Operating Instructions

Capacitive level switch

VEGAPOINT 21

Three-wire: transistor

Document ID: 56623

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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 instruction 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

Document ID
This symbol on the front page of this instruction refers to the Document ID. By entering the Document ID on **www.vega.com** you will reach the document download.

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.

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2 For your safety

2.1 Autorisiertes Personal

Sämtliche in dieser Dokumentation beschriebenen Handhabungen dürfen nur durch ausgebildetes und autorisiertes Fachpersonal durchgeführt werden.

Bei Arbeiten am und mit dem Gerät ist immer die erforderliche persönliche Schutzausrüstung zu tragen.

2.2 Intended use

The VEGAPOINT 21 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.

2.3 Warnung vor Fehlgebrauch

Bei nicht sachgerechter oder nicht bestimmungsgemäßer Verwendung können von diesem Produkt anwendungsspezifische Gefahren ausgehen, so z. B. ein Überlauf des Behälters durch falsche Montage oder Einstellung. Dies kann Sach-, Personen- oder Umweltschäden zur Folge haben. Weiterhin können dadurch die Schutzeigenschaften des Gerätes beeinträchtigt werden.

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 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 I) (Canada).

A Class 2 power supply unit has to be used for the installation in the USA and Canada.

2.6 Safety instructions for Ex areas

For applications in hazardous areas (Ex), only devices with corresponding Ex approval may be used. Please note the Ex-specific safety information. These safety instructions are part of the documents to each instrument and come with the Ex-approved instruments.

3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- VEGAPOINT 21 point level switch
- Information sheet "*Documents and software*" with:
  - Instrument serial number
  - QR code with link for direct scanning
- Information sheet "*PINs and Codes*" (with Bluetooth versions) with:
  - Bluetooth access code

Information:
Optional instrument features are also described in this instructions. The respective scope of delivery results from the order specification.

Constituent parts

The VEGAPOINT 21 consists of the components:

- Housing with integrated electronics
- Process fitting
- Plug

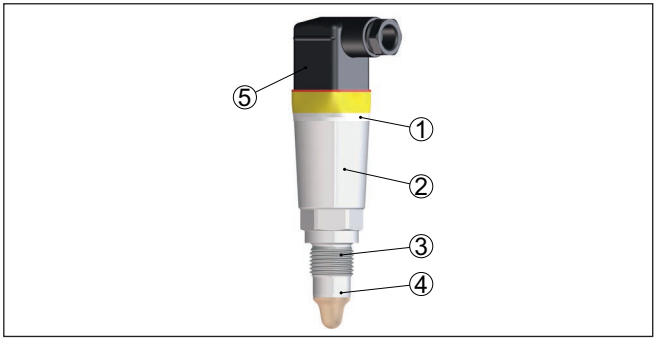

Fig. 1: VEGAPOINT 21

1 LED illuminated ring
2 Instrument housing
3 Process fitting
4 Sensor
5 Plug connection

Type label

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

- Instrument type
- Information about approvals
- Configuration information
- Technical data
- Serial number of the instrument
- QR code for device identification
- Numerical code for Bluetooth access (optional)

- Manufacturer information

Documents and software

To find order data, documents or software related to your device, you have the following options:

- Move to "**www.vega.com**" and enter in the search field the serial number of your instrument.
- Scan the QR code on the type label.
- Open the VEGA Tools app and enter the serial number under "***Documentation***".

3.2 Principle of operation

Application area

The VEGAPOINT 21 is a capacitive point level sensor for point level detection

It is designed for industrial use in all areas of process technology and can be used on site in water-based liquids without adjustment of the medium.

To detect non-aqueous media, the device can be customised via the product configurator or on site via IO-Link communication or Bluetooth.

Typical applications are overfill and dry run protection. With a the small sensor unit, VEGAPOINT 21 can be also mounted e.g. in thin pipelines. The sensor allows use in vessels, tanks and pipes. Thanks to its simple and robust measuring system, VEGAPOINT 21 is virtually unaffected by the chemical and physical properties of the liquid.

It also works under difficult measuring conditions such as turbulence, air bubbles, strong external vibrations or changing media. In addition, the sensor can also detect foam.

Fault monitoring

The electronics module of VEGAPOINT 21 continuously monitors the following criteria via frequency generation:

- Failure of the signal generation
- Line break to the sensor element

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

An alternating electric field is generated at the tip of the measuring electrode. If the sensor is covered with medium, the resonance frequency changes. This change is detected by the electronics and converted into a switching command.

Buildup is ignored to a certain degree and therefore has no influence on the measurement.

3.3 Adjustment

On-site adjustment

The switching status of VEGAPOINT 21 can be checked from outside (LED illuminated ring).

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Wireless operation

The optionally integrated Bluetooth module enables in addition a wireless adjustment of VEGAPOINT 21.

This is done via standard operating devices:

- Smartphone/tablet (iOS or Android operating system)
- PC/notebook with Bluetooth LE or Bluetooth USB adapter (Windows operating system)

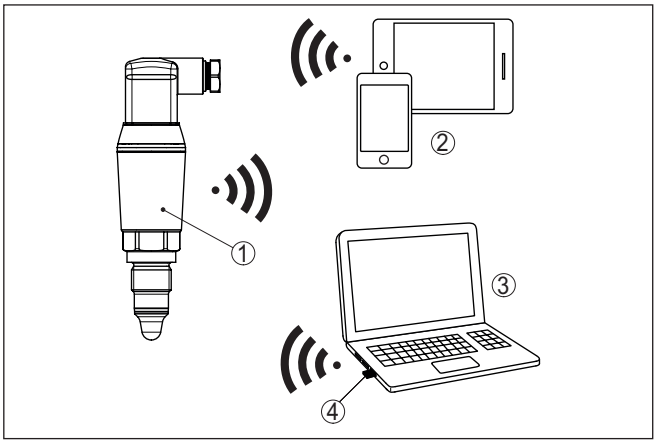

Fig. 2: Wireless connection to standard adjustment devices with integrated Bluetooth LE or alternatively Bluetooth USB adapter.

1 Sensor
2 Smartphone/Tablet
3 PC/Notebook
4 Bluetooth USB adapter

3.4 Verpackung, Transport und Lagerung

Verpackung

Ihr Gerät wurde auf dem Weg zum Einsatzort durch eine Verpackung geschützt. Dabei sind die üblichen Transportbeanspruchungen durch eine Prüfung in Anlehnung an ISO 4180 abgesichert.

Die Geräteverpackung besteht aus Karton, ist umweltverträglich und wieder verwertbar. Bei Sonderausführungen wird zusätzlich PE-Schaum oder PE-Folie verwendet. Entsorgen Sie das anfallende Verpackungsmaterial über spezialisierte Recyclingbetriebe.

Transport

Der Transport muss unter Berücksichtigung der Hinweise auf der Transportverpackung erfolgen. Nichtbeachtung kann Schäden am Gerät zur Folge haben.

Transportinspektion

Die Lieferung ist bei Erhalt unverzüglich auf Vollständigkeit und eventuelle Transportschäden zu untersuchen. Festgestellte Transportschäden oder verdeckte Mängel sind entsprechend zu behandeln.

Lagerung

Die Packstücke sind bis zur Montage verschlossen und unter Beachtung der außen angebrachten Aufstell- und Lagermarkierungen aufzubewahren.

Packstücke, sofern nicht anders angegeben, nur unter folgenden Bedingungen lagern:

- Nicht im Freien aufbewahren
- Trocken und staubfrei lagern
- Keinen aggressiven Medien aussetzen
- Vor Sonneneinstrahlung schützen
- Mechanische Erschütterungen vermeiden

Lager- und Transporttemperatur

- Lager- und Transporttemperatur siehe Kapitel "*Technische Daten - Umgebungsbedingungen*"
- Relative Luftfeuchte 20 … 85 %

3.5 Accessories

The instructions for the listed accessories can be found in the download area on our homepage.

Threaded and hygienic socket

Various threaded and hygienic sockets are available for devices with threaded version.

You can find further information in chapter "*Technical Data*".

4 Mounting

4.1 General instructions

Ambient conditions

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

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

Switching point

The VEGAPOINT 21 can be mounted in any position. The instrument must be mounted in such a way that the sensor is at the height of the requested switching point.

