

# The LBV300 universal limit switch for bulk materials – rugged and reliable measurement for bulk materials using the tuning fork principle



variant with suspension cable and the tube-extended LBV330 sensor for vertical mounting in silos are used with switching distances of up to 80 meters (LBV320) or 6 meters (LBV330). With a wide variety of thread and flange connections, and several electronic variants, the LBV300 series offers a solution for almost all applications, even in potentially explosive atmospheres. As a result of the flexibility of the device design, the LBV300 can also be used, in particular, for retrofit projects – as a replacement for outmoded technologies such as rotating paddle sensors.

## Advantages

- Rugged device design
- Flexible basic concept allows customer-specific solutions
- Teaching without filling
- Very high reproducibility

The level sensors of the LBV300 series fulfil their tasks signalling full, empty, or desired states ruggedly, reliably and highly accurately. The measurement principle of the tuning fork reacts to changes in density between the surrounding air and the bulk material, and thus operates independently of silo shape, the tank material used, container structures or the bulk material involved. It is also friction-free and maintenance-free.

## Area of use

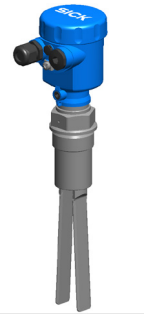

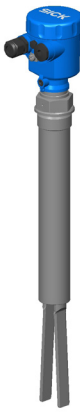
The devices of the LBV300 series are used in tanks and silos, as well as storage and intermediate containers for bulk materials. While the LBV310 basis device is principally used to signal full states or mounted laterally for demand or empty states, the LBV320

## Fault monitoring

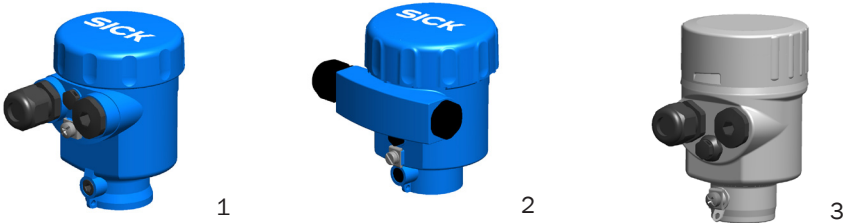
The electronics module continuously monitors the correct vibrating frequency and the line break to the piezo drive.

If one of the stated malfunctions is detected or in case of power failure, the electronics takes one defined switching condition, e.g. the relay deenergises (safe condition).

## Type overview

	LBV310 - compact	LBV320 - rope extension	LBV330 - tube extension
			
<b>Attributes</b>			
Preferred application	Bulk	Bulk	Bulk
Length	-	0,48 ... 80 m (0.984 ... 262.47 ft)	0,24 ... 6 m (0.984 ... 13.12 ft)
Process connection	Thread G1½ A, flanges	Thread G1½ A, flanges	Thread G1½ A, flanges
Process temperature	-50 ... +150 °C (-58 ... +302 °F) -50 ... +250 °C (-58 ... +482 °F) with temperature adapter	-20 ... +80 °C (-4 ... +176 °F)	-50... +150 °C (-58 ... +302 °F) -50... +250 °C (-58 ... +482 °F) with temperature adapter
Process pressure:	-1 ... 25 bar/-100 ... 2500 kPa (-14.5 ... 363 psig)	-1 ... 6 bar/-100 ... 600 kPa (-14.5 ... 87 psig)	-1 ... 25 bar/-100 ... 2500 kPa (-14.5 ... 363 psig)
Signal output::	Relay, transistor output, contactless electronic switch, NAMUR output	Relay, transistor output, contactless electronic switch, NAMUR output	Relay, transistor output, contactless electronic switch, NAMUR output

## Housing types



- 1 Plastic housing
- 2 Aluminium housing
- 3 Stainless steel housing

## Technical Data

Electric data	LBV310	LBV320	LBV330
Process pressure	-1 ... 25 bar	-1...6 bar	-1 ... 25 bar
Process temperature	-50...150 °C (optional 250 °C)	-20...80 °C	-50...150 °C (optional 250 °C)
Sensor length		480mm...80.000mm	240mm...6.000mm
Fill material density	From 0,008 g/cm <sup>3</sup>	From 0,008 g/cm <sup>3</sup>	From 0,008 g/cm <sup>3</sup>
Max. lateral load	-	3000N	-
Particle size	< 10mm	< 10mm	< 10mm
Materials, non-wetted parts	1.4404	1.4404, 1.4462, PUR	1.4404
Material, housing	Aluminium, plastic, stainless steel	Aluminium, plastic, stainless steel	Aluminium, plastic, stainless steel
Response time when covered	500ms	500ms	500ms
Response time when uncovered	1000ms	1000ms	1000ms
Process connection	G1 1/2 A, 1 1/2" NPT, flange		
Accuracy	± 10mm	± 10mm	± 10mm
Reproducibility	± 5mm	± 5mm	± 5mm
Hysteresis switching output	10mm	10mm	10mm
Ambient temperature Operation	-40 ... +80 °C	-40 ... +80 °C	-40 ... +80 °C
Ambient temperature Storage	-40 ... +80 °C	-40 ... +80 °C	-40 ... +80 °C
Enclosure rating	IP 66/67 or IP 66/IP 68(0,2bar)	IP 66/67 or IP 66/IP 68(0,2bar)	IP 66/67 or IP 66/IP 68(0,2bar)

