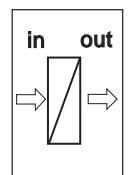
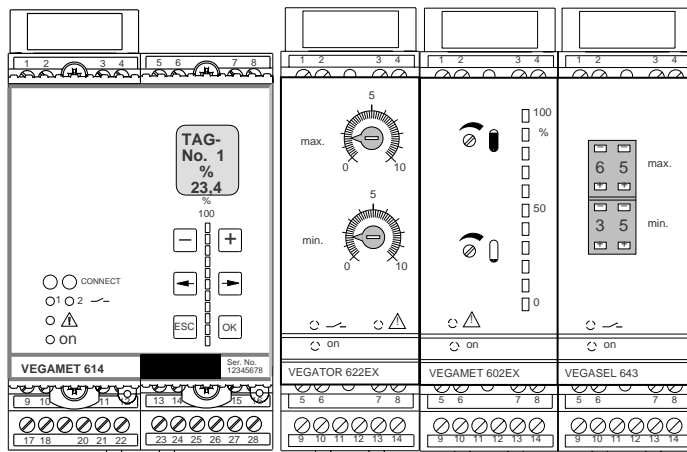


Product Information

Signal conditioning instruments series 600



Contents

1	Product description	3
2	Function and application	
2.1	Function, adjustment	5
	VEGATOR 620 ... 622 level detection	5
	VEGAMET 601 ... 602 - continuous measurement	6
	VEGAMET 614, 614 V - continuous measurement	7
	VEGASEL 643 - auxiliary level switches	9
	VEGASTAB 690 - power supply	9
2.2	Measuring system, application example	10
3	Types and versions	
3.1	Differences	14
3.2	Survey	15
3.3	Technical data	18
3.4	Dimensions	27
4	Mounting and installation instructions	28
5	Electrical connection	
5.1	Connection instructions	29
5.2	Connection instructions for approved applications	29
5.3	Connection plans	30
5.4	Extension examples	32
6	Order code	
6.1	VEGATOR	34
6.2	VEGAMET	34
6.3	VEGASEL	34
6.4	VEGASTAB	34

1 Product description

With series 600 you have a wide spectrum of efficient instruments with plug-in socket. These instruments are suitable for connection to

- capacitive electrodes
- hydrostatic pressure transmitters
- ultrasonic sensors
- radar sensors
- process pressure transmitters
- differential pressure transmitters.

The signal conditioning instruments power the connected sensors, process their measuring data and provide the processing results via different outputs for further processing.

According to the instrument composition:

- levels
- continuous levels
- process pressures and
- distances

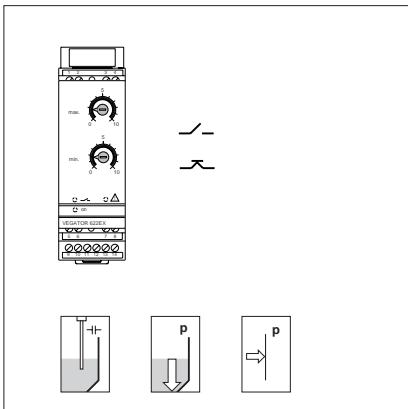
can be measured.

All instruments are provided with a plug-in socket with integral terminals and plug connectors for power supply. Signal conditioning instrument and plug-in socket can be connected in series and are very space-saving. The plug-in sockets are designed for carrier rail mounting with snap-in fastening (carrier rail 35 x 7,5 EN 50 022).

VEGATOR 620 ... 622

Level detection with

- capacitive electrodes,
- hydrostatic pressure transmitters or
- process pressure transmitters.

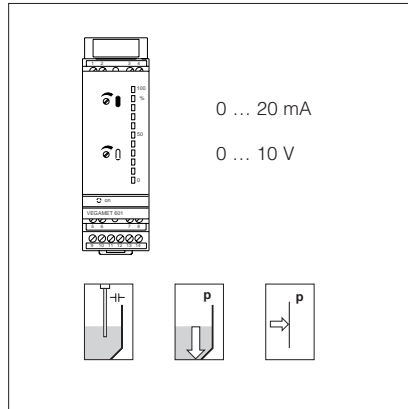


VEGATOR ...

VEGAMET 601 ... 602

Continuous level measurement with

- capacitive electrodes
- hydrostatic pressure transmitters or
- process pressure transmitters.

