Vibrating Switches

SITRANS LVL100

IO-Link

Operating Instructions • 07/2023

SITRANS

SIEMENS

Safety Guidelines: Warning notices must be observed to ensure personal safety as well as that of others, and to protect the product and the connected equipment. These warning notices are accompanied by a clarification of the level of caution to be observed.

Qualified Personnel: This device/system may only be set up and operated in conjunction with this manual. Qualified personnel are only authorized to install and operate this equipment in accordance with established safety practices and standards.

Unit Repair and Excluded Liability:

- The user is responsible for all changes and repairs made to the device by the user or the user's agent.
- All new components are to be provided by Siemens.
- Restrict repair to faulty components only.
- Do not reuse faulty components.

Warning: Cardboard shipping package provides limited humidity and moisture protection. This product can only function properly and safely if it is correctly transported, stored, installed, set up, operated, and maintained.
This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.

Note: Always use product in accordance with specifications.

Contact Siemens Technical Publications at the following address:
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- For a selection of Siemens level measurement manuals, go to: **www. siemens.com/processautomation**. Under Process Instrumentation, select *Level Measurement* and then go to the manual archive listed under the product family.
- For a selection of Siemens weighing manuals, go to: **www. siemens.com/processautomation**. Under Weighing Technology, select *Continuous Weighing Systems* and then go to the manual archive listed under the product family.

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Contents

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1 About this document

1.1 Function

This instruction provides all the information you need for mounting, connection and setup as well as important instructions for maintenance, fault rectification, safety and the exchange of parts. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

1.2 Target group

This operating instructions manual is directed to trained personnel. The contents of this manual must be made available to the qualified personnel and implemented.

1.3 Symbols used

Information, note, tip: This symbol indicates helpful additional information and tips for successful work.

Note: This symbol indicates notes to prevent failures, malfunctions, damage to devices or plants.

Caution: Non-observance of the information marked with this symbol may result in personal injury.

Warning: Non-observance of the information marked with this symbol may result in serious or fatal personal injury.

Danger: Non-observance of the information marked with this symbol results in serious or fatal personal injury.

Ex applications
This symbol indicates special instructions for Ex applications.

- **List**
  The dot set in front indicates a list with no implied sequence.

1 **Sequence of actions**
Numbers set in front indicate successive steps in a procedure.

Disposal
This symbol indicates special instructions for disposal.

2 For your safety

2.1 Authorised personnel

All operations described in this documentation must be carried out only by trained and authorized personnel.

During work on and with the device, the required personal protective equipment must always be worn.

2.2 Appropriate use

The SITRANS LVL100 is a sensor for point level detection.

You can find detailed information about the area of application in chapter " *Product description*".

Operational reliability is ensured only if the instrument is properly used according to the specifications in the operating instructions manual as well as possible supplementary instructions.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden.

2.3 Warning about incorrect use

Inappropriate or incorrect use of this product can give rise to application-specific hazards, e.g. vessel overfill through incorrect mounting or adjustment. Damage to property and persons or environmental contamination can result. Also, the protective characteristics of the instrument can be impaired.

2.4 General safety instructions

This is a state-of-the-art instrument complying with all prevailing regulations and directives. The instrument must only be operated in a technically flawless and reliable condition. The operating company is responsible for the trouble-free operation of the instrument. When measuring aggressive or corrosive media that can cause a dangerous situation if the instrument malfunctions, the operating company has to implement suitable measures to make sure the instrument is functioning properly.

The safety instructions in this operating instructions manual, the national installation standards as well as the valid safety regulations and accident prevention rules must be observed.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by us. Arbitrary conversions or modifications are explicitly forbidden. For safety reasons, only the accessory specified by us must be used.

To avoid any danger, the safety approval markings and safety tips on the device must also be observed.

2.5 Safety label on the instrument

The safety approval markings and safety tips on the device must be observed.

2.6 Conformity

The device complies with the legal requirements of the applicable country-specific directives or technical regulations. We confirm conformity with the corresponding labelling.

The corresponding conformity declarations can be found on our homepage.

2.7 Installation and operation in the USA and Canada

This information is only valid for USA and Canada. Hence the following text is only available in the English language.

Installations in the US shall comply with the relevant requirements of the National Electrical Code (NEC - NFPA 70) (USA).

Installations in Canada shall comply with the relevant requirements of the Canadian Electrical Code (CEC Part) (Canada).

3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- SITRANS LVL100 point level switch
- Test magnet
- Documentation
  - This operating instructions manual
  - If necessary, certificates

Constituent parts

The SITRANS LVL100 consists of the components:

- Housing with electronics
- Process fitting with tuning fork

Fig. 1: SITRANS LVL100

Type label

The type label contains the most important data for identification and use of the instrument:

- Article number
- Serial number
- Technical data

3.2 Principle of operation

Application area

SITRANS LVL100 is a point level sensor with tuning fork for point level detection.

It is designed for industrial use in all areas of process technology and can be used in liquids.