	Electronics (Version T)	Electronics (Version C)
<b>Switching output</b>	Transistor output	Contactless electronic switch
Signal voltage HIGH	UV – 3 V	
Signal voltage LOW	< 1V	
Output current I <sub>A</sub>	< 300 mA	< 400 mA
<b>Output load</b>		
Capacitive load	100 nF	100 nF
Inductive load	1 H	1 H
Supply voltage	DC 10 ... 55 V	20 ... 253 V AC/ DC
Residual rIP ple	≤ 5 V <sub>pp</sub>	
Current consumption	< 10 mA	< 4.2 mA (via load circuit)
Initialization time	< 2 s	< 3 s
Protection class	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Electronics (Version R)	Electronics (Version N)
<b>Switching output</b>	Relay output	NAMUR output
Output current I <sub>A</sub>	>10uA; <3A AC, 1A DC	1mA / 2,5mA
<b>Output load</b>		
Capacitive load	750VA 54W	
Inductive load	750VA 54W	
Supply voltage	20...253 V AC; 20...72 V DC	4,5...12 V DC
Current consumption	5...30mA	1mA / 2,5mA
Initialization time	<2s	<2s
Protection class	<input checked="" type="checkbox"/>	<input type="checkbox"/>

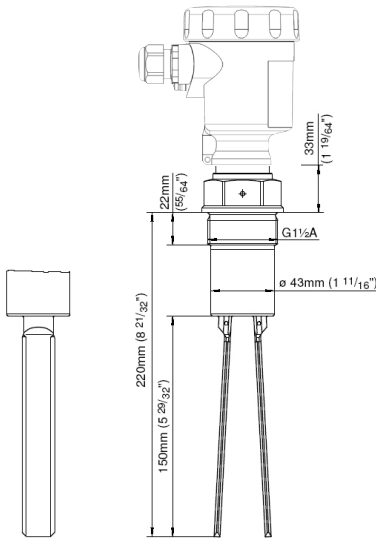
### Approvals

ATEX	ATEX II 1G, 1/2G, 2G Ex ia IIC T6
	ATEX II 1/2G, 2G Ex d IIC T6
	ATEX II 1/2 D IP 6X T

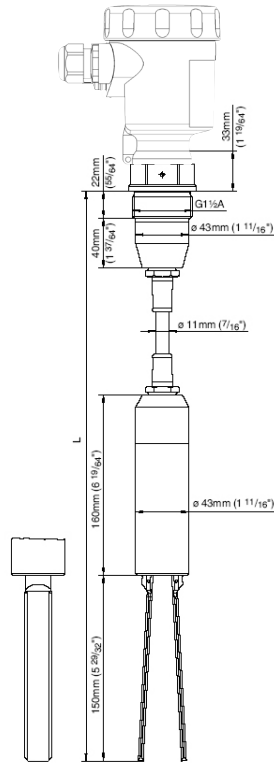
FDA-conformity

## Dimensions

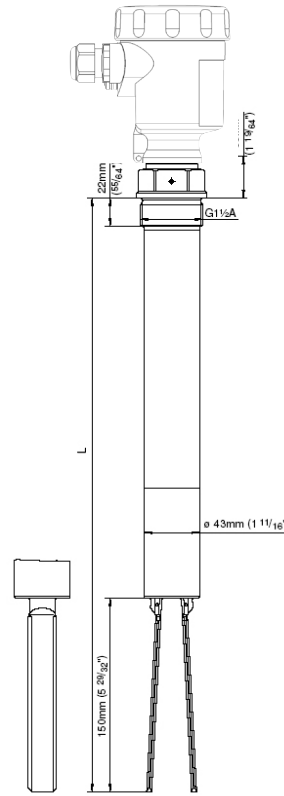
**LBV310 - threaded version G1½**



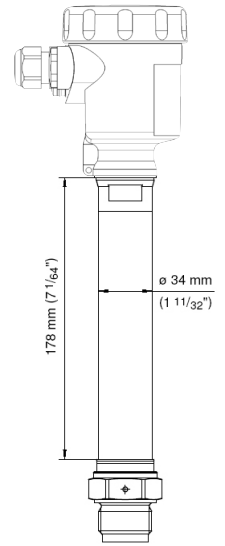
**LBV320 - rope extension threaded version G1½**



**LBV330 - tube extension threaded version G1½**



**LBV310/330 - Temperature adapter**



## Electrical connection

### 1 Preparing the connection

**Please note safety instructions**

Always keep in mind the following safety instructions:

- Connect only in the complete absence of line voltage

**Take note of safety instructions for Ex applications**

**Ex** In hazardous areas you should take note of the appropriate regulations, conformity and type approval certificates of the sensors and power supply units.

**Ex** In hazardous areas, only use approved cable connections for LBV series.

**Select connection cable for Ex applications**

**Ex** Take note of the corresponding installation regulations for Ex applications.

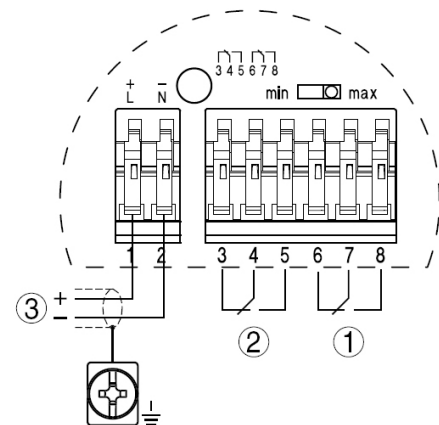
## 2. Wiring plan

### Relay output

We recommend connecting LBV300 in such a way that the switching circuit is open when there is a level signal, line break or failure (safe condition).