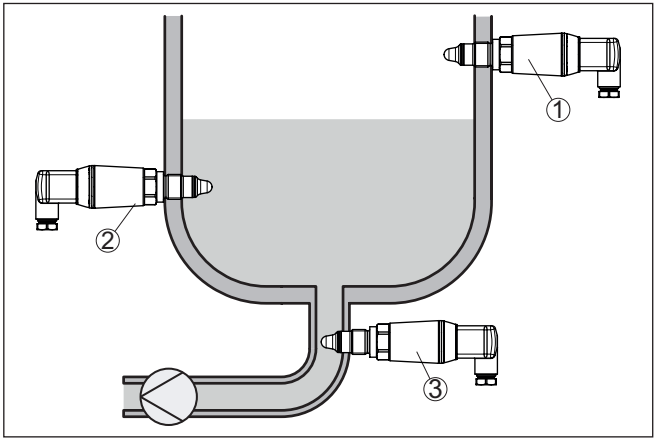

Fig. 3: Installation examples

1 Upper level detection (max.) as overflow protection
2 Lower level detection (min.) as dry run protection
3 Dry run protection (min.) for a pump

Note that the switching point varies depending on the type of medium and the mounting position of the sensor.

Protection against moisture

Protect your instrument against moisture ingress through the following measures:

- Use a suitable connection cable (see chapter "*Connecting to power supply*")
- Tighten the cable gland or plug connector
- Lead the connection cable downward in front of the cable entry or plug connector

This applies mainly to outdoor installations, in areas where high humidity is expected (e.g. through cleaning processes) and on cooled or heated vessels.

Handling

The level switch is a measuring device for stationary screw mounting and must be treated accordingly. Damage to the measuring tip will destroy the instrument.

Use the hexagon above the thread for screwing in.

After mounting, make sure that the process fitting is screwed in correctly and thus securely seals even at maximum process pressure.

4.2 Mounting instructions

Adhesive products

In adhesive and viscous media, the surfaces of the sensor should protrude into the vessel to avoid buildup. Therefore mounting bosses should not exceed a certain length.

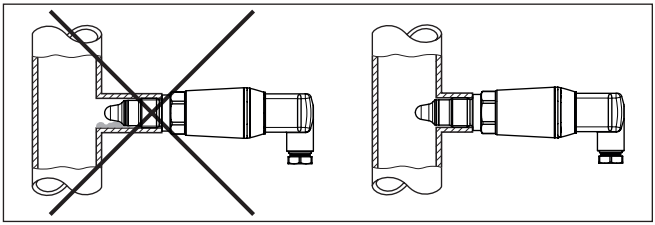

Fig. 4: Adhesive products

In horizontal pipelines, avoid mounting in the upper or lower area of the pipe.

In the upper part of the pipe cavities can form due to air inclusions.

Solids can settle in the lower pipe area. Both can lead to measurement errors.

In horizontal pipelines, lateral installation is therefore recommended.

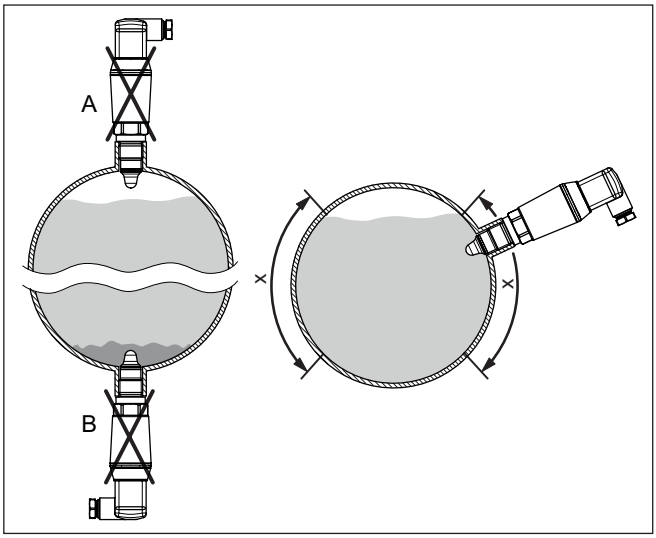

Fig. 5: Installation in horizontal pipelines

x Recommended mounting area
A Not recommended - danger of air inclusions
B Not recommended - Danger of buildup

Vessel installations

Metal vessel installation or struts can affect the switching sensitivity of the device.

This applies in particular to media with a low DK value.

For this reason, keep a minimum distance of 5 cm (2 in) to metal vessel installations.

Inflowing medium

If VEGAPOINT 21 is mounted in the filling stream, unwanted false measurement signals can be generated. For this reason, mount VEGAPOINT 21 at a position in the vessel where no disturbances, e.g. from filling openings, agitators, etc., can occur.

5 Connecting to power supply

5.1 Preparing the connection

Safety instructions

Always keep in mind the following safety instructions:

- Carry out electrical connection by trained, qualified personnel authorised by the plant operator
- If overvoltage surges are expected, overvoltage arresters should be installed

Warning:
Only connect or disconnect in de-energized state.

Voltage supply

You can find the data for voltage supply in chapter "*Technical data*".

Note:
Power the instrument via an energy-limited circuit (power max. 100 W) acc. to IEC 61010-1, e.g.:

- Class 2 power supply unit (acc. to UL1310)
- SELV power supply unit (safety extra-low voltage) with suitable internal or external limitation of the output current

Keep in mind the following additional factors that influence the operating voltage:

- Lower output voltage of the power supply unit under nominal load
- Influence of additional instruments in the circuit (see load values in chapter "*Technical data*")

Connection cable

Use cable with round cross section. Depending on the plug connection, you have to select the outer diameter of the cable respectively so that the seal effect of the cable gland is ensured.

The instrument is connected with standard four-wire cable. If electromagnetic interference is expected which is above the test values of EN 61326-1 for industrial areas, shielded cable should be used.

- Valve plug ISO 4400, ø 4.5 … 7 mm
- Valve plug ISO 4400 with hinged cover, ø 4,5 … 7 mm

5.2 Connecting

Instrument versions

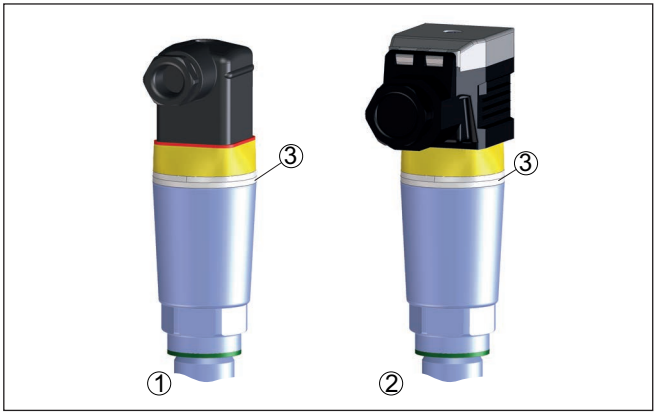

Fig. 6: Plug versions

1 Valve plug ISO 4400
2 Valve plug ISO 4400 with hinged cover
3 LED illuminated ring

Valve plug ISO 4400

For this plug version, standard cable with round wire cross-section can be used. Cable diameter 4.5 … 7 mm, protection IP65.

1. Loosen the screw on the rear of the plug connector
2. Remove the plug connector and seal from VEGAPOINT 21
3. Remove the plug insert from the plug housing
4. Remove approx. 5 cm of the cable mantle, strip approx. 1 cm insulation from the individual wires
5. Lead the cable through the cable gland into the plug housing
6. Connect the wire ends to the screw terminals according to the wiring plan

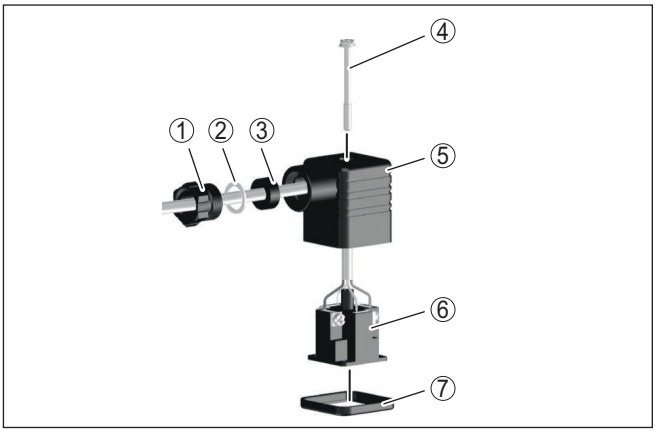

Fig. 7: Connection, valve plug ISO 4400

1 Pressure screw
2 Pressure disc
3 Seal ring
4 Fixing screw
5 Plug housing
6 Plug insert
7 Profile seal

7. Snap the plug insert into the plug housing and insert the sensor seal
8. Plug the plug insert with seal to VEGAPOINT 21 and tighten the screw

Valve plug ISO 4400 with hinged cover

For this plug version, standard cable with round wire cross-section can be used. Cable diameter 4.5 … 7 mm, protection IP65.