Typical applications are overfill and dry run protection. With a tuning fork of only 38 mm length, SITRANS LVL100 can be also mounted e.g. in pipelines from DN 25. The small tuning fork allows use in vessels, tanks and pipes. Thanks to its simple and robust measuring

system, SITRANS LVL100 is virtually unaffected by the chemical and physical properties of the liquid.

It functions even under difficult conditions such as turbulence, air bubbles, foam generation, buildup, strong external vibration or changing products.

Function monitoring
The electronics module of SITRANS LVL100 continuously monitors the following criteria via frequency evaluation:

- Strong corrosion or damage on the tuning fork
- Loss of vibration
- Line break to the piezo drive

If a malfunction is detected or in case of voltage supply, the electronics takes on a defined switching status, i.e. the output is open (safe state).

Functional principle

The tuning fork is piezoelectrically energised and vibrates at its mechanical resonance frequency of approx. 1100 Hz. When the tuning fork is submerged in the product, the frequency changes. This change is detected by the integrated electronics module and converted into a switching command.

Voltage supply

SITRANS LVL100 is a compact instrument, i.e. it can be operated without external evaluation system. The integrated electronics evaluates the level signal and outputs a switching signal. With this switching signal, a connected device can be operated directly (e.g. a warning system, a pump etc.).

The data for power supply are specified in chapter " *Technical data*".

3.3 Adjustment

The switching status of SITRANS LVL100 can be checked when the housing is closed (signal lamp). Products with a density > 0.7 g/cm^3 (0.025 lbs/in^3) or ordered optionally with a density > 0.5 g/cm^3 (0.018 lbs/in^3) can be detected.

3.4 Supplementary cleaning procedures

3.4.1 Oil, grease and silicone-free

The SITRANS LVL100 is also available in the version " *Oil, grease and silicone-free*". These instruments have passed through a special cleaning procedure to remove oil, grease and paint-wetting impairment substances (PWIS).

The cleaning is carried out on all wetted parts as well as on surfaces accessible from outside. To keep the purity level, the instruments are immediately packed in plastic foil after the cleaning process. The purity level remains as long as the instrument is kept in the closed original packaging.

Caution:
The SITRANS LVL100 in this version must only be used in oxygen applications.

3.5 Packaging, transport and storage

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test based on ISO 4180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Transport

Transport must be carried out in due consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

Storage and transport temperature

- Storage and transport temperature see chapter " *Supplement - Technical data - Ambient conditions*"
- Relative moisture 20 … 85 %

4 Mounting

4.1 General instructions

Process conditions

Note:
For safety reasons, the instrument must only be operated within the permissible process conditions. You can find detailed information on the process conditions in chapter " *Technical data*" of the operating instructions or on the type label.

Hence make sure before mounting that all parts of the instrument exposed to the process are suitable for the existing process conditions.

These are mainly:

- Active measuring component
- Process fitting
- Process seal

Process conditions in particular are:

- Process pressure
- Process temperature
- Chemical properties of the medium
- Abrasion and mechanical influences

Suitability for the ambient conditions

The instrument is suitable for standard and extended ambient conditions acc. to DIN/EN/IEC/ANSI/ISA/UL/CSA 61010-1. It can be used indoors as well as outdoors.

Switching point

In general, SITRANS LVL100 can be installed in any position. The instrument only has to be mounted in such a way that the tuning fork is at the height of the desired switching point.

Keep in mind that the swichting point can vary dependent on the installation position.

The switching point refers to the medium water (1 g/cm^3/0.036 lbs/in^3). Please keep in mind that the switching point of the instrument shifts when the medium has a density differing from water.