The relays are always shown in non-operative condition.

LBV300



- 1 Relay output
- 2 Relay output

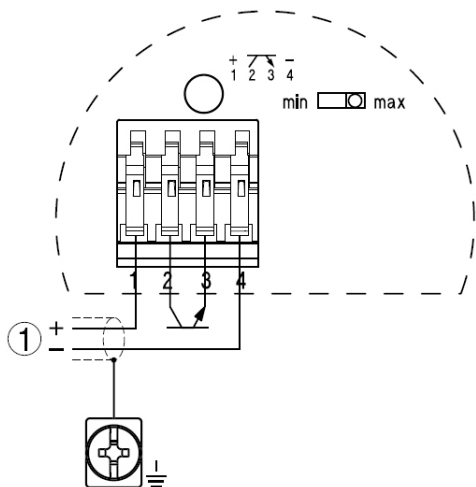
3 Voltage supply

**Transistor output**

We recommend connecting LBV300 in such a way that the switching circuit is open when there is a level signal, line break or failure (safe condition).

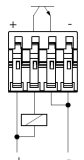
The instrument is used to control relays, contactors, magnet valves, warning lights, horns as well as PLC inputs.

LBV

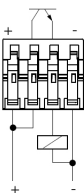


1 Voltage supply

LBV300 Transistor (action



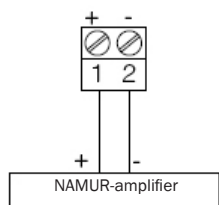
LBV300 Transistor (action



**NAMUR output**

For connection of the amplifier according to NAMUR (IEC 60947-5-6, EN 50227). You can find further information in the „Technical data“.

LBV300 - Wir



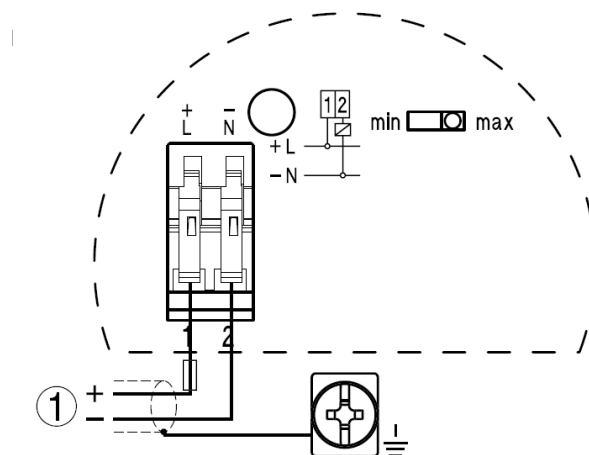
**Contactless electronic switch**

We recommend connecting LBV300 in such a way that the switching circuit is open when there is a level signal, line break or failure (safe condition).

The contactless electronic switch is always shown in non-operative condition.

The instrument is used for direct control of relays, contactors, magnet valves, warning lights, horns etc. It must not be operated without an intermediately connected load, because the electronics would be destroyed if connected directly to the mains.

It is not suitable for connection to low voltage PLC inputs. Domestic current is temporarily lowered below 1mA after switching off the load so that contactors, whose holding current is lower than the constant domestic current of the electronics, are reliably switched off.



1 Shielding

## Mounting instructions

### Switching point

In general, LBV300 can be installed in any position. The instrument only has to be mounted in such a way that the vibrating element is at the height of the desired switching point.

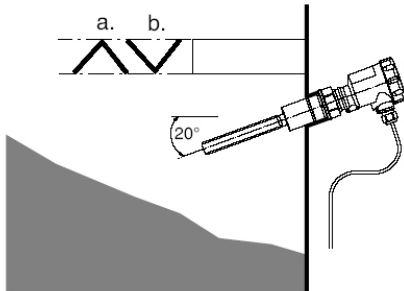
The only exception is vertical mounting of the tuning fork from below. In this position there is the danger of solid particles getting stuck between the fork tines.

### Socket

The vibrating element should protrude into the vessel to avoid build-up. For that reason, avoid using mounting bosses for flanges and screwed fittings. This applies particularly to horizontal installation and use with adhesive products.

### Filling opening

Install the instrument in such a way that the vibrating element does not protrude directly into the filling stream. Should such an installation location be necessary, mount a suitable baffle above or in front of the vibrating element, e.g. L80 x 8 DIN 1028 (see Fig. Part „a.“). In abrasive solids, mounting according to fig. Part „b.“ has proven to be a good solution. The mound that forms in the concave baffle protects it from abrasion.



a. Convex mounting  
b. Concave mounting

### Inflowing medium

If LBV300 is mounted in the filling stream, unwanted false measurement signals can be generated. For this reason, mount LBV300 at a position in the vessel where no disturbances, e.g. from filling openings, agitators, etc., can occur.

### Horizontal mounting

To achieve a very precise switching point, you can install LBV300 horizontally. However, if the switching point can have a tolerance of a few centimeters, we recommend mounting LBV300 approx. 20° inclined to the vessel bottom to avoid build-up.