1. Loosen the screw in the cover of the plug connector
2. Open the cover and remove it
3. Press the plug insert downwards
4. Loosen the screws of the strain relief and cable entry

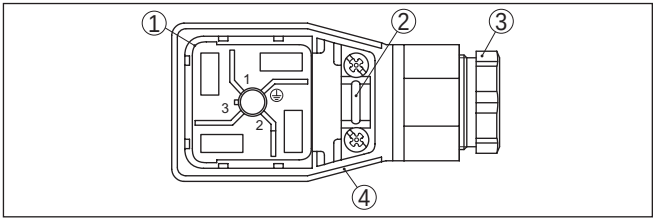

Fig. 8: Loosen the plug insert

1 Plug insert
2 Strain relief
3 Cable gland
4 Plug housing

5. Remove approx. 5 cm of the cable mantle, strip approx. 1 cm insulation from the individual wires
6. Lead the cable through the cable gland into the plug housing
7. Connect the wire ends to the screw terminals according to the wiring plan

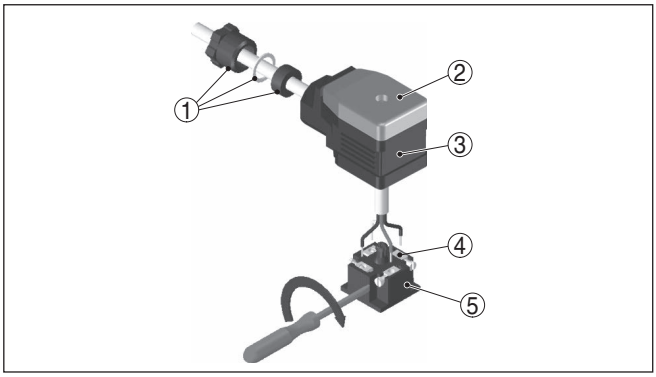

Fig. 9: Connection to the screw terminals

1 Cable gland
2 Cover
3 Plug housing
4 Plug insert
5 Plug seal

8. Snap the plug insert into the plug housing and insert the sensor seal

Information:
Note the correct arrangement, see illustration

9. Tighten the screws on the strain relief and cable entry
10. Hook in the cover and push onto the plug connection, tighten cover screw
11. Plug the plug insert with seal to VEGAPOINT 21 and tighten the screw

5.3 Wiring plan

For connection to binary inputs of a PLC.

Valve plug ISO 4400 - assignment A

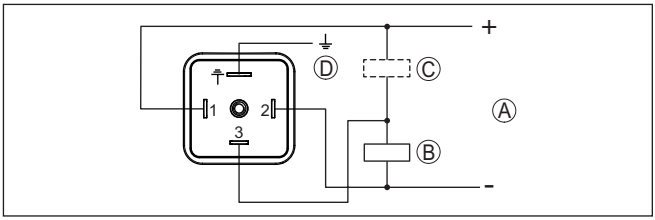

Fig. 10: Wiring plan connector ISO 4400 - transistor output three-wire - pin assignment A

A Voltage supply
B PNP switching
C NPN switching
D PA - Potential equalisation

Contact, plug connector	Function/Polarity
1	Voltage supply/+
2	Voltage supply/-
3	Transistor output
4	PA - Potential equalisation

Valve plug ISO 4400 - assignment B

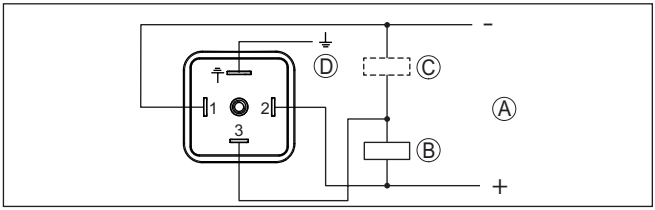

Fig. 11: Wiring plan connector ISO 4400 - transistor output three-wire - pin assignment B

A Voltage supply
B PNP switching
C NPN switching
D PA - Potential equalisation

Contact, plug connector	Function/Polarity
1	Voltage supply/-
2	Voltage supply/+
3	Transistor output
4	PA - Potential equalisation

5.4 Switch-on phase

After switching on, the device first carries out a self-test in which the function of the electronics is checked.

Then the actual measured value is output to the signal cable.

6 Access protection

6.1 Bluetooth radio interface

Devices with a Bluetooth radio interface are protected against unwanted access from outside. This means that only authorized persons can receive measured and status values and change device settings via this interface.

Bluetooth access code

A Bluetooth access code is required to establish Bluetooth communication via the adjustment tool (smartphone/tablet/notebook). This code must be entered once when Bluetooth communication is established for the first time in the adjustment tool. It is then stored in the adjustment tool and does not have to be entered again.

The Bluetooth access code is unique to each device. On devices with Bluetooth, it is printed on the device housing. It is also supplied with the device in the information sheet "*PINs and Codes*". In addition, depending on the device version, the Bluetooth access code can be read from the display and adjustment unit.

The Bluetooth access code can be changed by the user after the first connection is established. If the Bluetooth access code is entered incorrectly, the new entry is only possible after a waiting period has elapsed. The waiting time increases with each further incorrect entry.

Emergency Bluetooth access code

The emergency Bluetooth access code enables Bluetooth communication to be established in the event that the Bluetooth access code is no longer known. It can't be changed. The emergency Bluetooth access code can be found on the information sheet "*Access protection*". Should this document be lost, the emergency Bluetooth access code can be obtained from your personal contact after you have provided proof of identity. The storage and transmission of Bluetooth access codes is always encrypted (SHA 56 algorithm).

6.2 Protection of the parameterization

The settings (parameters) of the device can be protected against unwanted changes. The parameter protection is deactivated on delivery, all settings can be made.

Device code

To protect the parameterization, the device can be locked by the user with the aid of a freely selectable device code. The settings (parameters) can then only be read out, but not changed. The device code is also stored in the adjustment tool. However, unlike the Bluetooth access code, it must be re-entered for each unlock. When using the adjustment app or DTM, the stored device code is then suggested to the user for unlocking.

Emergency device code

The emergency device code allows unlocking the device in case the device code is no longer known. It can't be changed. The emergency device code can be found on the information sheet supplied "*Access protection*". Should this document be lost, the emergency device code can be obtained from your personal contact after you have

provided proof of identity. The storage and transmission of the device codes is always encrypted (SHA 256 algorithm).

6.3 Storing the codes in myVEGA

If the user has a "*myVEGA*" account, both the Bluetooth access code and the device code will also be stored in their account under "*PINs and Codes*". This greatly simplifies the use of additional operating tools, as all Bluetooth access and device codes are automatically synchronised when connecting to the "*myVEGA*" account.

7 Set up

7.1 Status indication

The switching status of the electronics can be checked via the 360° status indication (LEDs) integrated in the upper part of the housing.

The LED illuminated ring is not available for device versions with full metal housing.

The colours of the 360° status indication have the following meaning:[1)]

- Green lights up - power supply connected, sensor output high-impedance
- Green flashing - Maintenance required
- Yellow lights up - power supply connected, sensor output low impedance
- Red lights - shortcircuit or overload in the load circuit (sensor output high-impedance)
- Red flashing - Error at sensor or electronics (sensor output high impedance) or device is in simulation

7.2 Function table

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

The switching states correspond to the default setting.

The colours of the signal lamp correspond to the signalling according to NAMUR NE 107.