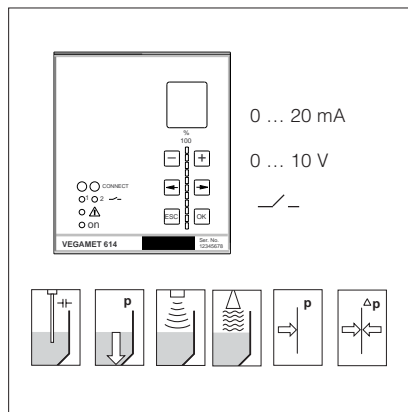


VEGAMET 601 ... 602

VEGAMET 614

Continuous level measurement with

- capacitive electrodes
- hydrostatic pressure transmitters
- ultrasonic sensors with analogue output
- radar sensors with analogue output
- process pressure transmitters
- differential pressure transmitters

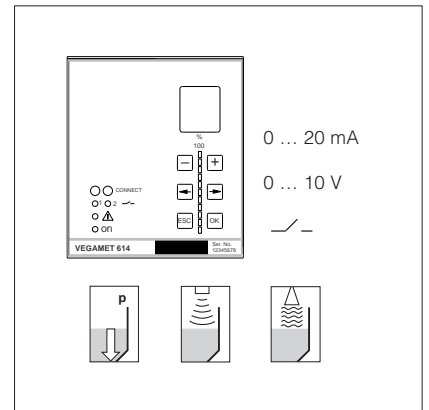


VEGAMET 614

VEGAMET 614 V

Continuous level measurement with VBUS-sensors:

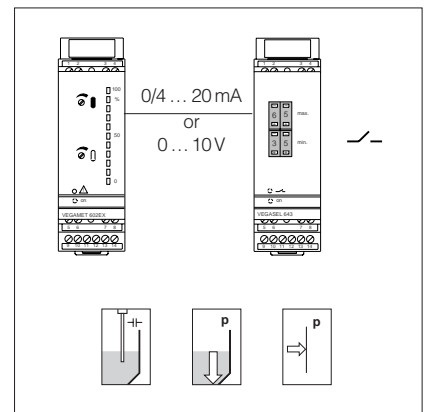
- hydrostatic pressure transmitters
- ultrasonic sensors
- radar sensors



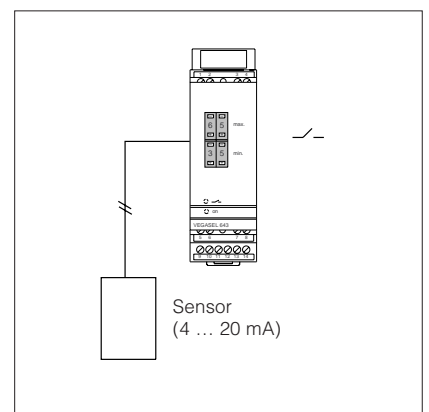
VEGAMET 614 V

VEGASEL 643

Auxiliary level switch for connection to VEGAMET... or sensors (4 ... 20 mA)



Auxiliary level switch



Sensor with VEGASEL 643

VEGASTAB 690

Power supply unit for sensor supply.

User advantages

- Compact, narrow-space series, 36 mm width (VEGAMET 614 and 614 V: 72 mm)
- Mounting on DIN carrier rail
- Version for multiple range power supply unit 20 ... 250 V AC, 20 ... 72 V DC (VEGAMET 614 V: 90 ... 250 V AC)
- Sensor supply and signal transmission via a two-wire line
- Universal signal conditioning instruments for various sensor types
- Easy adjustment
- Fault monitoring
- Potential separation between inputs, outputs and supply
- Approvals acc. to CENELEC, WHG and GL

Approvals

If measuring systems are mounted according to the following approvals, the appropriate legal documents must be noted and the regulations must be absolutely observed. The documents are supplied with the appropriate measuring system.

WHG-approval

Signal conditioning instruments together with capacitive electrodes or pressure transmitters as part of an overfill protection acc. to Water Resources Law.

Ex-approval 

For measuring systems in hazardous areas, certification acc. to CENELEC.

CE-approval 

Signal conditioning instruments see "3.3 Technical data".