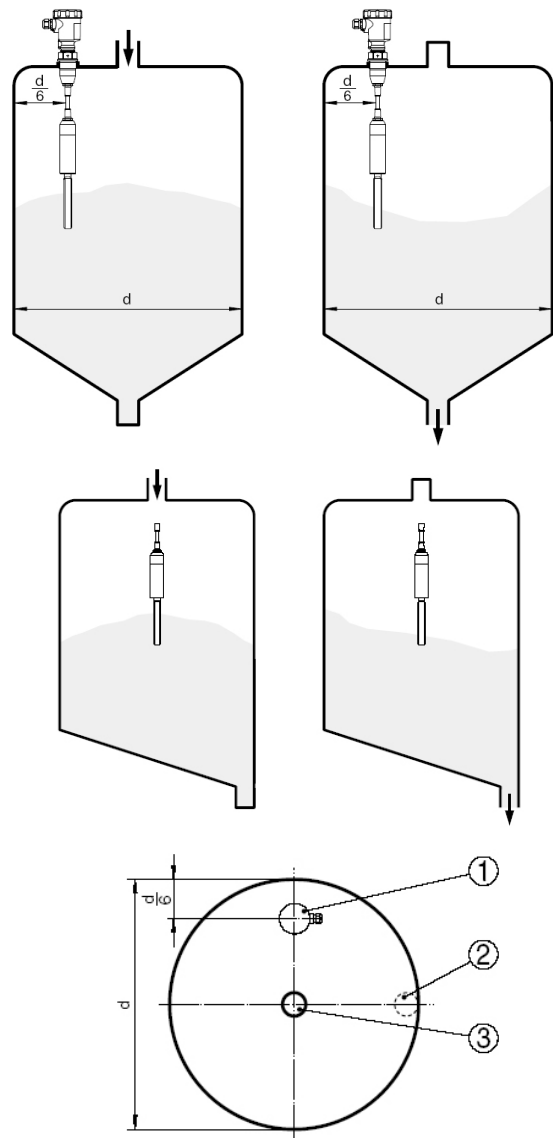
Orient the tuning fork of LBV300 so that the product cannot remain lying on the fork surface. There is a mark on the thread hexagon for aligning the fork. Make sure that the mark points upward.

### Material cone

To achieve a very precise switching point, you can install LBV300 horizontally. However, if the switching point can have a tolerance of a few centimeters, we recommend mounting LBV300 approx. 20° inclined to the vessel bottom to avoid build-up.

Orient the tuning fork of LBV300 so that the product cannot remain lying on the fork surface. There is a mark on the thread hexagon for aligning the fork. Make sure that the mark points upward.

To compensate measurement errors caused by the material cone in cylindrical vessels, the sensor must be mounted at a distance of  $d/6$  from the vessel wall.



1 LBV320  
2 Emptying opening  
3 Filling opening

**Tensile load**

With cable version, make sure that the max. permissible tensile load on the suspension cable is not exceeded. The danger of this happening exists particularly with very heavy solids and large meas. lengths. The max. permissible load is stated in chapter „Technical data“.

**Agitators**

Due to filling or extraction forces, vibrations or similar, the level switch can be subjected to strong lateral forces. For this reason, do not use an overly long extension tube for LBV300, but check if a LBV310 level switch couldn't be used instead, mounted on the side of the vessel in horizontal position.

Extreme vibration caused by the process or the equipment, e.g. by fluidization or beaters in the vessel, can cause the extension tube of LBV300 to vibrate in resonance. This leads to increased stress on the upper weld joint. Should a longer tube version be necessary, you can provide a suitable support or guy directly above the vibrating element to secure the extension tube.

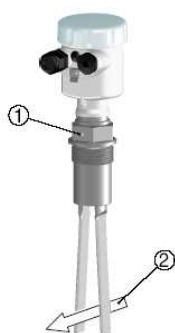
This measure applies mainly to applications in Ex areas. Make sure that the tube is not subject to bending stress due to this measure.

If an installation from above is necessary, check if you can use a cable version. Over a longer period of time, strong vibration can damage the instrument electronics. You can decouple the electronics from the process by using a remote (displaced) housing.

**Flows**

To make sure the tuning fork of LBV300 generates as little resistance as possible to product flow, mount the sensor so that the surfaces are parallel to the product movement.

Flow orientation of the tuning fork

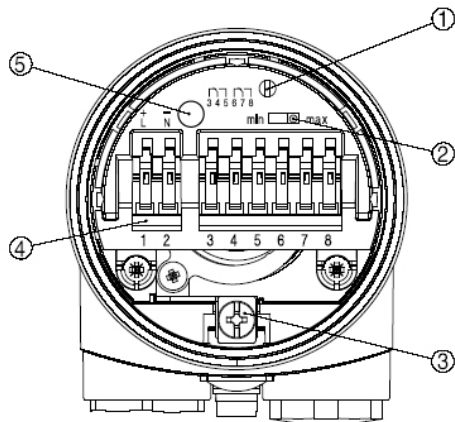


1 Marking with screwed version

2 Direction of flow

## Operation

### Adjustment elements electronics module e.g. relay output



- 1 Potentiometer for switching point adaptation
- 2 DIL switch for mode adjustment
- 3 Ground terminal
- 4 Connection terminals
- 5 LED display

### Switching point adaptation (1)

The LBV300 is preset to a product density of  $> 0.02 \text{ g/cm}^3$  ( $0.0007 \text{ lbs/in}^3$ ). In very light solids, turn the potentiometer to complete left position  $0.008 \dots 0.1 \text{ g/cm}^3$  ( $0.0003 \dots 0.0036 \text{ lbs/in}^3$ ). By doing this, the tuning fork will be more sensitive and can detect very light solids, such as e. g. Aerosils more reliably.