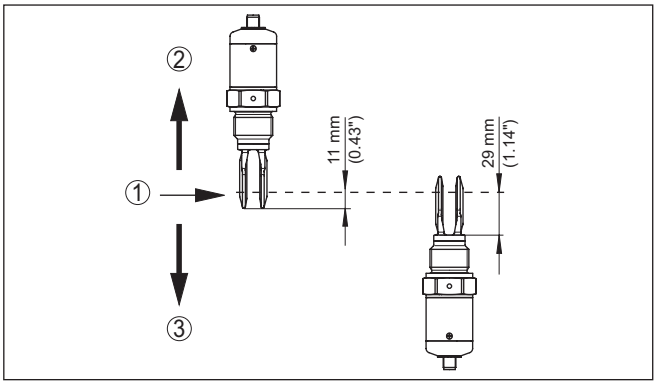

Fig. 2: Vertical mounting

1 Switching point in water
2 Switching point with lower density
3 Switching point with higher density

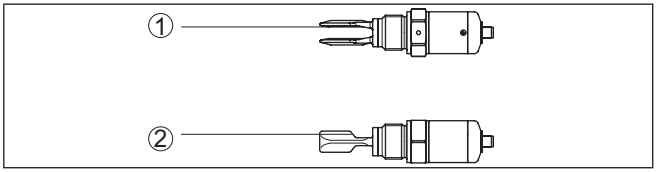

Fig. 3: Horizontal mounting

1 Switching point
2 Switching point (recommended mounting position, particularly for adhesive products)

Moisture

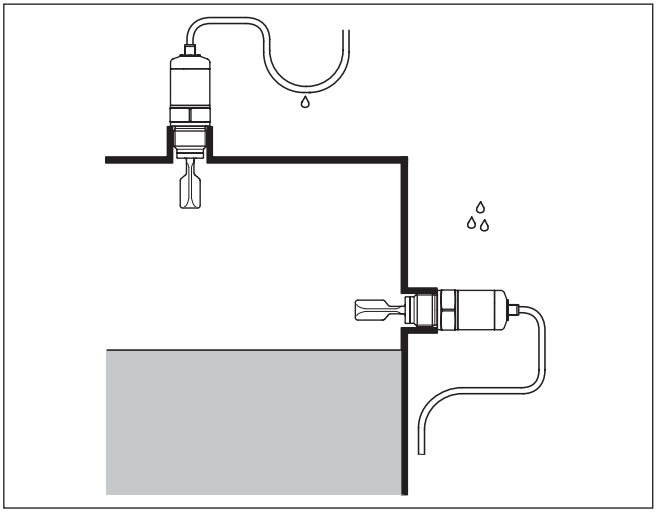

Fig. 4: Measures against moisture ingress

Transport

Do not hold SITRANS LVL100 on the tuning fork.

Pressure/Vacuum

The process fitting must be sealed if there is gauge or low pressure in the vessel. Before use, check if the sealing material is resistant against the measured product and the process temperature.

The max. permissible pressure is specified in chapter " *Technical data*" or on the type label of the sensor.

Handling

The vibrating level switch is a measuring instrument and must be treated accordingly. Bending the vibrating element will destroy the instrument.

Warning:
The housing must not be used to screw the instrument in! Applying tightening force can damage internal parts of the housing.

Use the hexagon above the thread for screwing in.

4.2 Mounting instructions

Welded socket

For threaded versions of SITRANS LVL100 in combination with a mounting boss with O-ring in front and welding marking.

SITRANS LVL100 with thread sizes ½", ¾" and 1" have a defined thread. This means that every SITRANS LVL100 is in the same position after being screwed in. Remove therefore the supplied flat seal from the thread of SITRANS LVL100. This flat seal is not required when using a welded socket with front-flush seal.

Before welding, unscrew SITRANS LVL100 and remove the rubber ring from the welded socket.

The welded socket is provided with a marking (notch). With horizontal mounting, weld the socket with the notch facing upward or downward; in pipelines (DN 25 to DN 50) aligned with the direction of flow.

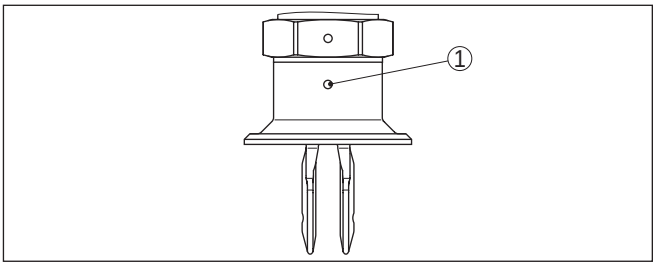

Fig. 5: Marking on the welded socket

1 Marking

Adhesive products

In case of horizontal mounting in adhesive and viscous media, the surfaces of the tuning fork should be vertical in order to reduce buildup on the tuning fork. The position of the tuning fork is indicated by a marking on the hexagon of SITRANS LVL100. With this, you can check the position of the tuning fork when screwing it in. When the hexagon touches the seal, the thread can still be turned by approx.

half a turn. This is sufficient to reach the recommended installation position.

In adhesive and viscous media, the surfaces of the tuning fork should protrude into the vessel to avoid buildup. Therefore nozzles for flanges and mountings bosses should not exceed a certain length.

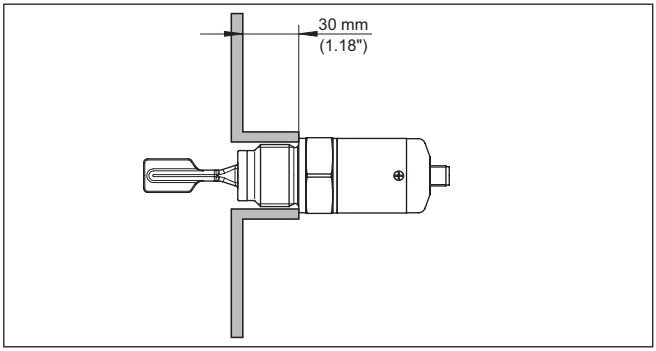

Fig. 6: Adhesive products

Inflowing medium

If SITRANS LVL100 is mounted in the filling stream, unwanted false measurement signals can be generated. For this reason, mount SITRANS LVL100 at a position in the vessel where no disturbances, e.g. from filling openings, agitators, etc., can occur.

