                              |
| N  | NAMUR signal   |
| <b>Housing / Enclosure rating</b>                |  |
| K  | Plastic / IP66, IP67   |
| A  | Aluminum / IP66, IP67  |
| V  | Stainless steel (investment casting) 316L / IP66, IP67       |
| 8  | Stainless steel (electropolished) 316L / IP66, IP67          |
| <b>Cable entry / Male connector connection</b>   |  |
| M  | M20 x 1.5 / Without  |
| N  | ½" NPT / Without   |
| <b>Length 180 ... 6,000 mm</b>                   |  |



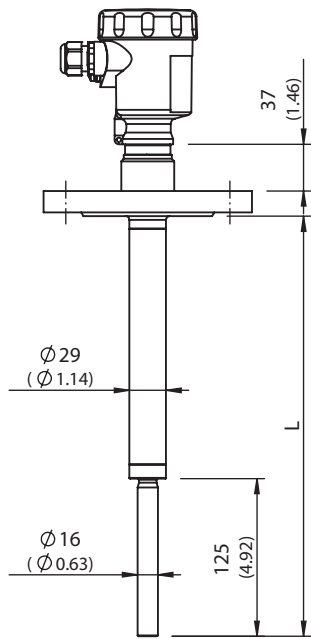
Not all variants of the type code can be combined!

### Process connection / Material

|          |  |    |  |
|----------|--|----|--|
| GC       | Thread G 1 (DIN 3852-A) PN 16 / 316L                               | MF | Flange DN 100, PN 16, form C, DIN2501 / 316L |
| GR       | Thread G 1 (DIN 3852-A) PN 16 / 316L, Ra< 0.8µm                    | OF | Flange DN 100, PN 40, form C, DIN2501 / 316L |
| GD       | Thread G 1 ½ (DIN 3852-A) PN 16 / 316L                             | 3F | Flange DN 125, PN 6, form C, DIN2501 / 316L  |
| GT       | Thread G 1 ½ (DIN 3852-A) PN 16 / 316L, Ra< 0.8µm                  | QF | Flange DN 150, PN 16, form C, DIN2501 / 316L |
| ND       | Thread 1 ½" NPT (ASME B1.20.1) PN 16 / 316L                        | 2F | Flange DN 200, PN 10, form C, DIN2501 / 316L |
| NT       | Thread 1 ½" NPT (ASME B1.20.1) PN 16 / 316L, Ra< 0.8µm             | EB | Flange DN 50, PN 40 EN1092-1 form B1 / 316L  |
| CT       | Tri-Clamp 1 ½" / 316L Ra< 0.8µm                                    | DA | Flange 1 ½" 150 lb RF, ANSI B16.5 / 316L     |
| CV       | Tri-Clamp 2" / 316L Ra< 0.8µm                                      | EA | Flange 1 ½" 300 lb RF, ANSI B16.5 / 316L     |
| CQ       | Tri-Clamp 2 ½" / 316L Ra< 0.8µm                                    | HA | Flange 2" 150 lb RF, ANSI B16.5 / 316L       |
| CM       | Tri-Clamp 3 ½" / 316L Ra< 0.8µm                                    | IA | Flange 2" 300 lb RF, ANSI B16.5 / 316L       |
| RP       | Pipe connection, DN 40, PN 40, DIN 11851 / 316L Ra< 0.8µm          | OA | Flange 3" 150 lb RF, ANSI B16.5 / 316L       |
| RF       | Pipe connection, DN 40, PN 40, DIN 11864-1 form A / 316L Ra< 0.8µm | OE | Flange 3" 150 lb FF, ANSI B16.5 / 316L       |
| RH       | Pipe connection, DN 65, PN 25, DIN 11851 / 316L Ra< 0.8µm          | PA | Flange 3" 300 lb RF, ANSI B16.5 / 316L       |
| TV       | Tuohenhagen Varivent, DN 32...1 ½" PN 25 / 316L Ra< 0.8µm          | PE | Flange 3" 300 lb FF, ANSI B16.5 / 316L       |
| C2       | Bundle clamp, DN 40, PN 40, DIN,11864-3 form A / 316L Ra< 0.8µm    | 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       |
| EF       | Flange, DN 50, PN 40, form C, DIN 2501 / 316L                      | AU | Flange DN 50, 10K RF, JIS / 316L             |
| 4F       | Flange, DN 65, PN 16, form C, DIN 2501 / 316L                      | HU | Flange DN 65, 10K RF, JIS / 316L             |
| No error | Flange, DN 80, PN 40, form C, DIN 2501 / 316L                      | BU | Flange DN 80, 10K RF, JIS / 316L             |
| ZF       | Flange, DN 100, PN 6, form C, DIN 2501 / 316L                      | CU | Flange DN 100, 10K RF, JIS / 316L            |