### Mode adjustment (2)

With the mode adjustment (min./max.) you can change the switching condition of the output. You can set the required mode (max. - max. detection or overflow protection, min. - min. detection or dry run protection).

### LED display (5)

Light-emitting diode for indication of the switching status.

### Simulationkey (only with NAMUR electronics)

The simulation key of the NAMUR electronics is lowered on the upper side of the electronics module. Push the simulation key with a suitable object (screwdriver, pen, etc.).

When the key is pushed, a line break between sensor and processing unit is simulated. The signal lamp on the sensor extinguishes.

The measuring system must signal a fault and take on a safe condition when the key is pushed. Keep in mind that downstream connected instruments will be activated during operation. This allows you to check the correct function of the measuring system.



Type code

LBV310		-									X
<b>Approval</b>											
without approval		X	X								
ATEX II 1G, 1/2G, 2G Ex ia IIC T6		C	X								
ATEX II 1G, 1/2G, 2G Ex ia IIC T6+ATEX II 1/2D IP 6X T		C	K								
ATEX II 1/2G, 2G Ex d IIC T6		L	X								
ATEX II 1/2 D IP 6X T		G	X								
<b>Version / Process temperature</b>											
Standard / -50...150 °C				A							
With adapter / -50...250 °C				B							
Detection of solids in water / -50...150 °C				C							
<b>Process fitting / Material</b>											
Thread G 1½ A PN25 / 316L					G	D					
Thread 1½" NPT PN25 / 316L					N	D					
further on request											
<b>Electronics</b>											
Contactless electronic switch 20...253 V AC/ DC								C			
Relay (DPDT) 20...72 V DC/20...253 V AC (3A)								R			
Transistor (NPN/PNP) 10...55 V DC								T			
NAMUR signal								N			
<b>Housing</b>											
Plastic / IP 66/IP 67									K		
Aluminium / IP 66/IP 68 (0.2 bar)									A		
StSt (electropolished) 316L / IP 66/IP 68 (0.2bar)									B		
<b>Cable entry / Plug connection</b>											
M20x1.5 / without										M	
½" NPT / without										N	

## Order Information LBV310

Housing: Plastic

Electronics	Process connection	Plug connection	Model name	Part no.
Relay	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDRKMX	6038034
		1/2" NPT	LBV310-XXANDRKNX	6038037
	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXAGDRKMX	6038011
		1/2" NPT	LBV310-XXAGDRKNX	6038013
Contactless switch	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXAGDCKMX	6038006
		1/2" NPT	LBV310-XXAGDCKNX	6038008
	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXANDCKMX	6038028
		1/2" NPT	LBV310-XXANDCKNX	6038031
Transistor NPN/PNP	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXAGDTKMX	6038016
		1/2" NPT	LBV310-XXAGDTKNX	6038019
		M12x1	LBV310-XXAGDTKCX	6039060
	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDTKMX	6038040
		1/2" NPT	LBV310-XXANDTKNX	6038043

Housing: StSt (electropolished)

Electronics	Process connection	Plug connection	Model name	Part no.
Relay	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDR8MX	6038036
		1/2" NPT	LBV310-XXANDR8NX	6038039
	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXAGDR8MX	6038012
		1/2" NPT	LBV310-XXAGDR8NX	6038015
Contactless switch	G 1 1/2 A (PN25, 316L)	1/2" NPT	LBV310-XXAGDC8NX	6038010
	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDC8MX	6038030
		1/2" NPT	LBV310-XXANDC8NX	6038033
Transistor NPN/PNP	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXAGDT8MX	6038018
		1/2" NPT	LBV310-XXAGDT8NX	6038021
	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDT8MX	6038042
		1/2" NPT	LBV310-XXANDT8NX	6038045

Housing: Aluminium

Electronics	Process connection	Plug connection	Model name	Part no.
Relay	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXAGDRAMX	6037753
		1/2" NPT	LBV310-XXAGDRANX	6038014
	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDRAMX	6038035
		1/2" NPT	LBV310-XXANDRANX	6038038
Contactless switch	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXAGDCAMX	6038007
		1/2" NPT	LBV310-XXAGDCANX	6038009
	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDCAMX	6038029
		1/2" NPT	LBV310-XXANDCANX	6038032
Transistor NPN/PNP	G 1 1/2 A (PN25, 316L)	M20x1,5	LBV310-XXAGDTAMX	6038017
		1/2" NPT	LBV310-XXAGDTANX	6038020
	1 1/2" NPT (PN25, 316L)	M20x1,5	LBV310-XXANDTAMX	6038041
		1/2" NPT	LBV310-XXANDTANX	6038044

The displayed part numbers are only an extract of the possible variations. You find further part numbers on [www.mysick.com](http://www.mysick.com) or contact your SICK-sales person.