Product flow

To make sure the tuning fork of SITRANS LVL100 generates as little resistance as possible to product flow, mount the sensor so that the surfaces are parallel to the product movement.

5 Connecting to power supply

5.1 Preparing the connection

Note safety instructions

Always keep in mind the following safety instructions:

Warning:
Connect only in the complete absence of line voltage.

- The electrical connection must only be carried out by trained, qualified personnel authorised by the plant operator.
- Always switch off power supply, before connecting or disconnecting the instrument.

Connection cable

The instrument is connected with standard three-wire cable without shielding. If electromagnetic interference is expected which is above the test values of EN 61326 for industrial areas, shielded cable should be used.

Make sure that the cable used has the required temperature resistance and fire safety for max. occurring ambient temperature

5.2 Wiring plan

Housing overview

Fig. 7: Connection variant - M12 x 1 plug

Plug versions

M12 x 1 plug connection
This plug connection requires a prefabricated cable with plug. Depending on the version, protection IP66/IP67 or IP68 (0.2 bar).

IO-Link

For connection to binary inputs of a PLC.

For power supply, use an energy-limited circuit according to EN 61010.

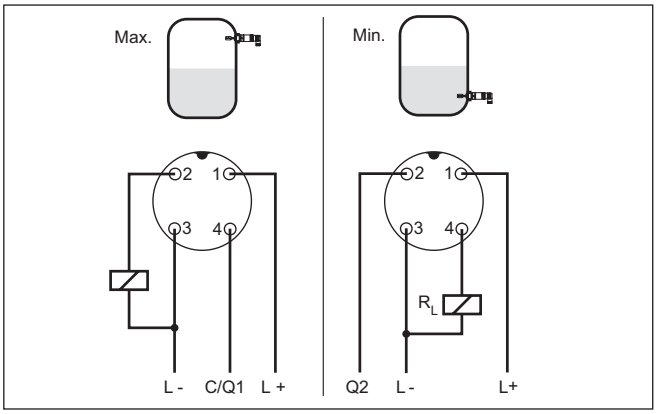

Fig. 8: Wiring plan (housing), terminal assignment IO-link output with M12 x 1 plug connection

1 L+ Voltage supply (brown)
2 Max. level detection (white)
3 L- Voltage supply (blue)
4 Min. level detection/IO-Link communication (black)
R_L Load resistance (contactor, relay, etc.)

6 Setup

6.1 Indication of the switching status

The switching status of the electronics can be checked via the signal lamps (LEDs) integrated in the upper part of the housing.

The signal lamps have the following meaning:

- Green lights - voltage supply connected
- Yellow lights - vibrating element covered
- Red lights briefly - function test during instrument start (for approx. 1 s)
- Red lights - shortcircuit or overload in the load circuit (sensor output high-impedance)
- Red flashes - Error on the vibrating element or the electronics (sensor output high impedance)

6.2 Simulation

The SITRANS LVL100 has an integrated function for simulation of the output signal which can be activated magnetically. Please proceed as follows:

→ Hold the test magnet (accessory) against the circle symbol with the label "TEST" on the instrument housing

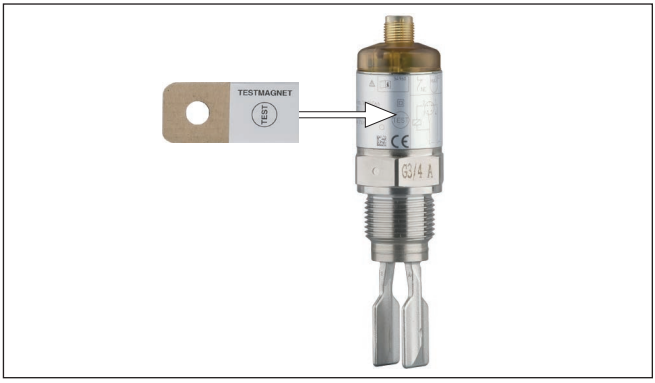

Fig. 9: Simulation of the output signal

The test magnet changes the current switching condition of the instrument. You can check the change on the signal lamp. Please note that all connected device are activated during the simulation.

If SITRANS LVL100 does not switch over after several tests with the test magnet, you have to check the plug connection and the connection cable and try it again. If there is no switching function, the electronics will be defective. In this case you have to exchange the electronics or return the instrument to our repair department.

Caution:
It is absolutely necessary that you remove the test magnet from the instrument housing after the simulation.

6.3 Function table

The following table provides an overview of the switching conditions depending on the set mode and the level.

	Level	**Switching status**	**Control lamp Yellow - coverage**	**Control lamp Green - voltage indication**	**Control lamp Red - fault signal**
Max. mode of operation		closed	○	☼	○
Max. mode of operation		open	☼	☼	○
Min. mode of operation		closed	☼	☼	○
Min. mode of operation		open	○	☼	○
Fault	any	open	any	☼	☼

7 Maintenance and fault rectification

7.1 Maintenance

Maintenance

If the device is used properly, no special maintenance is required in normal operation.