2 Function and application

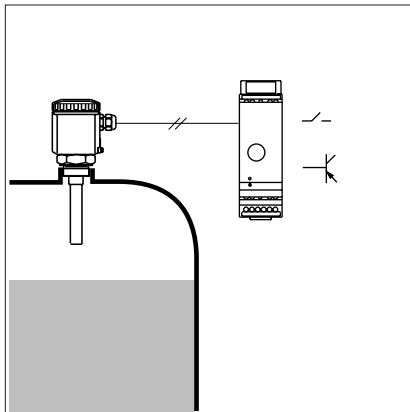
2.1 Function, adjustment

VEGATOR 620 ... 622 level detection

Function

The level detection indicates when certain levels or pressure values are reached.

These levels or pressure values are detected by a sensor and converted by the connected signal conditioning instrument VEGATOR... into switching commands. The switching commands are provided via relay and transistor outputs.



Level detection with VEGATOR and a capacitive electrode

Sensor and signal conditioning instrument form together a measuring system.

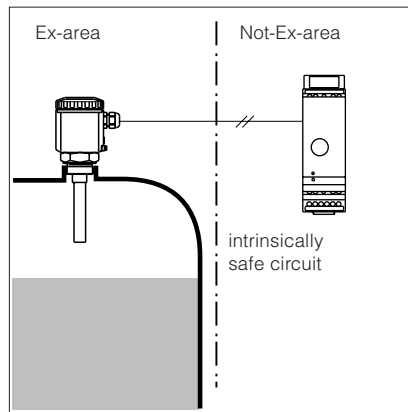
Due to this combination of sensor and signal conditioning instrument, a number of applications in level and pressure measurement can be realized.

With level detection a main difference is made between single point level switches with fixed hysteresis and two-point level switches with adjustable hysteresis.

Single point level switches are normally used for applications such as protection against dry running of pumps or in overflow protections as min. or max. switches.

Two-point level switches control the automatic filling and emptying of a vessel between two adjustable levels.

In conjunction with approved sensors, level detection in hazardous areas acc. to CENELEC and acc. to ElexV Ex-Zone 0 as well as overflow protections acc. to WHG are possible. Overflow protections signal when a defined level in the vessel is reached and interrupt the filling procedure.



Level detection in Ex-area

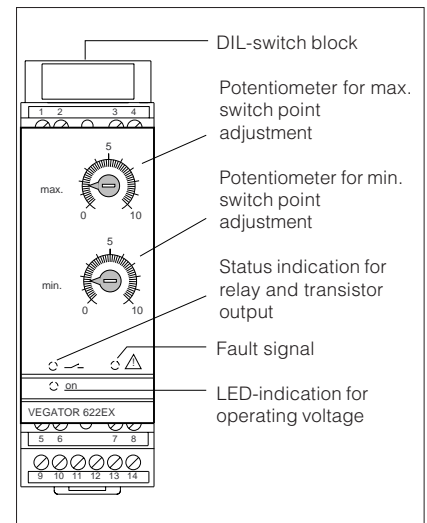
Safety

The integral fault monitoring detects shortcircuit or line break in the sensor line. If such a failure is detected, the relay de-energizes, the output transistor blocks and the failure-LED in the front plate lights up (not with VEGATOR 620).

Adjustment

The signal conditioning instrument is equipped with the following indicating and adjustment elements:

- one or two potentiometers on the front plate for adjustment of the switch points
- an LED (yellow) for status indication of the relay and transistor output (LED lights = relay energized, transistor conductive. LED extinguished = relay de-energized, transistor blocked)
- an LED (green) for indication operating voltage "on"
- an LED (red) failure indication (not with VEGATOR 620)
- a DIL-switch block mounted laterally on top for
 - A/B-mode
 - switch on delay
 - switch off delay
 - integration time



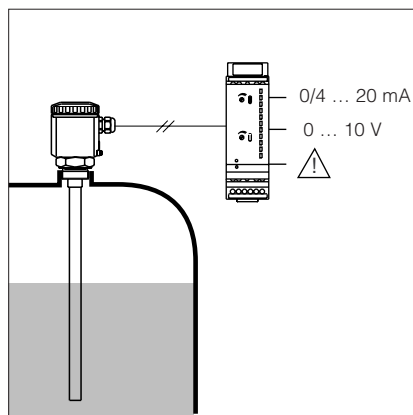
Adjustment and indicating elements in the front plate of VEGATOR 622 Ex

VEGAMET 601 ... 602 - continuous measurement

Function

With continuous measurement, the appropriate level or pressure is detected by a sensor and processed in the signal conditioning instrument into level or pressure proportional measuring results.