Type code

LBV320										X						
<b>Approval</b>																
without approval		X	X													
ATEX II 1G, 1/2G, 2G Ex ia IIC T6		C	X													
ATEX II 1G, 1/2G, 2G Ex ia IIC T6+ATEX II 1/2D IP 6X T		C	K													
ATEX II 1/2 D IP 6X T		G	X													
<b>Version / Process temperature</b>																
T Standard / -20...80 °C						T										
C Detection of solids in water / -20...80 °C						C										
<b>Process fitting / Material</b>																
Thread G 1½ A PN16 / 316L						G	D									
Thread 1½" NPT PN16 / 316L						N	D									
further on request																
<b>Electronics</b>																
Contactless electronic switch 20...253 V AC/ DC										C						
Relay (DPDT) 20...72 V DC/20...253 V AC(3A)										R						
Transistor (NPN/PNP) 10...55VDC										T						
NAMUR signal										N						
<b>Housing</b>																
Plastic / IP 66/IP 67											K					
Aluminium / IP 66/IP 68 (0.2 bar)											A					
StSt (electropolished) 316L / IP 66/IP 68 (0.2bar)											S					
<b>Cable entry / Plug connection</b>																
M20x1.5 / without											M					
½NPT / without											N					
<b>Length</b>																
min. 480mm      max. 8000mm												0	0	0	0	0

## Order Information LBV320

Version with rope extension available up to 80 m  
 Housing Aluminium, cable PUR, Relay-electronics

Process connection	Plug connection	Extension	Model name	Part no.	
G 1 1/2 A (PN16, 316L)	1/2" NPT	0500 mm	LBV320-XXTGDRANX0500	6038341	
		0600 mm	LBV320-XXTGDRANX0600	6038342	
		0700 mm	LBV320-XXTGDRANX0700	6038343	
		0800 mm	LBV320-XXTGDRANX0800	6038344	
		0900 mm	LBV320-XXTGDRANX0900	6038345	
		1000 mm	LBV320-XXTGDRANX1000	6038346	
		1100 mm	LBV320-XXTGDRANX1100	6038347	
		1200 mm	LBV320-XXTGDRANX1200	6038348	
		1300 mm	LBV320-XXTGDRANX1300	6038349	
		1400 mm	LBV320-XXTGDRANX1400	6038350	
		1500 mm	LBV320-XXTGDRANX1500	6038351	
		1600 mm	LBV320-XXTGDRANX1600	6038352	
		1700 mm	LBV320-XXTGDRANX1700	6038353	
		1800 mm	LBV320-XXTGDRANX1800	6038354	
		1900 mm	LBV320-XXTGDRANX1900	6038355	
		2000 mm	LBV320-XXTGDRANX2000	6038356	
		2100 mm	LBV320-XXTGDRANX2100	6038357	
		2200 mm	LBV320-XXTGDRANX2200	6038358	
		2300 mm	LBV320-XXTGDRANX2300	6038359	
		2400 mm	LBV320-XXTGDRANX2400	6038360	
		2500 mm	LBV320-XXTGDRANX2500	6038361	
		2600 mm	LBV320-XXTGDRANX2600	6038362	
		2700 mm	LBV320-XXTGDRANX2700	6038363	
		2800 mm	LBV320-XXTGDRANX2800	6038364	
		2900 mm	LBV320-XXTGDRANX2900	6038365	
		3000 mm	LBV320-XXTGDRANX3000	6038366	
		M20x1,5	0480 mm	LBV320-XXTGDRAMX0480	6038394
			0500 mm	LBV320-XXTGDRAMX0500	6038395
			0600 mm	LBV320-XXTGDRAMX0600	6038396
			0700 mm	LBV320-XXTGDRAMX0700	6038397
	0800 mm		LBV320-XXTGDRAMX0800	6038398	
	0900 mm		LBV320-XXTGDRAMX0900	6038399	
	1000 mm		LBV320-XXTGDRAMX1000	6038400	
	1100 mm		LBV320-XXTGDRAMX1100	6038401	
	1200 mm		LBV320-XXTGDRAMX1200	6038402	
1300 mm	LBV320-XXTGDRAMX1300		6038403		
1400 mm	LBV320-XXTGDRAMX1400	6038404			
1500 mm	LBV320-XXTGDRAMX1500	6038405			
1600 mm	LBV320-XXTGDRAMX1600	6038406			
1700 mm	LBV320-XXTGDRAMX1700	6038407			

The displayed part numbers are only an extract of the possible variations. You find further part numbers on [www.mysick.com](http://www.mysick.com) or contact your SICK-sales person.

## Order Information LBV320

Version with rope extension available up to 80 m  
Housing Aluminium, cable PUR, Relay-electronics