Coverage	**MAX Switching status**	**MIN Switching status**	**360° status indication[2)]**
Covered	open	closed	Green
Uncovered	closed	open	Yellow
Malfunction (Covered/Uncovered)	open	open	Red

7.3 Menu overview

Adjustment possibilities

There are several ways to operate the device.

[1)] Default setting
[2)] Switching status of output 1

The Bluetooth version (optional) of the instrument enables a wireless connection to standard adjustment units. This can be smartphones/ tablets with iOS or Android operating system or PCs with PACTware and Bluetooth USB adapter.

The following functional descriptions apply to all adjustment devices (smartphone, tablet, laptop …).

For technical reasons, individual functions are not available on all devices. You can find information on this in the function description.

General information

The adjustment menu is divided into three sections:

Main menu: Measurement loop name, application, display etc.

Extended functions: Output, switching output, reset etc.

Diagnosis: Status, peak indicator, simulation, sensor information etc.

Note:
Please note that individual menu items are only optionally available or depend on the settings in other menu items.

Main menu

Menu item	Function	Default value
Measurement loop name	Free naming of the device	Sensor
Application	Selection of the application	Standard
Application	Application	Application
360° status indication	Brightness	100 %
	Signalling	NAMUR NE 107
	Schaltausgang	Gelb
	Health status	Grün
	Malfunction	Rot
Adjustment with medium[3)]	Media adjustment	Accept current device status

Extended functions

Menu item	Function	Default value
Output	Transistor function (P-N)	PNP
	Function output (OU1)	Opener (HNC)
Switching output	Switching point (SP1)	67 %
	Switching delay (DS1)	0.5 s
	Reset point (RP1)	65 %
	Reset delay (DR1)	0.5 s
Access protection	Bluetooth access code	See supplementary sheet "PINs and Codes".
	Protection of the parameterization	Deactivated
Reset	-	-

[3)] Only for "User-defined" application

Menu item	Function	Default value
Units	Temperature unit	°C

Diagnostics

Menu item	Function	Default value
Status	Device status Status output Parameter modification counter	OK OK Quantity
Peak indicator	Peak indicator, electronic temperature Peak indicator measuring cell temperature Peak indicator resonance frequency	- - -
Measured values	Indication of the measured values and output	-
Simulation	Start of the simulation	-
Customer service	Service information	-
Impedance curve	Indication of impedance curve	-
Sensor information	Display of sensor information	-
Sensor characteristics	Indication of sensor characteristics	-

7.4 Parameter adjustment

7.4.1 Main menu

Measurement loop name (TAG)

Here you can assign a suitable measurement loop name.

This name is stored in the sensor and is used to identify the device.

You can enter a name with max. 19 characters. The available digits include:

- Upper and lower case letters from A … Z
- Numbers from 0 … 9
- Special characters and blanks

Application

In this menu item you can select the application. You can choose from the following applications:

- Standard
- User-defined

Note:
The selection of the application has a considerable influence on all other menu items. Keep in mind that as you continue with the parameter adjustment, individual menu items are only optionally available.

Standard (level detection)
If "*Standard*" is selected, an automatic adjustment is carried out. A manual adjustment is only necessary in special media.

User-defined
If you have selected the application *User-defined* you can adjust the switching states with the original medium or with the actual covering state.

Depending on the selected application, you can produce the corresponding occultation states and transfer them directly.

See function "*Adjustment with medium*".

360° status indication

With this menu item you can set the function of the 360° status indication.

- Brightness of the 360° status indication
- Signalling

Brightness of the 360° status indication
Brightness selection in 10 percent increments (0 %, 10 %, 20 % 30 %, 40 % … 100 %)

Signalling
Acc. to NAMUR NE 107

In this menu item you can select the standardized signalling according to NAMUR NE 107 or an individual signalling.

If you have selected signalling according to NAMUR NE 107, the signalling is set as follows:

- Malfunction/failure - Red
- Operating status/output 1 closed - Yellow
- Operating status/output 1 open - Green

In addition there are the following status indications:

- Simulation - red flashing
- Maintenance required - green flashing

Individual signalling
If you have selected "Individual signaling", you can select the respective LED colour separately for the following switching states.

- Malfunction
- Switching output
- Health status

The following colours are available:

Red, yellow, green, blue, white, orange, no signalling. You can also set all colours individually in addition.

You can also have every status displayed flashing additionally.

Adjustment with medium

If you have selected "*Application*" in the menu item, the function *User-defined*, you can adjust the switching states with the original medium or with the actual covering state.

Depending on the selected application, you can produce the corresponding occultation states and transfer them directly.

You can enter the determined values for both outputs "*Together*" or "*Separate*". If you select the adjustment "*Separate*", you can set a different switching threshold for the second output.

Adjust outputs - Together
- Uncovered
- Covered

Adjust outputs - Separate
- Uncovered
- Covered
- Uncovered output 2
- Covered output 2

After completing the adjustment process, you must accept the adjustment values. Only then are the entered values active.

7.4.2 Extended functions

Output

In this menu item you can select the general settings for the output.

Transistor function
For devices with transistor output, you can set the function of the output.
- Functional principle PNP
- Functional principle NPN

With the outputs

Function output (OU1)
In this menu item you can set the function of the two outputs independently of each other.

Closing contact = HNO (Hysterese Normally Open) - MIN (dry run protection)

Opener = HNC (Hysterese Normally Closed) - MAX (overfill protection)

Closing contact = FNO (Window Normally Open)

Opener = FNC (Window Normally Closed)

Hysteresis function (HNO/HNC)
The hysteresis has the task of keeping the switching state of the output stable.

When the switching point (SP) is reached, the output switches and remains in this switching state. Only when the reset point (RP) is reached does the output switch back.

If the measured variable moves between switching and reset point, the state of the output does not change.

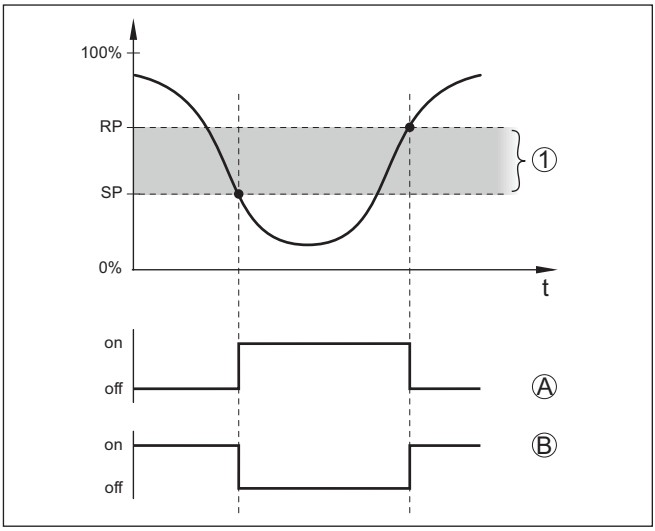

Fig. 12: Hysteresis function

SP Switching point
RP Reset point
A HNO (Hysterese Normally Open) = Closing contact (MIN)
B HNC (Hysterese Normally Closed) = Opener (MAX)
t Timeline
1 Hysteresis

Window function (FNO/FNC)

With the window function (FNO and FNC) a nominal range, a so-called window, can be defined.

The output changes its state when the measured variable enters the window between the values Window High (FH) and Window Low (FL). If the measured variable leaves the window, the output returns to its previous state. If the measured variable moves within the window, the state of the output does not change.

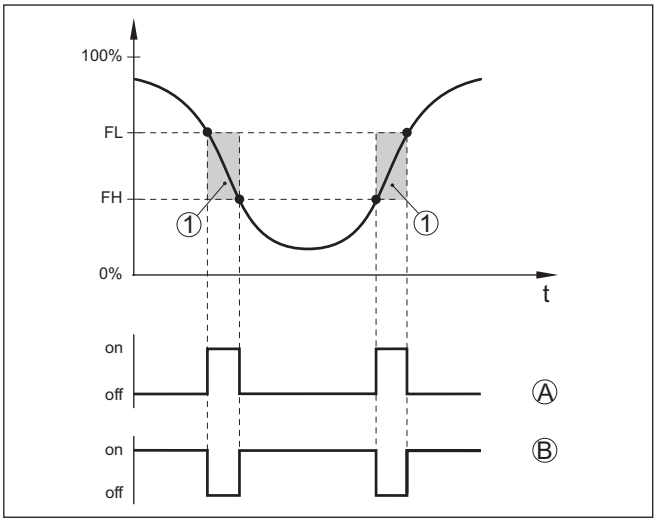

Fig. 13: Window function

FH Window high - upper value
FL Window low - lower value
A FNO (Window Normally Open) = Closing contact
B FNC (Window Normally Closed) = Opener
t Timeline
1 Window area

Switching output

In this menu item you can select the settings for the switching output. This is only possible if *User-defined* was selected in the application.

