Overview

SITRANS LVL100 is a compact vibrating level switch for use in liquid and slurry applications such as overflow, high, low and demand applications, as well as pump protection. It is ideal for use in confined spaces.

Benefits

- Proven vibrating level switch technology for liquids
- Compact insertion length of 40 mm (1.57”) for confined space applications
- Fault monitoring for corrosion, loss of vibration, or line break to the piezo drive
- Integrated test function to confirm correct operation

Application

SITRANS LVL100 is a compact level switch designed for industrial use in all areas of process technology and can be used with liquids and slurries. With an insertion length of only 40 mm (1.57”), SITRANS LVL100 can be mounted in small pipes and confined space applications. It is virtually unaffected by the chemical and physical properties of the liquid. The LVL100 can be used in difficult conditions including turbulence, air bubbles, foam generation, buildup, or strong external vibration.

The tuning fork is piezoelectrically energized and vibrates at a mechanical resonance frequency of approximately 1200 Hz. The vibration frequency changes when the tuning fork is covered by the medium. This change is detected by the integrated oscillator and converted into a switching command. The integrated electronics evaluate the level signal and output a switching signal to connected devices.

- Key Applications: For use in liquids and slurries, for level measurement, overfill, and dry run protection

Configuration

SITRANS LVL100 Installation, dimensions in mm (inch)
# Level Measurement

## Point level measurement - Vibrating switches

### Technical specifications

<table>
<thead>
<tr>
<th>Mode of operation</th>
<th>Vibrating point level switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring principle</td>
<td>Vibrating level switch</td>
</tr>
</tbody>
</table>

**Input**
- Measured variable: High and low and demand

**Output**
- Output options: Contactless electronic switch
  - Transistor output PNP

**Measuring Accuracy**
- Hysteresis: approx. 2 mm (0.08") with vertical installation
- Switching delay: approx. 500 ms (on/off)
- Frequency: approx. 1200 Hz

**Rated operating conditions**

- **Installation conditions**
  - Location: Indoor/outdoor
- **Ambient conditions**
  - Ambient temperature: -40 ... +70 °C (-40 ... +158 °F)
  - Pollution degree: 2
- **Medium conditions**
  - Temperature: - Standard -40 ... +100 °C (-40 ... +212 °F)
    - High temperature option -40 ... +150 °C (-40 ... +302 °F)
  - Pressure (vessel): -1 ... 64 bar g (-14.5 ... 928 psi g)
  - Density: 0.7 ... 2.5 g/cm³ (0.025 ... 0.09 lbs/in³)

**Design**

- **Material**
  - Enclosure: 316L and Plastic PEI
  - Tuning fork: 316L (1.4404 or 1.4435)
  - Process connection (threaded): 316L (1.4404 or 1.4435)
  - Process seal: Klingersil C-4400
- **Process connection**
  - Pipe thread, cylindrical: G ¾" A or G 1" A
  - Pipe thread, tapered: ¾" NPT or 1" NPT
  - Hygienic fittings: Bolting DN40 PN40
  - Tri-clamp 1", 1½", 2" PN 10
- **Degree of protection**
  - IP65/Type 4/NEMA 4 (with DIN 43650 valve plug), IP66/67 or IP68 (with M12 connector)
- **Conduit entry**
  - 1 x M12 [IP66/IP67 or IP68 (0.2 bar)]
- **Weight (housing)**
  - 250 g (9 oz)

**Power supply**

- **Supply voltage**
  - 20 ... 253 V AC, 50/60 Hz
  - 20 ... 253 V DC
- **Power consumption**
  - 1 ... 8 VA (AC), approx. 1.3 W (DC)

**Certificates and approvals**

- Overfill protection (WHG)
- Shipping approvals

### Options

**LVL100 Threaded Welded Socket**

- **G ¼"/A/316L**
- **G 1"/A/316L**

SITRANS LVL100 welded socket, dimensions in mm
# Level Measurement

## Point level measurement - Vibrating switches

### Selection and Ordering data

<table>
<thead>
<tr>
<th>SITRANS LVL100 Compact vibrating level switch for use in liquid and slurry applications such as overflow, high, low and demand applications, as well as pump protection. Ideal for use in confined spaces.</th>
</tr>
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<tbody>
<tr>
<td><strong>Order code</strong></td>
</tr>
<tr>
<td><strong>Order No.</strong></td>
</tr>
<tr>
<td>SITRANS LVL100</td>
</tr>
<tr>
<td>5/81 Siemens FI 01 · 2011</td>
</tr>
</tbody>
</table>

### Approvals

- Without approvals
- Shipping approvals
- Overfill protection (WHG)

### Process temperature

- Standard: -40 ... +100 °C (-40 ... +212 °F)
- Extended: -40 ... +150 °C (-40 ... +302 °F)
- Hygienic applications: -40 ... +150 °C (-40 ... +302 °F)