Process connection	Plug connection	Extension	Model name	Part no.
G 1 1/2 A (PN16, 316L)	M20x1,5	1900 mm	LBV320-XXTGDRAMX1900	6038408
		1900 mm	LBV320-XXTGDRAMX1900	6038409
		2000 mm	LBV320-XXTGDRAMX2000	6038410
		2100 mm	LBV320-XXTGDRAMX2100	6038411
		2200 mm	LBV320-XXTGDRAMX2200	6038412
		2300 mm	LBV320-XXTGDRAMX2300	6038413
		2400 mm	LBV320-XXTGDRAMX2400	6038414
		2500 mm	LBV320-XXTGDRAMX2500	6038415
		2600 mm	LBV320-XXTGDRAMX2600	6038416
		2700 mm	LBV320-XXTGDRAMX2700	6038417
		2800 mm	LBV320-XXTGDRAMX2800	6038418
		2900 mm	LBV320-XXTGDRAMX2900	6038419
		3000 mm	LBV320-XXTGDRAMX3000	6038420
		1 1/2" NPT (PN16, 316L)	1/2" NPT	0500 mm
0600 mm	LBV320-XXTNDRANX0600			6038369
0700 mm	LBV320-XXTNDRANX0700			6038370
0800 mm	LBV320-XXTNDRANX0800			6038371
0900 mm	LBV320-XXTNDRANX0900			6038372
1000 mm	LBV320-XXTNDRANX1000			6038373
1100 mm	LBV320-XXTNDRANX1100			6038374
1200 mm	LBV320-XXTNDRANX1200			6038375
1300 mm	LBV320-XXTNDRANX1300			6038376
1400 mm	LBV320-XXTNDRANX1400			6038377
1500 mm	LBV320-XXTNDRANX1500			6038378
1600 mm	LBV320-XXTNDRANX1600			6038379
1700 mm	LBV320-XXTNDRANX1700			6038380
1800 mm	LBV320-XXTNDRANX1800			6038381
1900 mm	LBV320-XXTNDRANX1900			6038382
2000 mm	LBV320-XXTNDRANX2000			6038383
2100 mm	LBV320-XXTNDRANX2100			6038384
2200 mm	LBV320-XXTNDRANX2200			6038385
2300 mm	LBV320-XXTNDRANX2300			6038386
2400 mm	LBV320-XXTNDRANX2400			6038387
2500 mm	LBV320-XXTNDRANX2500			6038388
2600 mm	LBV320-XXTNDRANX2600	6038389		
2700 mm	LBV320-XXTNDRANX2700	6038390		
2800 mm	LBV320-XXTNDRANX2800	6038391		
2900 mm	LBV320-XXTNDRANX2900	6038392		
3000 mm	LBV320-XXTNDRANX3000	6038393		

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## Type code

LBV330										X				
<b>Approval</b>														
without approval		X	X											
ATEX II 1G, 1/2G, 2G Ex ia IIC T6		C	X											
ATEX II 1G, 1/2G, 2G Ex ia IIC T6+ATEX II 1/2D IP 6X T		C	K											
ATEX II 1/2G, 2G Ex d IIC T6		L	X											
ATEX II 1/2 D IP 6X T		G	X											
<b>Version / Process temperature</b>														
Standard / -50...150 °C														A
With adapter / -50...250 °C														B
Detection of solids in water / -50...150 °C														C
<b>Process fitting / Material</b>														
Thread G 1½ A PN25 / 316L														G D
Thread 1½" NPT PN25 / 316L														N D
further on request														
<b>Electronics</b>														
Contactless electronic switch 20...253 V AC/ DC														C
Relay (DPDT) 20...72 V DC/20...253 V AC(3A)														R
Transistor (NPN/PNP) 10...55VDC														T
NAMUR signal														N
<b>Housing</b>														
Plastic / IP 66/IP 67														K
Aluminium / IP 66/IP 68 (0.2 bar)														A
StSt (electropolished) 316L / IP 66/IP 68 (0.2bar)														8
<b>Cable entry / Plug connection</b>														
M20x1.5 / without														M
½" NPT / without														N
<b>Length</b>														
min. 240mm	max. 6000mm													0 0 0 0

## Order Information LBV330

Version with tube extension available up to 6 m

Housing: Aluminium, Relay-electronics

Process conection	Plug connection	Extension	Model name	Part no.		
1 1/2" NPT (PN25, 316L)	1/2" NPT	0300 mm	LBV330-XXANDRANX0300	6038173		
		0400 mm	LBV330-XXANDRANX0400	6038174		
		0500 mm	LBV330-XXANDRANX0500	6038175		
		0600 mm	LBV330-XXANDRANX0600	6038176		
		0700 mm	LBV330-XXANDRANX0700	6038177		
		0800 mm	LBV330-XXANDRANX0800	6038178		
		0900 mm	LBV330-XXANDRANX0900	6038179		
		1000 mm	LBV330-XXANDRANX1000	6038180		
		1100 mm	LBV330-XXANDRANX1100	6038181		
		1200 mm	LBV330-XXANDRANX1200	6038182		
		1300 mm	LBV330-XXANDRANX1300	6038183		
		1400 mm	LBV330-XXANDRANX1400	6038184		
		1500 mm	LBV330-XXANDRANX1500	6038185		
		1600 mm	LBV330-XXANDRANX1600	6038186		
		1700 mm	LBV330-XXANDRANX1700	6038187		
		1800 mm	LBV330-XXANDRANX1800	6038188		
		1900 mm	LBV330-XXANDRANX1900	6038189		
		2000 mm	LBV330-XXANDRANX2000	6038190		
		G 1 1/2 A (PN25, 316L)	M20x1,5	0300 mm	LBV330-XXAGDRAMX0300	6038197
				0400 mm	LBV330-XXAGDRAMX0400	6038198
0500 mm	LBV330-XXAGDRAMX0500			6038199		
0600 mm	LBV330-XXAGDRAMX0600			6038200		
0700 mm	LBV330-XXAGDRAMX0700			6038201		
0800 mm	LBV330-XXAGDRAMX0800			6038202		
0900 mm	LBV330-XXAGDRAMX0900			6038203		
1000 mm	LBV330-XXAGDRAMX1000			6038204		
2000 mm	LBV330-XXAGDRAMX2000			6038214		
2100 mm	LBV330-XXAGDRAMX2100			6038215		
2200 mm	LBV330-XXAGDRAMX2200			6038216		
2300 mm	LBV330-XXAGDRAMX2300			6038217		
2400 mm	LBV330-XXAGDRAMX2400			6038218		
2500 mm	LBV330-XXAGDRAMX2500			6038219		

The displayed part numbers are only an extract of the possible variations. You find further part numbers on [www.mysick.com](http://www.mysick.com) or contact your SICK-sales person.