In the function "*Impedance curve*" you can see the changes and the position of the hysteresis.

- Switching point (SP1)
- Reset point (RP1)
- Switching delay (DS1)
- Reset delay (DR1)

Switching point (SP1)
The switching point (SP1) indicates the switching limit of the sensor in relation to the immersion depth or the degree of coverage.

The percentage defines the lower range limit of the hysteresis.

The setting is a degree for the sensitivity of the sensor tip.

Reset point (RP1)
The reset point (RP) controls the sensitivity of the sensor when the sensor tip becomes free.

The percentage defines the upper range limit of the hysteresis.

The setting is a degree for the sensitivity of the sensor tip.

Switching delay (DS1)
The switching delay (DS) extends the reaction time until the sensor is switched over when the sensor tip is covered.

You can enter a delay time from 0 to 60 seconds.

Reset delay (DR1)
The reset delay (DR) extends the reaction time until the sensor switches over when the sensor tip becomes free.

You can enter a delay time from 0 to 60 seconds.

Access protection

You can use the "*Access protection*" function to block or release access via the Bluetooth interface.

Bluetooth access code
With the function "*Bluetooth access code*" you can release the Bluetooth data connection.

To activate the function, you must enter the six-digit access code.

You can find the Bluetooth access code in the "*PINs and Codes*" sheet of the shipping documentation.

See also chapter "*Access protection*".

Protection of the parameterization
In this menu item you can also protect the parameter adjustment of the sensor.

For this function you need the six-digit device code.

The device code can also be found in the "*PINs and Codes*" sheet of the shipping documentation.

See also chapter "*Access protection*".

Reset

After a reset, parameter adjustments made by the user are reset.

The following reset functions are available:

Restore basic settings: Resetting the parameter settings incl. special parameters to the default values of the respective device.

Restore delivery status: Restores the parameter settings at the time of shipment from the factory, incl. order-specific settings. This menu item is only available if order-specific settings have been made ex factory.

Note:
The default values set at the factory can be found in the table of the menu plan at the beginning of this chapter.

Units

In this menu item you can define the temperature unit of the device (UNI).

- °C
- °F

7.4.3 Diagnostics

Status

In this menu item you can retrieve the status of the device.

- Device status
- Status outputs
- Parameter modification counter

The display "*Device status*" provides an overview of the current status of the device.

If fault messages or other information are available, a corresponding message is displayed here.

The display "*Status outputs*" gives an overview of the current status of the device outputs.

The menu item "*Parameter change counter*" gives a quick overview if the parameter adjustment of the device was changed.

The value is increased by one each time the parameters of the device are changed. The value is retained in the event of a reset.

Peak indicator

In this menu item you can retrieve the peak indicator of the device.

For each peak indicator there is a max. and a min. value.

In addition, the current value is displayed.

- Peak indicator, electronic temperature
- Peak indicator measuring cell temperature
- Peak indicator resonance frequency

In this window you can also reset each of the three peak indicator individually.

Measured values

In this menu item you can retrieve the current measured values of the device.

Measured values
Here you can view the current coverage status of the device (covered/uncovered).

Additional measured values
Here you can find additional measured values of the device.

- Electronic temperature (°C/°F)
- Measuring cell temperature (°C/°F)
- Resonance frequency (%)

Outputs
Here you can retrieve the current switching status of the output (closed/open).

- Output

Function test

In this menu item you can start an annual function test according to WHG.

The function test serves as proof of the recurring test in accordance with the approval for overfill protections.

The function test is only active if the device has WHG approval.

In order to output the complete documentation, the function test is only possible in PACTware.

Further information can be found in the approval documentation according to WHG.

Note:
Note that the measuring function of the sensor is disabled for the duration of the function test and that downstream devices are activated during the function test.

Start the function test by clicking the button "*Start proof test*".

Check the correct reaction of the output and the downstream devices. During the function test, the 360° status display flashes red.

After the function test has been completed, you can save a PDF file containing all device data and adjustment parameters at the time of the function test.

Simulation

In this menu item you can simulate the function of the two switching outputs separately.

Note:
Make sure the connected downstream devices are activated during the simulation.

First select the desired switching output and start the simulation.

Then select the desired switching state.

- Open
- Closed

Click on the button "Accept simulation value".

The sensor now switches to the desired simulation switching status.

During simulation, the LED display flashes in the colour of the selected switching status.

A simulation of the fault status is not possible.

To cancel the simulation, click on "Terminate simulation".

Note:
Without manual deactivation, the sensor terminates the simulation automatically after 60 minutes.

Customer service

In this menu item you can find all service numbers and your respective contact person.

- Service phone
- 24 h hotline
- Message to the customer service
- Contact person

With the function *Message to the customer service* you can send an e-mail to the service department.

Your contact persons are only visible if you are logged in.

Impedance curve

In this menu item you can see the impedance curve of the device.

The impedance curve gives information about the switching behaviour of the sensor.

At the lowest point of the black curve is the current switching point (resonance point).

Sensor information

In this menu item you can retrieve the sensor information of the device.

- Device name
- Serial number
- Hardware version
- Software version
- Factory calibration date
- Device Revision
- Sensor acc. to WHG

Sensor characteristics

In this menu item you can retrieve the sensor features of the device.

This menu item can only be selected via PACTware with DTM.

- Order texts
- Instrument version
- Electronics
- etc.

8 Setup with smartphone/tablet (Bluetooth)

8.1 Preparations

System requirements

Make sure that your smartphone/tablet meets the following system requirements:

- Operating system: iOS 13 or newer
- Operating system: Android 8.0 or newer
- Bluetooth 4.0 LE or newer

Download the VEGA Tools app from the "*Apple App Store*", "*Google Play Store*" or "*Baidu Store*" to your smartphone or tablet.

8.2 Connecting

Connecting

Start the adjustment app and select the function "*Setup*". The smartphone/tablet searches automatically for Bluetooth-capable instruments in the area.

The message "*Connecting*" is displayed.

The devices found are listed and the search is automatically continued.

Select in the device list the requested device.

As soon as the Bluetooth connection to a device is established, the LED display of the device in question flashes blue 4 times.

Authenticate

When establishing the connection for the first time, the operating tool and the sensor must authenticate each other. After the first correct authentication, each subsequent connection is made without a new authentication query.

Enter Bluetooth access code

For authentication, enter the 6-digit Bluetooth access code in the next menu window. You can find the code on the outside of the device housing and on the information sheet "*PINs and Codes*" in the device packaging.

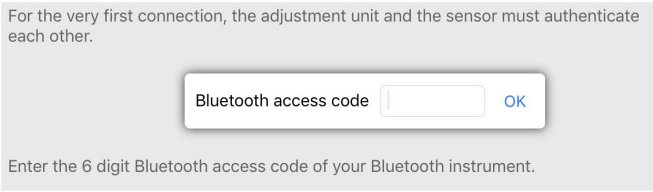

Fig. 14: Enter Bluetooth access code

Note:
If an incorrect code is entered, the code can only be entered again after a delay time. This time gets longer after each incorrect entry.

The message "*Waiting for authentication*" is displayed on the smartphone/tablet.

Connected

After connection, the sensor adjustment menu is displayed on the respective adjustment tool.

If the Bluetooth connection is interrupted, e.g. due to a too large distance between the two devices, this is displayed on the adjustment tool. The message disappears when the connection is restored.

Change device code

Parameter adjustment of the device is only possible if the parameter protection is deactivated. When delivered, parameter protection is deactivated by default and can be activated at any time.

It is recommended to enter a personal 6-digit device code. Go to the menu "*Extended functions*", "*Access protection*", menu item "*Protection of the parameterization*".