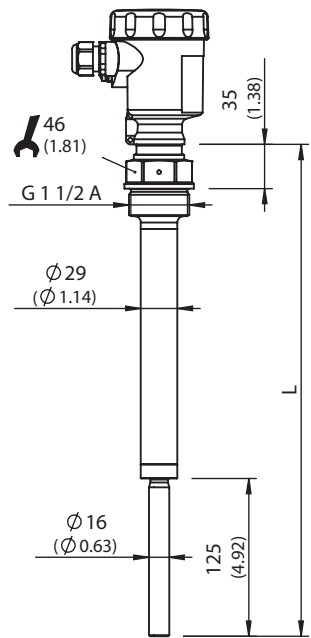
Dimensional drawing (Dimensions in mm (inch))

LBV331 flange



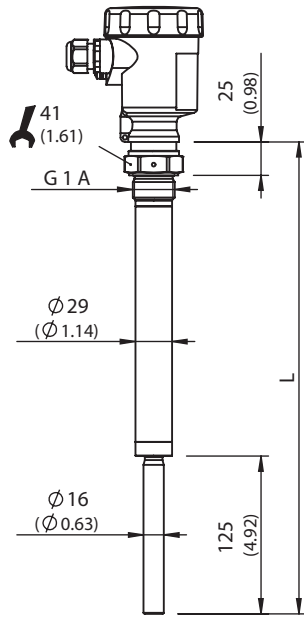
All dimensions in mm (inch)

LBV331 threaded version G 1 1/2 A



All dimensions in mm (inch)

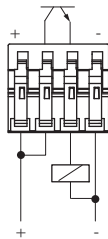
LBV331 threaded version G 1 A



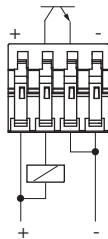
All dimensions in mm (inch)

### Connection diagram

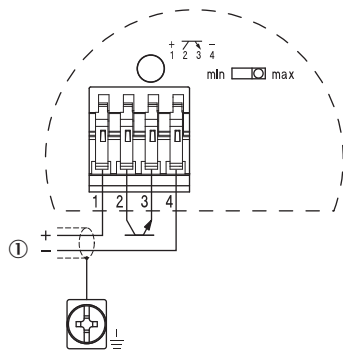
PNP action



NPN action

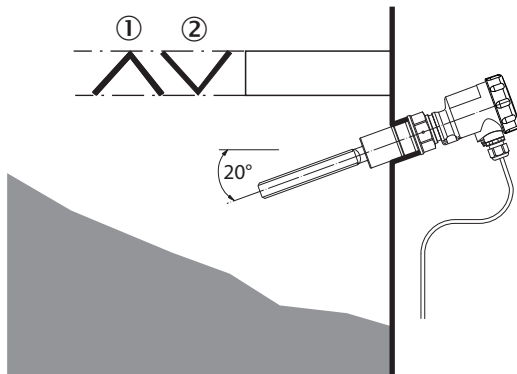


Transistor connection diagram



Instruction for installation

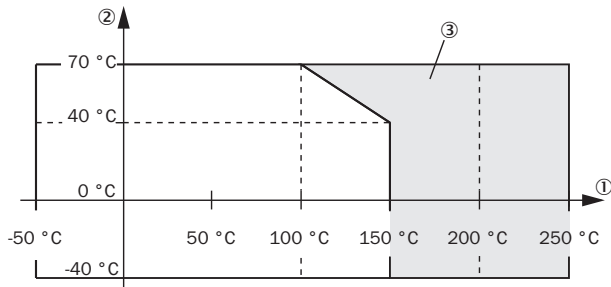
Horizontal mounting



- 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

## 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.”

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Contacts and other locations –[www.sick.com](http://www.sick.com)