Cleaning

The cleaning helps that the type label and markings on the instrument are visible.

Take note of the following:

- Use only cleaning agents which do not corrode the housings, type label and seals
- Use only cleaning methods corresponding to the housing protection rating

7.2 Rectify faults

Reaction when malfunction occurs

The operator of the system is responsible for taking suitable measures to rectify faults.

Causes of malfunction

The device offers maximum reliability. Nevertheless, faults can occur during operation. These may be caused by the following, e.g.:

- Sensor
- Process
- Voltage supply
- Signal processing

Fault rectification

The first measure to take is to check the output signal. In many cases, the causes can be determined this way and the faults quickly rectified.

Checking the switching signal

Error	Cause	Rectification
Green signal lamp off	Voltage supply interrupted.	Check the voltage supply and the cable connection
	Electronics defective	Exchange the instrument or send it in for repair
Red signal lamp lights (switching output high-impedance)	Error with the electrical connection	Connect the instrument according to the wiring plan
	Shortcircuit or overload	Check the electrical connection
Red signal lamp flashes (switching output high-impedance)	Vibrating frequency out of specification	Check the vibrating element on buildup and remove it
	Buildup on the vibrating element	Check the vibrating element and the sensor if there is buildup and remove it
	Vibrating element damaged	Check if the vibrating element is damage or extremely corroded

Reaction after fault rectification

Depending on the reason for the fault and the measures taken, the steps described in chapter " *Setup*" must be carried out again or must be checked for plausibility and completeness.

7.3 How to proceed if a repair is necessary

If it is necessary to repair the instrument, please contact Siemens. You find the locations on our homepage " www.siemens.com/processautomation".

8 Dismount

8.1 Dismounting steps

Warning:
Before dismounting, be aware of dangerous process conditions such as e.g. pressure in the vessel, high temperatures, corrosive or toxic products etc.

Take note of chapters " *Mounting*" and " *Connecting to voltage supply*" and carry out the listed steps in reverse order.

8.2 Disposal

Pass the instrument on to a specialised recycling company and do not use the municipal collecting points.

Remove any batteries in advance, if they can be removed from the device, and dispose of them separately.

If personal data is stored on the old device to be disposed of, delete it before disposal.

If you have no way to dispose of the old instrument properly, please contact us concerning return and disposal.

9 Supplement

9.1 Technical data

Note for approved instruments

The technical data in the respective safety instructions which are included in delivery are valid for approved instruments (e.g. with Ex approval). These data can differ from the data listed herein, for example regarding the process conditions or the voltage supply.

All approval documents can be downloaded from our homepage.

General data

Material 316L corresponds to 1.4404 or 1.4435	
Materials, wetted parts	
– Tuning fork	316L
– Process seal (in the scope of delivery)	– Thread
Klingersil C-4400	– Hygienic connection with compression nut
FKM, EPDM	– Process fittings
316L	
Materials, non-wetted parts	
– Housing	316L and plastic PEI
– Cable gland	PA, stainless steel, brass
– Sealing, cable gland	NBR
– Blind plug, cable gland	PA
M12 x 1 plug connector	
– Contact support	PA
– Contacts	CuZn, nickel layer and 0.8 µm gold-plated
– Plug seal	FKM
Weight	approx. 250 g (9 oz)
Process fittings	
– Pipe thread, cylindrical (DIN 3852-A)	G½, G¾, G1, R1
– Pipe thread, conical (ASME B1.20.1)	½ NPT, ¾ NPT, 1 NPT
hygienic fittings	
– Clamp (DIN 32676, ISO 2852)	1", 1½", 2"
– Slotted nut	DN 25 PN 40, DN 40 PN 40, DN 50 PN 25
– SMS	DN 38 PN 6
– Hygienic fitting	F 40 PN 25
Max. torque - process fitting	
– Thread G½, ½ NPT	50 Nm (37 lbf ft)
– Thread G¾, ¾ NPT	75 Nm (55 lbf ft)
– Thread G1, 1 NPT	100 Nm (73 lbf ft)
Surface quality	
– Standard	R_a < 3.2 µm (1.26^{-4} in)

– Hygienic version	R_a < 0.8 µm (3.15^{-5} in)

Measurement accuracy	
Hysteresis	approx. 2 mm (0.08 in) with vertical mounting
Switching delay	approx. 500 ms (on/off) Can be ordered as an option: 0.5 … 60 s
Measuring frequency	approx. 1100 Hz

Ambient conditions	
Ambient temperature on the housing	-40 … +70 °C (-40 … +158 °F)
Storage and transport temperature	-40 … +80 °C (-40 … +176 °F)

Process conditions	
Process pressure	-1 … 64 bar/-100 … 6400 kPa (-14.5 … 928 psig)
Process temperature - Standard	-40 … +100 °C (-40 … +212 °F)