8.3 Sensor parameter adjustment

Enter parameters

The sensor adjustment menu is divided into two halves:

On the left you'll find the navigation section with the menus "*Setup*", "*Diagnosis*" and others.

The selected menu item, recognisable by the colour change, is displayed in the right half.

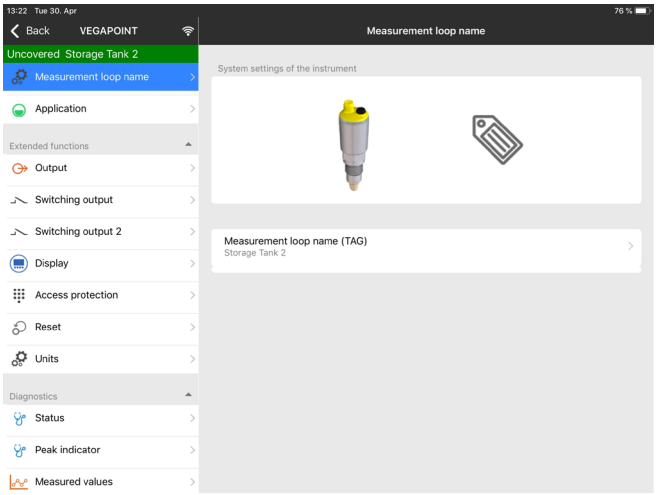

Fig. 15: Example of an app view - Setup

9 Setup with PC/notebook (Bluetooth)

9.1 Preparations

System requirements

Make sure that your PC/notebook meets the following system requirements:

- Operating system Windows 10 or newer
- DTM Collection 10/2020 or newer
- Bluetooth 4.0 LE or newer

Activate Bluetooth connection

Activate the Bluetooth connection via the project assistant.

Note:
Older systems do not always have an integrated Bluetooth LE. In these cases, a Bluetooth USB adapter is required. Activate the Bluetooth USB adapter using the Project Wizard.

After activating the integrated Bluetooth or the Bluetooth USB adapter, devices with Bluetooth are found and created in the project tree.

9.2 Connecting

Connecting

Select the requested device for the online parameter adjustment in the project tree.

As soon as the Bluetooth connection to a device is established, the LED display of the device in question flashes blue 4 times.

Authenticate

When establishing the connection for the first time, the operating tool and the device must authenticate each other. After the first correct authentication, each subsequent connection is made without a new authentication query.

Enter Bluetooth access code

For authentication, enter in the next menu window the 6-digit Bluetooth access code:

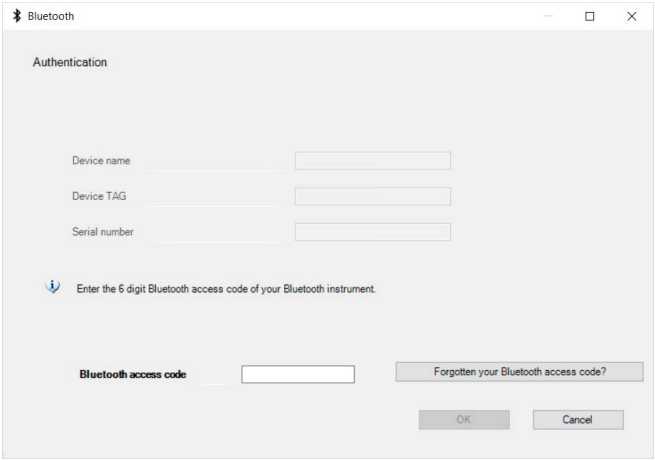

Fig. 16: Enter Bluetooth access code

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You can find the code on the outside of the device housing and on the information sheet "*PINs and Codes*" in the device packaging.

Note:
If an incorrect code is entered, the code can only be entered again after a delay time. This time gets longer after each incorrect entry.

The message "*Waiting for authentication*" is displayed on the PC/notebook.

Connected

After connection, the device DTM appears.

If the connection is interrupted, e.g. due to a too large distance between device and adjustment tool, this is displayed on the adjustment tool. The message disappears when the connection is restored.

Change device code

Parameter adjustment of the device is only possible if the parameter protection is deactivated. When delivered, parameter protection is deactivated by default and can be activated at any time.

It is recommended to enter a personal 6-digit device code. Go to the menu "*Extended functions*", "*Access protection*", menu item "*Protection of the parameterization*".

9.3 Sensor parameter adjustment

Enter parameters

The sensor adjustment menu is divided into two halves:

On the left you'll find the navigation section with the menus "*Setup*", "*Display*", "*Diagnosis*" and others.

The selected menu item, recognisable by the colour change, is displayed in the right half.

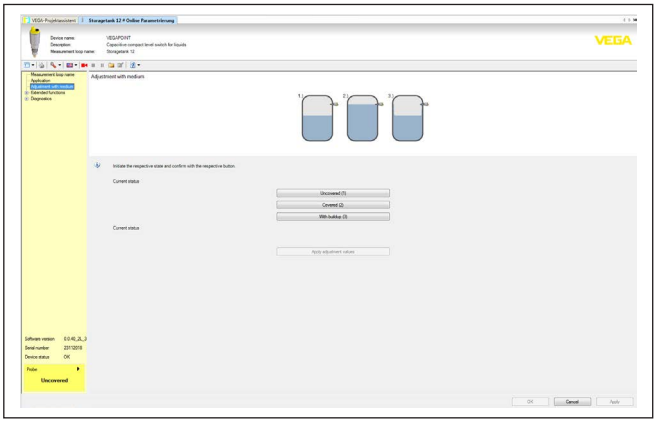

Fig. 17: Example of a DTM view - Setup

10 Diagnostics and servicing

10.1 Maintenance

Wartung

Bei bestimmungsgemäßer Verwendung ist im Normalbetrieb keine besondere Wartung erforderlich.

Reinigung

Die Reinigung trägt dazu bei, dass Typschild und Markierungen auf dem Gerät sichtbar sind.

Beachten Sie hierzu folgendes:

- Nur Reinigungsmittel verwenden, die Gehäuse, Typschild und Dichtungen nicht angreifen, z. B. ein mit Wasser getränktes Tuch
- Nur Reinigungsmethoden einsetzen, die der Geräteschutzart entsprechen

10.2 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 measures are:

- Evaluation of fault messages
- Checking the output signal
- Treatment of measurement errors

A smartphone/tablet with the adjustment app or a PC/notebook with the software PACTware and the suitable DTM offer you further comprehensive diagnostic possibilities. In many cases, the causes can be determined in this way and the malfunctions eliminated.

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.

24 hour service hotline

Should these measures not be successful, please call in urgent cases the VEGA service hotline under the phone no. **+49 1805 858550**.

The hotline is manned 7 days a week round-the-clock.

Since we offer this service worldwide, the support is provided in English. The service itself is free of charge, the only costs involved are the normal call charges.

10.3 Diagnosis, fault messages

Checking the switching signal

The 360° status indication on the device indicates the operating status of the device (display according to NE 107). At the same time it

indicates the switching state of the output. This enables simple on-site diagnosis without the need for tools.

Error	Cause	Rectification
Green signal lamp off	Voltage supply interrupted.	Check voltage supply and cable connection
	Electronics defective	Exchange the instrument or send it in for repair
Green signal lamp flashes	Maintenance required	Carry out maintenance
Red signal lamp lights (switching output high-impedance)	Error with the electrical connection	Connect device according to wiring plan
	Shortcircuit or overload	Check electrical connection
	Measuring tip damaged	Check whether the measuring tip is damaged
Red signal lamp flashes (switching output high-impedance)	Sensor outside the specification	Check sensor adjustment Switching points may be interchanged
	Sensor is in simulation mode	Terminate simulation mode

Error messages

Information:
You can find the current device status and possibly an error code in the operating app under Diagnosis - Status - Device Status.