### Process connection

- Thread G¾” A PN64/316L
- Thread G¾” A PN64/316L Ra< 0.8 µm
- Thread ¾” NPT PN64/316L
- Thread ¾” NPT PN64/316L Ra< 0.8 µm
- Thread G1” A PN64/316L
- Thread G1” A PN64/316L Ra< 0.8 µm
- Thread 1” NPT PN64/316L
- Thread 1” NPT PN64/316L Ra< 0.8 µm
- Tri-Clamp 1” PN16 DIN 32676/316L Ra< 0.8 µm
- Tri-Clamp 1” PN16 DIN 32676/316L Ra< 0.8 µm
- Bolting DN25 PN40 DIN 11851/316L Ra< 0.8 µm
- Bolting DN25 PN40 DIN 11851/316L Ra< 0.8 µm
- Bolting DN50 PN25 DIN 11851/316L Ra< 0.8 µm
- SMS DN28 PN6 SMS1145/316L Ra< 0.8 µm
- Hygienic fitting with compression nut F40
- Hygienic fitting with compression nut F40

### Electronics

- Contactless electronic switch 20 ... 250 V AC/DC
- Transistor output PNP 10 ... 55 V DC

### Housing

- 316L

### Electrical connection/Protection

- M12x1/IP67
- According to DIN 43650 including plug/IP65
- Acc. to DIN 43650 incl. plug with QuickOn connection/IP65
- M12x1 incl. 5 m cable/IP68 (0.2 bar)

### Further designs

- Please add “Z” to Order No. and specify Order code(s).

### Cleaning including Certificate (oil, grease and silicone free)

- W01

### Identification Label, foil laser marking

- Y16

### Acceptance test certificate 3.1 for instrument

- C12

### Acceptance test certificate 2.2 for instrument

- C14

### Additional Operating Instructions

- LVL100 (Contactless electronic switch)
  - English
  - French
  - Spanish
  - German

### LVL100 (Transistor PNP)

- English
- French
- Spanish
- German

This device is shipped with the Siemens Milltronics manual CD containing the complete Operating Instructions library.

### Spare Parts

- LVL100 Threaded Welded Socket
  - G ¾” A/316L with FKM Seal
  - G 1” A/316L with EPDM Seal
  - M27x1.5/316L with EPDM Seal

- G ¾” A/316L with EPDM Seal
- G 1” A/316L with EPDM Seal
- M27x1.5/316L with EPDM Seal

- 7ML1998-5KN01
- 7ML1998-5KN11
- 7ML1998-5KN21
- 7ML1998-5KN31

- 7ML1998-5KP01
- 7ML1998-5KP11
- 7ML1998-5KP21
- 7ML1998-5KP31

- 7ML1930-1EE
- 7ML1930-1EG
- 7ML1930-1EK

- 7ML1930-1EH

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Ambient Temperature to Process Temperature dependency
(Standard version)

Ambient temperature in °C (°F)
Process temperature in °C (°F)

- Ambient Temperature to Process Temperature dependency
  (High temperature version)

Characters: [5/82] Siemens FI 01 · 2011

SITRANS LVL100 Ambient Temperature/Process Temperature derating curves
**SITRANS LVL100**

**Level Measurement**

**Point level measurement - Vibrating switches**

**Dimensional drawings**

**SITRANS LVL100 (standard)**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Standard</th>
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<tr>
<td>Length with G ¾” A, ¾” NPT: 66 (2.6)</td>
<td></td>
</tr>
<tr>
<td>Length with G 1” A, 1” NPT: 69 (2.7)</td>
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**SITRANS LVL100 (extended)**

<table>
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<tr>
<th>Dimensions</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length with G ¾” A, ¾” NPT or 1” NPT: 66 (2.6)</td>
<td></td>
</tr>
<tr>
<td>Length with 1” A or 1” NPT (valve plug DIN 43650): 69 (2.7)</td>
<td></td>
</tr>
</tbody>
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**SITRANS LVL100 (extended, high temperature)**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>High Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length with Tri-clamp (valve plug DIN 43650): 101 (3.98)</td>
<td></td>
</tr>
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**SITRANS LVL100 (standard with M12 connector)**

<table>
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<tr>
<th>Dimensions</th>
<th>M12 Connector</th>
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<td>Length with G ¾” A, ¾” NPT: 66 (2.6)</td>
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**SITRANS LVL100 (standard with M12 connector)**

<table>
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<tr>
<th>Dimensions</th>
<th>SMS 1145 (valve plug DIN 43650)</th>
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<td>Length with SMS 1145: 53 (2.1)</td>
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**SITRANS LVL100 (standard with M12 connector)**

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SITRANS LVL100, dimensions in mm (inch)
Level Measurement
Point level measurement - Vibrating switches

SITRANS LVL100

Schematics

Transistor PNP (M12 x 1 Plug connection)

Max. Min.

10 ... 55 V DC 10 ... 55 V DC

Transistor PNP (with valve plug DIN 43650)

Max. Min.

10 ... 55 V DC 10 ... 55 V DC

PA (Potential equalization)

Contactless electronic switch (Valve plug DIN 43650)

Max. Min.

L1+ N PE (Protective ground) PE

SITRANS LVL100 connections