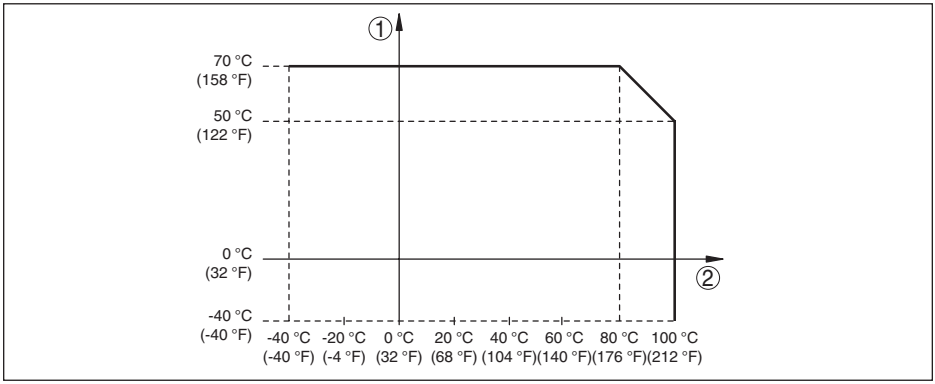

Fig. 10: Dependendency ambient temperature to process temperature

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

Process temperature - High temperature version (option)	-40 … +150 °C (-40 … +302 °F)

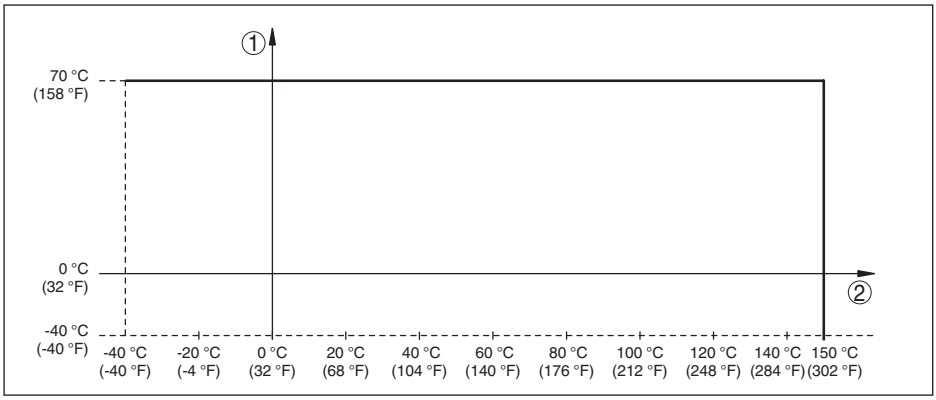

Fig. 11: Dependendency ambient temperature to process temperature

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

Viscosity - dynamic	0.1 … 10000 mPa s
Flow velocity	max. 6 m/s (with a viscosity of 10000 mPa s)
Density	
– Standard sensitivity	0.7 … 2.5 g/cm^3 (0.025 … 0.09 lbs/in^3)
– High sensitivity (can be ordered optionally)	0.5 … 2.5 g/cm^3 (0.018 … 0.09 lbs/in^3)

Adjustment

Plug connections	Specification see " *Connecting to voltage supply*"
Signal lamps (LEDs)	
– Green	Voltage supply on
– Yellow	Vibrating element covered
– Red	Fault

Output variable

Output signal	IO-Link acc. to IEC 61131-9
Connection technology	Three-wire (only with M12 x 1 plug)
Max. cable length to the IO-Link master	20 m
Max. ohmic load (R_A)	≤ 0.5 kΩ
Switching output	C/Q1: PNP; IO-Link
Switching current C/Q1 (IO-Link)	100 mA
Switching current Q2	250 mA
Switching voltage	≥ operating voltage (L+) -2.7 V DC

Voltage supply

Operating voltage	9.6 … 35 V DC
Power consumption	max. 0.5 W

Electromechanical data	
M12 x 1 plug connector	
– Cable	Fixed connected to the plug

Electrical protective measures	
Protection rating	
– M12 x 1 plug connection	IP66/IP67 acc. to IEC 60529, Type 4X acc. to NEMA or IP68 (0.2 bar) acc. to IEC 60529, Type 6P acc. to NEMA
Overvoltage category	The feeding power supply unit can be connected to networks of overvoltage category III
Protection class	II

9.2 Device communication IO-Link

In the following, the necessary device-specific details are shown. You can find further information of IO-Link on www.io-link.com.

Physical layer

IO-Link specification: Revision 1.0

SIO mode: Yes

Speed: COM2 38.4 kBaud

Min. cycle time 2.3 ms

Length process data word: 32 Bit

IO-Link Data Storage: Yes

Block parameter adjustment: Yes

Process data

The process data of the devices are transmitted cyclically in a data telegram, whereby the process data size is defined by the device. Process data from 0 to 32 bytes are possible for each device (both input and output). The consistency width of the transmission is not fixed and is therefore master-dependent.

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
-	-	-	-	-	-	-	Q-signal

Q-signal (Bit 0): covered ⍰ 1, uncovered ⍰ 0

Device data

Device data can be parameters, identification data and diagnostic information. They are exchanged acyclically and on request of the IO-Link master. Device data can be written to the device (write) or read from the device (read). For this purpose, the ISDU (Indexed Service Data Unit) was defined in the IO-Link specification. The ISDU determines, among other things, whether the data is read or written.