## Order Information LBV330

Version with tube extension available up to 6 m

Housing: Aluminium, Relay-electronics, with temperature adapter, -50...250 °C

Process connection	Plug connection	Extension	Model name	Part no.
1 1/2" NPT (PN25, 316L)	1/2" NPT	0300 mm	LBV330-XXBNDRANX0300	6038269
		0400 mm	LBV330-XXBNDRANX0400	6038270
		0500 mm	LBV330-XXBNDRANX0500	6038271
		0600 mm	LBV330-XXBNDRANX0600	6038272
		0700 mm	LBV330-XXBNDRANX0700	6038273
		0800 mm	LBV330-XXBNDRANX0800	6038274
		0900 mm	LBV330-XXBNDRANX0900	6038275
		1000 mm	LBV330-XXBNDRANX1000	6038276
		2000 mm	LBV330-XXBNDRANX2000	6038286
		2100 mm	LBV330-XXBNDRANX2100	6038287
		2200 mm	LBV330-XXBNDRANX2200	6038288
		2300 mm	LBV330-XXBNDRANX2300	6038289
		2400 mm	LBV330-XXBNDRANX2400	6038290
		2500 mm	LBV330-XXBNDRANX2500	6038291
		G 1 1/2 A (PN25, 316L)	M20x1,5	0500 mm
0600 mm	LBV330-XXBGDRAMX0600			6038296
0700 mm	LBV330-XXBGDRAMX0700			6038297
0800 mm	LBV330-XXBGDRAMX0800			6038298
0900 mm	LBV330-XXBGDRAMX0900			6038299
1000 mm	LBV330-XXBGDRAMX1000			6038300
1100 mm	LBV330-XXBGDRAMX1100			6038301
1200 mm	LBV330-XXBGDRAMX1200			6038302
1300 mm	LBV330-XXBGDRAMX1300			6038303
1400 mm	LBV330-XXBGDRAMX1400			6038304
1500 mm	LBV330-XXBGDRAMX1500			6038305
1600 mm	LBV330-XXBGDRAMX1600			6038306
1700 mm	LBV330-XXBGDRAMX1700			6038307
1800 mm	LBV330-XXBGDRAMX1800			6038308
1900 mm	LBV330-XXBGDRAMX1900			6038309
2000 mm	LBV330-XXBGDRAMX2000			6038310
2100 mm	LBV330-XXBGDRAMX2100			6038311
2200 mm	LBV330-XXBGDRAMX2200	6038312		
2300 mm	LBV330-XXBGDRAMX2300	6038313		
2400 mm	LBV330-XXBGDRAMX2400	6038314		
2500 mm	LBV330-XXBGDRAMX2500	6038315		

The displayed part numbers are only an extract of the possible variations. You find further part numbers on [www.mysick.com](http://www.mysick.com) or contact your SICK-sales person.



## Accessories

## Plug connector, M8, 4-pin, straight

Connector type	Sheath material	Cable length	Model name	Part no.
Connector M8, Enclosure rating IP 67	PVC	2 m	DOL-0804-G02M	6009870
		5 m	DOL-0804-G05M	6009872
	PUR halogenfree	2 m	DOL-0804-G02MC	6025894
		5 m	DOL-0804-G05MC	6025895

## Plug connector, M12, 4-pin, straight

Connector type	Sheath material	Cable length	Model name	Part no.
Connector M12, Enclosure rating IP 67	PVC	2 m	DOL-1204-G02M	6009328
		5 m	DOL-1204-G05M	6009866
	PUR halogenfree	2 m	DOL-1204-G02MC	6025900
		5 m	DOL-1204-G05MC	6025901
	Food & Beverage	2 m	DOL-1204-G02MN	6028128
		5 m	DOL-1204-G05MN	6028130

## Plug connector, M12, 8-pin, straight

Connector type	Sheath material	Cable length	Model name	Part no.
Connector M12, Enclosure rating IP 67	PVC	2 m	DOL-1205-G02M	6008899
		5 m	DOL-1205-G05M	6009868
	PUR halogenfree	2 m	DOL-1205-G02MC	6025906
		5 m	DOL-1205-G05MC	6025907

## Power supply

Description	Part no.
Power supply, 100 ... 240 V AC/24 V DC, 2.1 A, IP 20	6008899

## Electronic module

Design	Part no.
Contactless switch 20...250 V AC/ V DC	6038665
Double relay (DPDT) 20...72 V DC / 20...250 V AC	6038666
Transistor output (NPN/PNP) 10...55 V DC	6038667
Namur	6038668

## Lock nut fitting

Design	Model name	Part no.
-1...16 bar, LBV330 mit G1½ A thread G 2 A / 316 L	BEF-MU-316G20-ALBV	5322462

Notes

Notes

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