Current and voltage outputs are available as processing results.



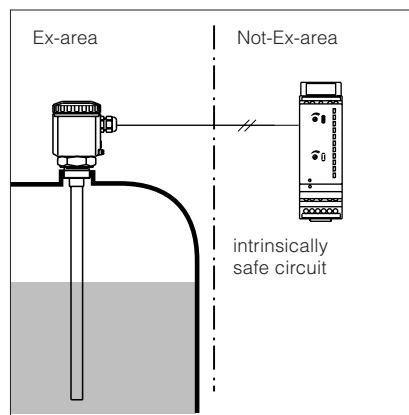
Continuous level measurement with VEGAMET and a capacitive electrode

Due to the combination possibility of different sensors and signal conditioning instruments, a number of applications in level and pressure measurement are possible.

Sensor and signal conditioning instrument form together a measuring system.

The signal conditioning instruments for continuous measurements can be adjusted to the min. and max. level or to the pressure condition. The defined span corresponds to a range of 0 % ... 100 %.

In conjunction with approved sensors, continuous measurements in hazardous areas acc. to CENELEC and ElexV Ex-Zone 0 as well as overflow protections acc. to WHG are possible. Overflow protections signal when a defined level in the vessel is reached and interrupt the filling procedure.



Level measurement in Ex-area

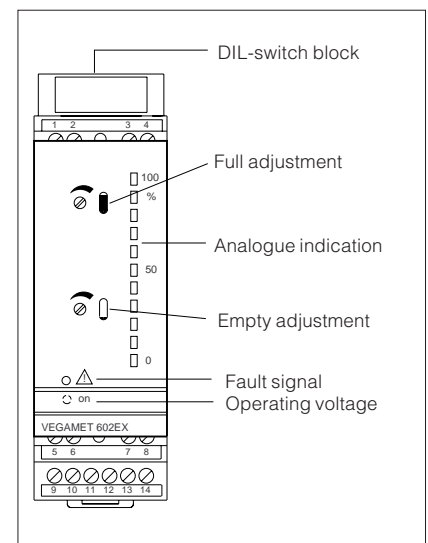
Safety

The integral fault monitoring detects shortcircuit or line break in the sensor line. If such a failure is detected, the current and voltage output is switched over to failure information (i.e. > 22 mA and > 11 V). The fail safe relay and the failure LED in the front plate light (not with VEGAMET 601).

Adjustment

The signal conditioning instrument is equipped with the following indicating and adjustment elements:

- a potentiometer on the front plate for adjustment of the empty adjustment
- an additional potentiometer for full adjustment
- an analogue indication 11-digit range 0 % ... 100 %
- an LED (green) for operation operating voltage "on"
- an LED (red) failure indication (not with VEGAMET 601)
- a DIL-switch block mounted laterally on top for
 - current output 4 ... 20 mA or 0 ... 20 mA
 - integration time



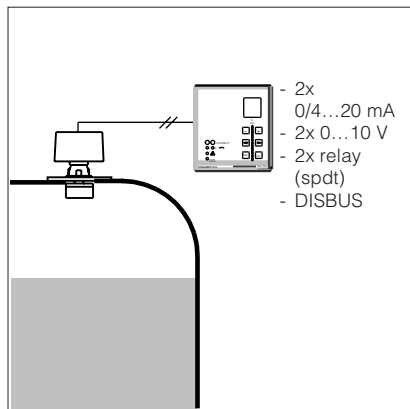
Adjustment and indicating elements in the front plate of VEGAMET 601

VEGAMET 614, 614 V - continuous measurement

Function

With the continuous measurement, the appropriate level, pressure or distance is detected by a sensor and converted in the signal conditioning instrument in level, pressure or distance dependent values.

A sensor with a 4 ... 20 mA-signal is connected to VEGAMET 614. A sensor with a digital output signal (VBUS) is connected to VEGAMET 614 V. In both cases the sensor is powered by VEGAMET.