IO-Link specific device data

Designation	ISDU (dez)	ISDU (hex)	Size (Byte)	Data type	Access	Default-Value
VendorName	16	0x0010	max. 64	String	RO	Siemens AG
VendorText	17	0x0011	max. 64	String	RO	www.siemens.com
ProductName	18	0x0012	max. 64	String	RO	SITRANS LVL100
ProductID	19	0x0013	max. 64	String	RO	SITRANS LVL100
ProductText	20	0x0014	max. 64	String	RO	Level switch
Serial Number	21	0x0015	max. 16	String	RO	-
Hardware Revision	22	0x0016	max. 64	String	RO	-
Software Version	23	0x0017	max. 64	String	RO	-
Application Specif-ic TAG	24	0x0018	20	String	R/W	Sensor
Process data input	40	0x0028	1	PD In	RO	-

Specific device data

Designation	ISDU (dez)	ISDU (hex)	Size (Byte)	Data type	Access	Default-Value	Gradient
Max. frequency value	80	0x50	2	UInt	RW	1180	1
Min. frequency value	81	0x51	2	UInt	RW	523	1
Switching point fre-quency	82	0x52	2	UInt	RW	969	1
Switch back point frequency	83	0x53	2	UInt	RW	999	1
Switching delay	84	0x54	2	UInt	RW	50	0.01
Reset delay	85	0x55	2	UInt	RW	50	0.01
Delay error output	86	0x56	2	UInt	RW	50	-
Delay after error	87	0x57	2	UInt	RW	50	-
SIO mode	88	0x58	2	UInt	RW	-	-
Temperature	99	0x63	2	Int	RO	-	0.1
Frequency	100	0x64	2	UInt	RO	-	-
Amplitude	101	0x65	2	UInt	RO	-	-
Peak indicator - Min. frequency	150	0x96	2	UInt	RO	-	-
Peak indicator - Max. frequency	151	0x97	2	UInt	RO	-	-
Peak indicator - Min. amplitude	152	0x98	2	UInt	RO	-	-
Peak indicator - Max. amplitude	153	0x99	2	UInt	RO	-	-
Peak indicator - Min. temperature	154	0x9A	2	Int	RO	-	0.1

Designation	ISDU (dez)	ISDU (hex)	Size (Byte)	Data type	Access	Default-Value	Gradient
Peak indicator - Max. temperature	155	0x9B	2	Int	RO	-	0.1

Consider the respective gradient when calculating the correct values.

System commands

Designation	ISDU (dez)	ISDU (hex)	Access	
Restore factory settings	130	82	W	

9.3 Dimensions

SITRANS LVL100, standard version

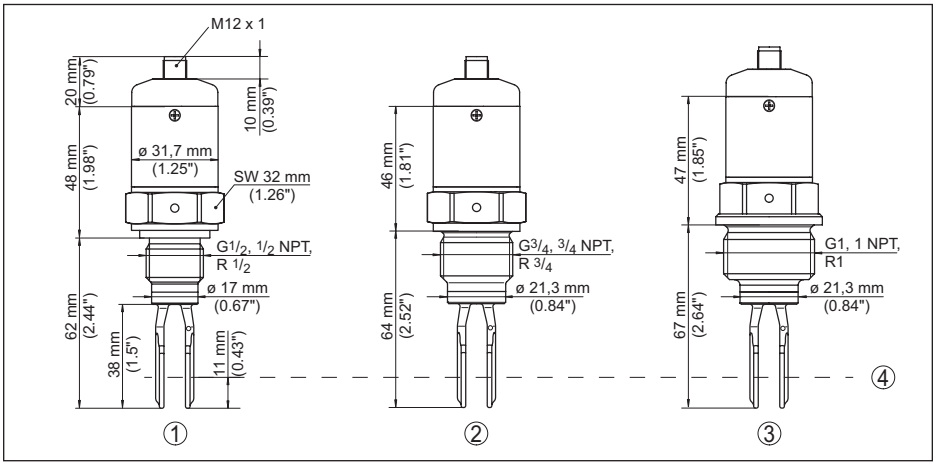

Fig. 12: SITRANS LVL100, standard version - threaded fittings

1 Thread G½ (DIN ISO 228/1), ½ NPT, M12 x 1 plug [1)]
2 Thread G¾ (DIN ISO 228/1), ¾ NPT, M12 x 1 plug
3 Thread G1 (DIN ISO 228/1), 1 NPT, M12 x 1 plug
4 Switching point

[1)] Keep in mind that the total length is extended by the plug connection.