Failure/Error **Red control lamp lights up**		
Error	**Cause**	**Rectification**
F013	no measured value available	Error in the electronics Restart instrument If the error occurs again, replace the device
F036	no operable sensor software	Software update aborted or faulty Repeat software update
F080	General software error	Restart instrument
F105	Measured value is determined	Device is still in the switch-on phase Wait until the device is ready for operation
F111	Switching points interchanged	Repeat sensor adjustment The switching point (SP) must be smaller than the reset point (RP)
F260	Error in the calibration	Repeat device adjustment
F261	Error in the instrument settings	Carry out device reset Reset device to delivery status

Out of specification **Red signal lamp flashes**		
Error	**Cause**	**Rectification**
S600	Electronics temperature too high	Error in the electronics Allow device to cool down and restart If the error occurs again, check the ambient temperature

Out of specification Red signal lamp flashes		
Error	**Cause**	**Rectification**
S604	Overload on output	Switching output overloaded Check electrical connection Reduce switching load

Maintenance required Green signal lamp flashes		
Error	**Cause**	**Rectification**
M511	Inconsistent software	Software faulty Carry out software update

Function check Red signal lamp flashes		
Error	**Cause**	**Rectification**
C700	Simulation active	Terminate simulation mode

10.4 Status messages according to NE 107

The instrument has self-monitoring and diagnosis according to NE 107 and VDI/VDE 2650. In addition to the status messages in the following tables there are more detailed error messages available under the menu item "*Diagnostics*" via DTM or app.

Status messages

The status messages are divided into the following categories:

- Failure
- Function check
- Out of specification
- Maintenance required

and explained by pictographs:

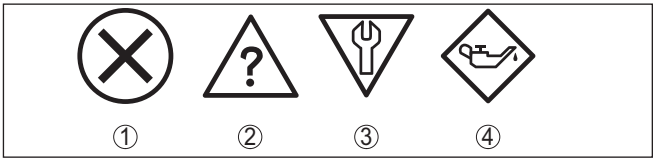

Fig. 18: Pictographs of the status messages

1 Failure - red
2 Out of specification - yellow
3 Function check - orange
4 Maintenance required - blue

Failure:

Due to a malfunction in the instrument, a fault signal is output.

This status message is always active. It cannot be deactivated by the user.

Function check:
The instrument is being worked on, the measured value is temporarily invalid (for example during simulation).

This status message is inactive by default.

Out of specification:
The measured value is unreliable because an instrument specification was exceeded (e.g. electronics temperature).

This status message is inactive by default.

Maintenance required:
Due to external influences, the instrument function is limited. The measurement is influence, however the measured value is still valid. Plan instrument for maintenance because failure must be expected in the near future (for example due to buildup).

This status message is inactive by default.

Failure

Code Text message	Cause	Rectification
F013 no measured value available	Error in capacitive measurement	Send instrument for repair
F036 No operable software	Wrong software type Software update not successful or aborted	Repeat software update
F080 General software error	Software error	Restart instrument
F105 Measured value is determined	Device is still in the switch-on phase	Wait for the end of the switch-on phase
F260 Error in the calibration	Error in the calibration carried out in the factory Error in the EEPROM	Send instrument for repair
F261 Error in the instrument settings	Checksum error in the configuration values	Carry out a reset

Function check

Code Text message	Cause	Rectification
C700 Simulation active	A simulation is active	Finish simulation Wait for the automatic end after 60 mins.

Out of specification

Code Text message	Cause	Rectification
S600 Impermissible electronics temperature	Temperature of the electronics in the non-specified range	Check ambient temperature Insulate electronics
S604 Switching output overloaded	Overload or short circuit on the switching output	Check electrical connection

Maintenance

Code Text message	Cause	Rectification
M511 Inconsistent software configuration	Software faulty or outdated	Carry out software update

10.5 Software update

The device software is updated via Bluetooth.

The following components are required:

- Instrument
- Voltage supply
- PC/notebook with PACTware/DTM and Bluetooth USB adapter
- Current instrument software as file

You can find the current instrument software as well as detailed information on the procedure in the download area of our homepage: **www.vega.com**.

Caution:
Instruments with approvals can be bound to certain software versions. Therefore make sure that the approval is still effective after a software update is carried out.

You can find detailed information in the download area at **www.vega.com**.

10.6 How to proceed if a repair is necessary

On our homepage you will find detailed information on how to proceed in the event of a repair.

So that we can carry out the repair quickly and without queries, generate a instrument return form there with the data of your device.

The following is required:

- The serial number of the instrument
- A short description of the fault
- Where applicable, details of the medium and process conditions

Print the generated instrument return form.

Clean the instrument and pack it damage-proof.

Send the printed instrument return form and possibly a safety data sheet together with the device.

You will find the address for the return on the generated instrument return form.

11 Dismount

11.1 Ausbauschritte

Führen Sie zum Ausbau des Gerätes die Schritte der Kapitel "*Montieren*" und "*An die Spannungsversorgung anschließen*" sinngemäß umgekehrt durch.

Warning:
Achten Sie beim Ausbau auf die Prozessbedingungen in Behältern oder Rohrleitungen. Es besteht Verletzungsgefahr z. B. durch hohe Drücke oder Temperaturen sowie aggressive oder toxische Medien. Vermeiden Sie dies durch entsprechende Schutzmaßnahmen.

11.2 Entsorgen

Führen Sie das Gerät einem spezialisierten Recyclingbetrieb zu und nutzen Sie dafür nicht die kommunalen Sammelstellen.

Entfernen Sie zuvor eventuell vorhandene Batterien, sofern sie aus dem Gerät entnommen werden können und führen Sie diese einer getrennten Erfassung zu.

Sollten personenbezogene Daten auf dem zu entsorgenden Altgerät gespeichert sein, löschen Sie diese vor der Entsorgung.

Sollten Sie keine Möglichkeit haben, das Altgerät fachgerecht zu entsorgen, so sprechen Sie mit uns über Rücknahme und Entsorgung.

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12 Certificates and approvals

12.1 Radio licenses

Bluetooth
Das Bluetooth-Funkmodul im Gerät wurde nach der aktuellen Ausgabe der zutreffenden landesspezifischen Normen bzw. Standards geprüft und zugelassen.

Die Bestätigungen sowie Bestimmungen für den Einsatz finden Sie im mitgelieferten Dokument "*Funktechnische Zulassungen*" bzw. auf unserer Homepage.

12.2 Approvals as overfill protection

Approved versions for use as part of an overfill protection system are available or in preparation for the device or the device series.

The corresponding approvals can be found on our homepage.

12.3 Food and pharmaceutical certificates

Versions for use in the food and pharmaceutical industries are available or in preparation for the device or the device series.

The corresponding certificates can be found on our homepage.

12.4 Conformity

Das Gerät erfüllt die gesetzlichen Anforderungen der zutreffenden landesspezifischen Richtlinien bzw. technischen Regelwerke. Mit der entsprechenden Kennzeichnung bestätigen wir die Konformität.

Die zugehörigen Konformitätserklärungen finden Sie auf unserer Homepage.

Electromagnetic compatibility
The instruments are designed for use in an industrial environment. Nevertheless, electromagnetic interference from electrical conductors and radiated emissions must be taken into account, as is usual with class A instruments according to EN 61326-1.

When the device is mounted in metal containers or tubes, the interference resistance requirements of IEC/EN 61326 for "Industrial environment" and the NAMUR recommendation EMC (NE 21) are met.

If the instrument is used in a different environment, the electromagnetic compatibility to other instruments must be ensured by suitable measures.

12.5 Environment management system

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Help us to meet these requirements and observe the environmental instructions in the chapters "*Packaging, transport and storage*", "*Disposal*" of this instructions manual.

13 Supplement

13.1 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.