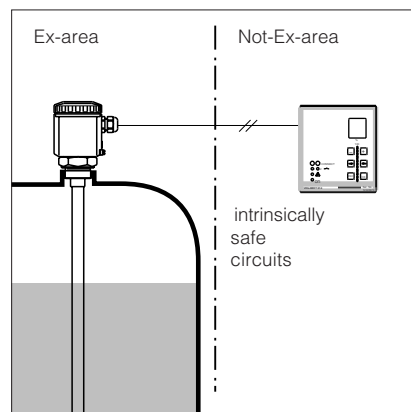
Continuous level measurement with VEGAMET 614 V and an ultrasonic sensor

The following outputs are available:

- a current output (VEGAMET 614 V: two current outputs)
- a voltage output (VEGAMET 614 V: two voltage outputs)
- a LCD with text indication
- two relay outputs
- a fail safe relay
- a DISBUS-output.

The DISBUS-output can be used to connect several VEGAMET and to transfer their output signals via an interface converter VEGACONNECT to a DCS. In addition the DISBUS can transfer measured value signals to external indicating instruments VEGADIS 174 (see "5.4 Extension examples").

With VEGAMET 614 Ex in conjunction with approved sensors, continuous measurements in hazardous areas acc. to CENELEC and ElexV Ex-Zone 0 are possible.



Level measurement with VEGAMET 614 Ex and capacitive electrode in Ex-area

The following functions are available with the signal conditioning instruments:

- adjustment with medium
- adjustment without medium
- adjust integration time (max. 600 s)
- simulation
- switch over current outputs (4/20 mA, 0/20 mA, 20/4 mA, 20/0 mA, individual values between 0 and 20 mA)
- switch over Volt output (2/10 V, 0/10 V, 10/2 V, 10/0 V, individual values between 0 and 10 V)
- relay mode: overfill protection, protection against dry running of pumps, tendency determination, switching window
- scaling (display)
- modify menu languages in display (D, GB, F, I, NL)

- activate/deactivate password
- modify Tag name
- reset TAG to default
- edit linearisation curves
- modify application (e.g. level - gauge)
- choose different parameters for outputs (percent, volume etc.)
- define condition of outputs in case of failure
- adapt VEGAMET to sensor characteristics values
- switch on/off current/Volt limitation
- offset correction during adjustment
- manual offset correction
- manual real value correction
- info indication

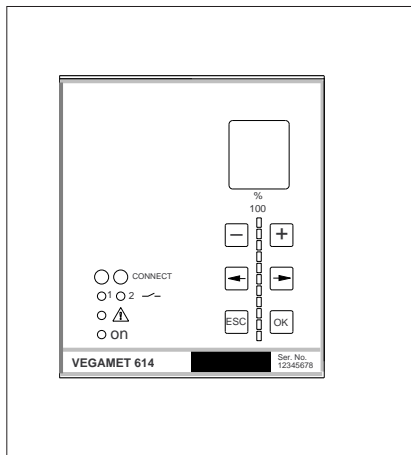
Safety

The integral fault monitoring detects a shortcircuit or line break of the sensor line. If such a failure is detected, the current and voltage output is switched to failure information. The fail safe relay de-energizes and the failure LED in the front plate lights.

Manual adjustment

The adjustment of the signal conditioning instrument is made via six keys in conjunction with text indication. The following adjustment and indicating elements are available:

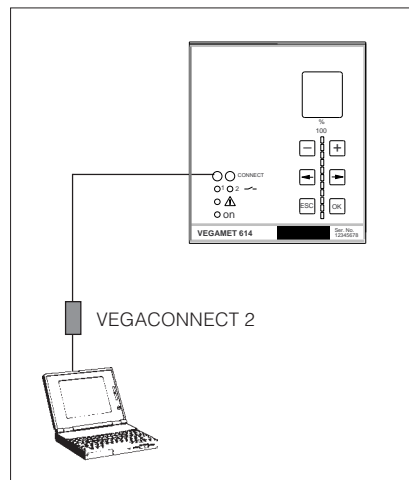
- LCD-indication of measured value, menu point, parameter
- [-], [+] -key: Dependant on the menu point, modify value or choose out of a list
- Arrow keys: Choose menu point
- [ESC]-key: Dependant on the menu point, interrupt adjustment or change to the upper menu
- [OK]-key: Dependant on the menu point, save the adjusted value or change to the lower menu
- LED yellow: Switching condition of the operating relays
- LED red: Fault signal
- LED green: Supply voltage



Adjustment and indicating elements in the front plate of VEGAMET 614

Adjustment with PC

The signal conditioning instrument can be also adjusted with a PC. The adjustment software VEGA Visual Operating (VVO) and the interface converter VEGACONNECT 2 are required. All functions which are adjusted directly on VEGAMET with the keyboard (e.g. adjustment, simulation, ...) can be also carried out with the PC.