SITRANS LVL100, high temperature version

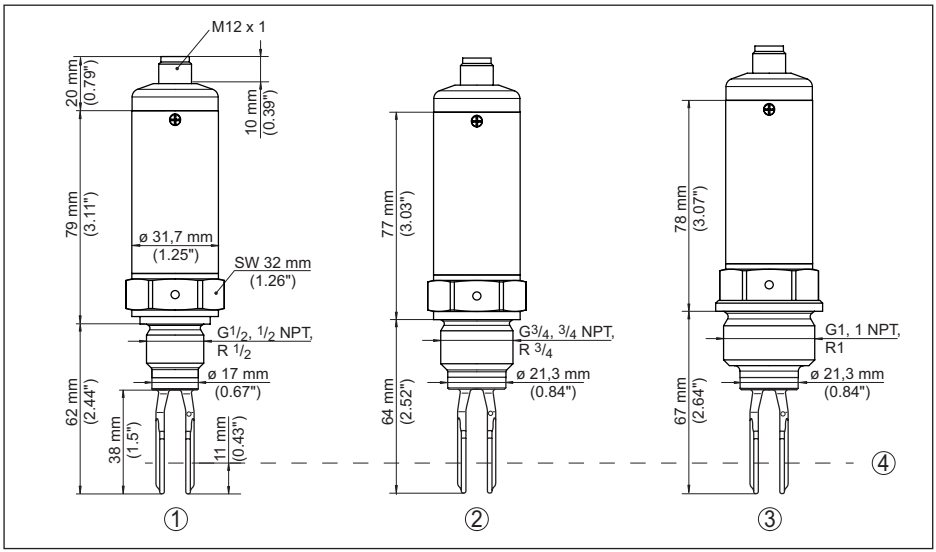

Fig. 13: SITRANS LVL100, high temperature versions - threaded fittings

1 Thread G½ (DIN ISO 228/1), ½ NPT, M12 x 1 plug [2)]
2 Thread G¾ (DIN ISO 228/1), ¾ NPT, M12 x 1 plug
3 Thread G1 (DIN ISO 228/1), 1 NPT, M12 x 1 plug
4 Switching point

[2)] Keep in mind that the total length is extended by the plug connection.

SITRANS LVL100, hygienic versions

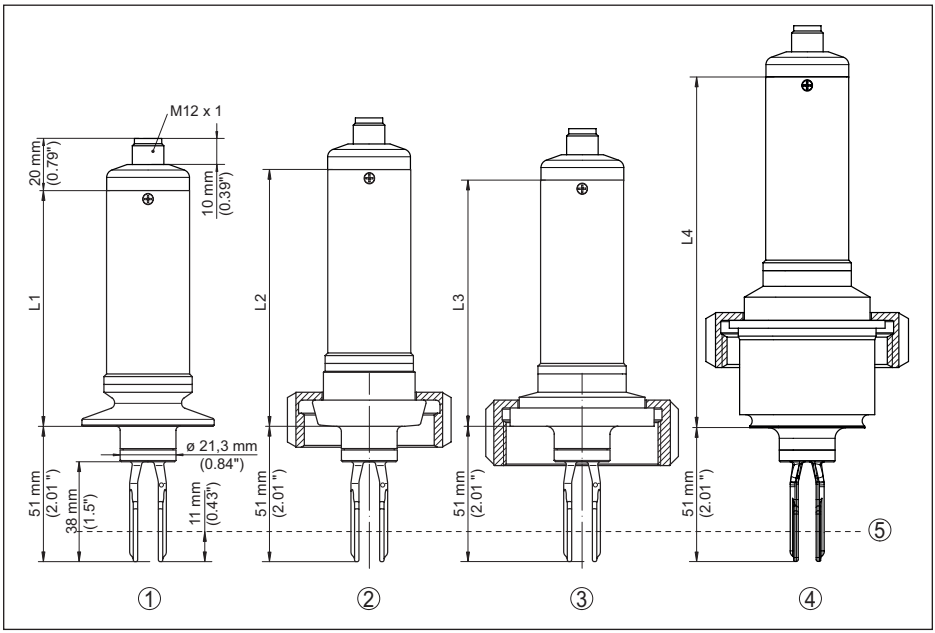

Fig. 14: SITRANS LVL100, hygienic versions - hygienic fittings

1 Clamp, M12 x 1 plug [3)]
2 Slotted nut, M12 x 1 plug
3 SMS 1145, M12 x 1 plug
4 Hygienic fitting with compression nut, M12 x 1 plug
5 Switching point
L1 Length with Clamp
Clamp 1": 90 mm (3.54 in)
Clamp 1½": 90 mm (3.54 in)
Clamp 2": 89 mm (3.50 in)
L2 Length with slotted nut
DN 25 PN 40: 98 mm (3.86 in)
DN 40 PN 40: 103 mm (4.06 in)
DN 50 PN 25: 104 mm (4.09 in)
L3 Length with SMS
DN 38 PN 6: 94 mm (3.70 in)
L4 Length with aseptic fitting
134 mm (5.28 in)

[3)] Keep in mind that the total length is extended by the plug connection.

9.4 Trademark

All the brands as well as trade and company names used are property of their lawful proprietor/ originator.

Notes

Notes

For more information

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