Materials and weights

Material 316L corresponds to 1.4404	
Materials, wetted parts	
– Sensor tip	PEEK, polished
– Device seal - Standard version	FKM
– Device seal - Hygienic version	EPDM
– Process seal	Klingersil C-4400
– Process fittings	316L
Materials, non-wetted parts	
– Electronics housing	316L and plastic (Valox and polycarbonate)
– Device seal - hygiene version AC and AM (not in contact with the medium)	EPDM
– Seal plug	NBR
Weight	approx. 250 g (0.55 lbs)

General data

Process fittings	
– Pipe thread, cylindrical (DIN 3852-A) or ISO 228-1	G½, G¾, G1
– Pipe thread, conical (ASME B1.20.1)	½ NPT, ¾ NPT, 1 NPT
– Metric fine thread, cylindrical	M24 x 1.5
– Clamp	1", 1½", 2"
– Collar socket DIN 11851, PN 40	DN 25, DN 32, DN 40
– Hygienic fitting	RD 52 PN 25 with union nut
– Varivent	N50-40 PN 25, F25 PN 25
Threaded and hygienic adapter	
– Standard hygienic adapter	G½, G1 Other connections via hygiene adapters possible
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)
– Hygienic adapter	20 Nm (15 lbf ft)

Surface quality	R_a < 0.76 µm (3.00^{-5} in)

Measurement accuracy	
Hysteresis	± 1 mm (0.04 in)
Switching delay	≤ 500 ms (on/off)
	Adjustable: 0.5 … 60 s
Repetitive accuracy	± 1 mm (± 0.04 in)

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

Mechanical environmental conditions	
Sinusoidal oscillations according to EN 60068-2-6 (vibration at resonance)	4M8 (5 g) at 4 … 200 Hz
Impacts	50 g, 2.3 ms according to EN 60068-2-27 (mechanical shock)
Impact resistance	IK07 acc. to IEC 62262

Process conditions	
Process pressure	-1 … 25 bar/-100 … 2500 kPa (-14.5 … 363 psig)
Process temperature	-40 … +115 °C (-40 … +239 °F)
SIP process temperature (SIP = Sterilization in place)	
Vapour stratification up to 1 h	+135 °C (+275 °F)
Dielectric constant	≥ 1.5

Indication (NE 107)	
360° status indication (LED)	
– Green	Power supply on - Output 1 open
– Yellow	Power supply on - Output 1 closed
– Red	Voltage supply on - Malfunction/simulation

Adjustment	
Adjustment possibilities	App (Android/OS), PACTware/DTM

Output variable - Transistor output	
Output	Transistor output NPN/PNP
Load current	max. 250 mA (output, permanently short-circuit proof)
Voltage loss	< 3 V
Switching voltage	< 34 V DC
Blocking current	< 10 µA

Voltage supply	
Operating voltage	12 … 35 V DC

Max. power consumption	1 W
Reverse polarity protection	Integrated
Max. power consumption	1 W

Bluetooth radio interface

Bluetooth standard	Bluetooth 5.0
Frequency	2.402 … 2.480 GHz
Max. emitted power	+2.2 dBm
Max. number of participants	1
Effective range[4)]	up to 50 m (164 ft)

Electromechanical data

Valve plug ISO 4400	
– Wire cross-section	1.5 mm² (0.06 in²)
– Outer cable diameter	4.5 … 7 mm (0.18 … 0.28 in)
Valve plug ISO 4400 with hinged cover	
– Wire cross-section	1.5 mm² (0.06 in²)
– Outer cable diameter	4.5 … 11 mm (0.18 … 0.43 in)

Electrical protective measures

Potential separation	Electronics potential free up to 500 V AC
Protection class	

Connection technology	Protection according to EN 60529/IEC 529	Protection according to UL 50
Plug according to ISO 4400	IP65	NEMA 4X
ISO 4400 plug with hinged cover	IP65	NEMA 4X

Altitude above sea level	up to 5000 m (16404 ft)
Protection rating	III
Pollution degree	4

4) Depending on the local conditions

13.2 Dimensions

VEGAPOINT 21, standard version - thread

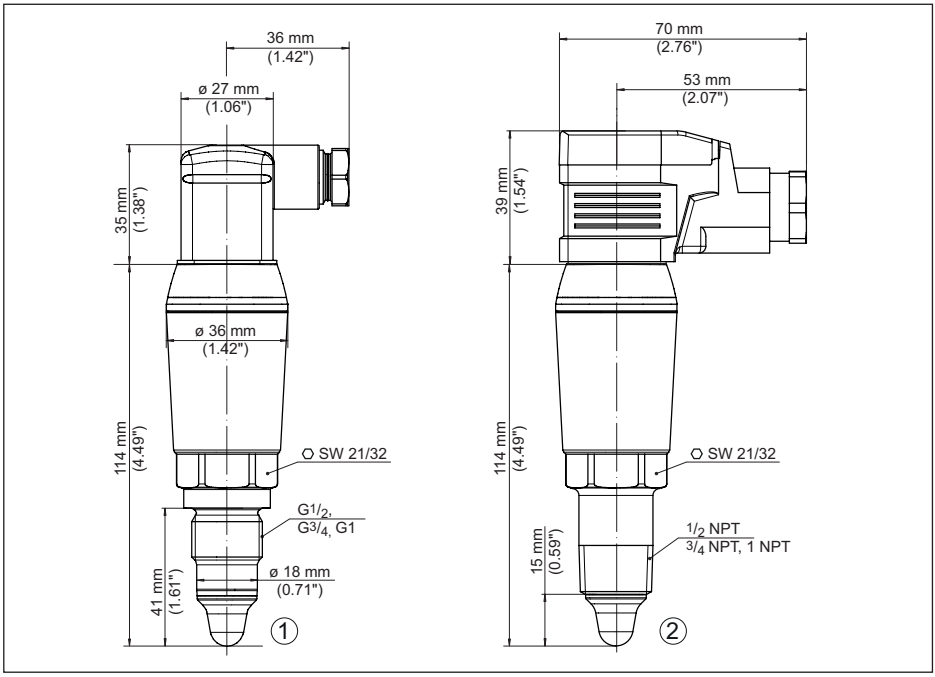

Fig. 19: VEGAPOINT 21, standard version - thread with valve plugs acc. to ISO 4400

1 Thread G½, G¾, G1 (DIN ISO 228/1) with ISO 4400 valve plug
2 Tread ½ NPT, ¾ NPT, 1 NPT with ISO 4400 valve plug with hinged cover

VEGAPOINT 21, hygienic version - Thread

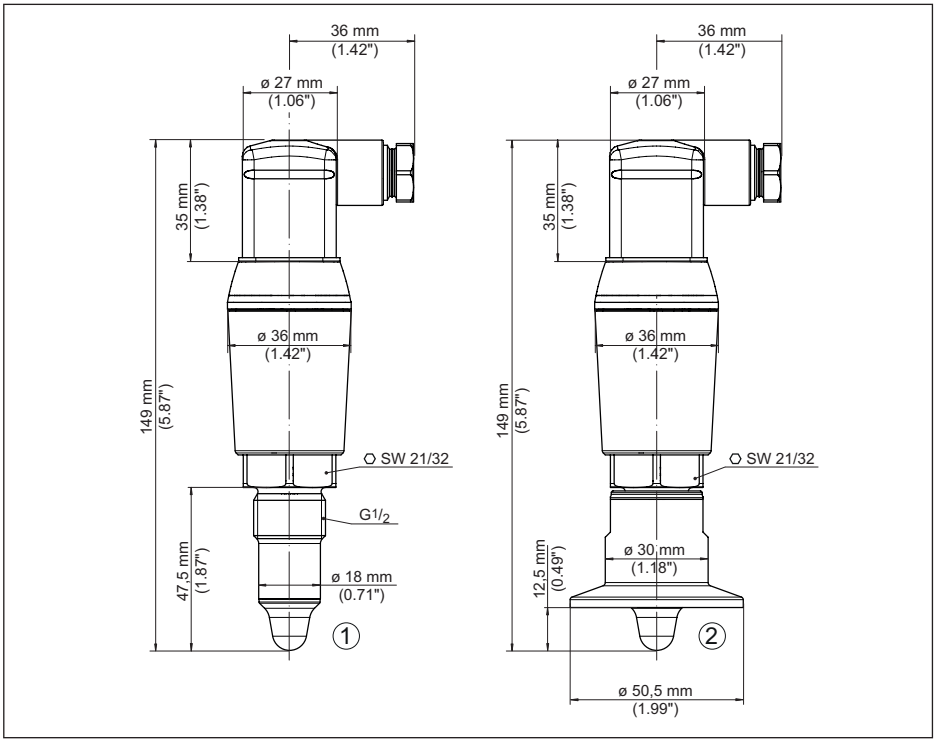

Fig. 20: VEGAPOINT 21, hygienic version - thread with ISO 4400 plug

1 Thread G½ for hygienic threaded adapter (DIN ISO 228/1) with ISO 4400 plug connection
2 VEGAPOINT 21, hygienic version in threaded adapter, Clamp

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13.5 Warenzeichen

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