Adjustment with PC

Temperature measurement with VEGAMET 614 V

When you connect a VBUS-sensor with additional temperature value transmission (multi-sensor) to your VEGAMET 614 V, the instrument shows two measurement loops, the first with level, the second with the temperature.

All outputs of VEGAMET can be coordinated individually to the level or temperature. All functions such as simulation, adjustment and integration time can be adjusted; this can be also carried out for the temperature measuring point.

Hydrostatic pressure transmitters (VBUS) and ultrasonic sensors (VBUS) deliver a temperature value. With radar sensors, it is not possible to measure the temperature.

VEGASEL 643 - auxiliary level switches

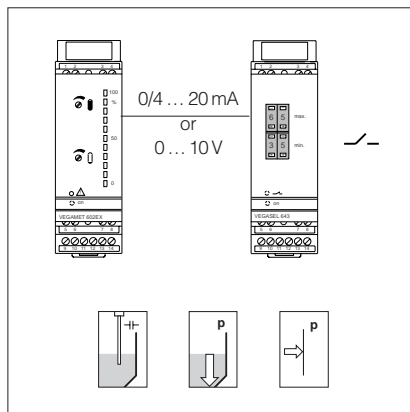
Function

The auxiliary level switch is controlled via continuous current and voltage outputs of signal conditioning instruments VEGAMET... or directly by sensors (compact instruments) and processes them into a level signal.

VEGASEL 643 has a passive current and voltage input and an additional active current input.

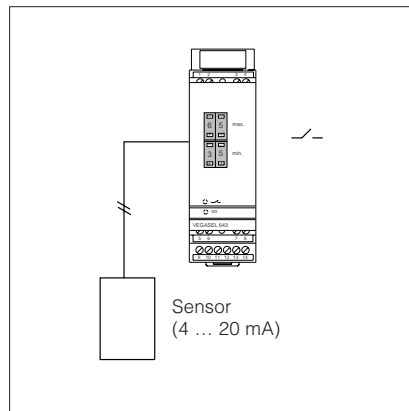
Due to this fact, VEGASEL 643 can be connected for its control with a VEGAMET... or directly to a sensor (4 ... 20 mA).

The continuous current or voltage course of the signal conditioning instrument VEGAMET... is converted into a switching command.



Auxiliary level switch

The auxiliary level switch VEGASEL 643 powers the sensor via the active current input and processes the continuous current course 4 ... 20 mA into a switching command. The actual sensor current can be measured via an interlock diode.



Sensor with VEGASEL 643

In both cases a relay output is available as processing.

VEGASEL 643 corresponds to a level switch as two-point control with adjustable switching hysteresis. The adjustment range is between 1 % ... 99 %.

As for level detection, single point and double point switching can be adjusted.

Single point switchings are normally used for applications such as protection against dry running of pumps or overflow protection as min. and max. switch.

The appropriately required mode A or B can be adjusted on VEGASEL.

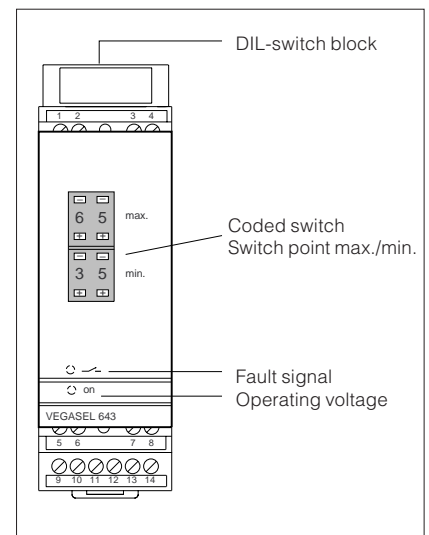
Two-point switchings control e.g. the automatic filling and emptying of vessels between two adjusted levels in percent.

In conjunction with approved sensors and signal conditioning instruments, auxiliary level switch VEGASEL can also be used as part of an overflow protection acc. to WHG or VbF. Overflow protection signal when a certain level in the vessel is reached and interrupt the filling procedure.

Adjustment

The auxiliary level switch is equipped with the following indicating and adjustment elements:

- two coded switches for switch point adjustment
- an LED (yellow) for status indication of the relay output (LED lights = relay energized; LED extinguished = relay de-energized)
- an LED (green) for indication operating voltage "on"
- a DIL-switch block mounted laterally on top of
 - A/B-mode
 - adjustment possibility of the inputs 0 ... 20 mA / 4 ... 20 mA or 0 ... 10V/2 ... 10V



Front plate VEGASEL 643 with two coded switches

VEGASTAB 690 - power supply

Function

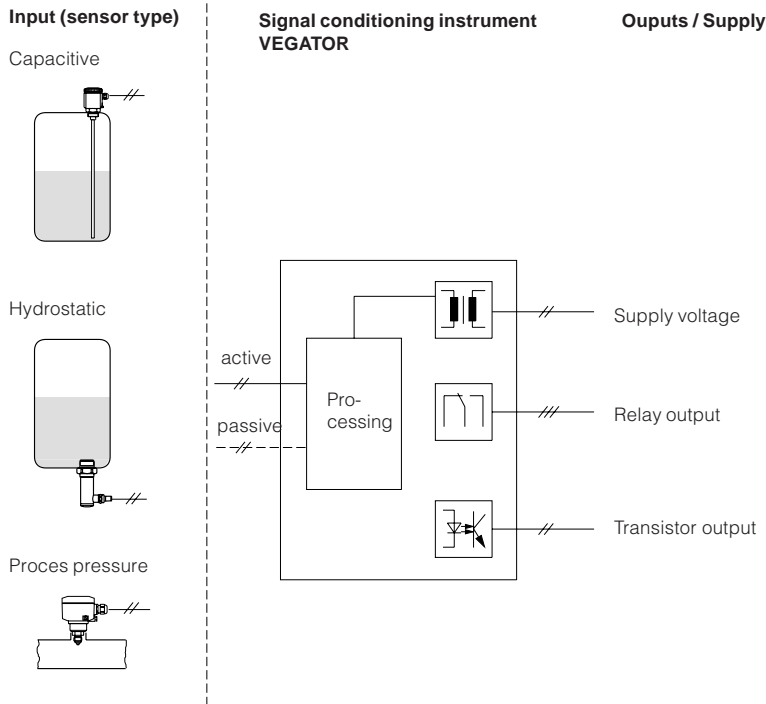
The power supply unit VEGASTAB 690 is used for power supply of max. two sensors (VEGAWELL, VEGABAR, VEGADIF).

Each output is provided with an interlock diode.

2.2 Measuring system, application example

Level detection

Measuring system



A complete measuring system for level detection consists of:

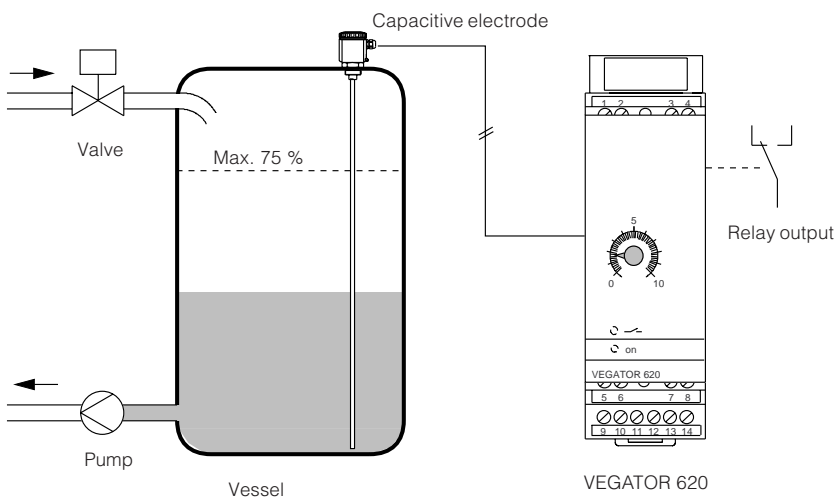
- a sensor
- a signal conditioning instrument VEGATOR in the requested version

Recommended accessory:

- overvoltage arresters for the sensor and the signal conditioning instrument

For measuring systems with approved instruments certification may sometimes require further clarification. Please refer to the appropriate mounting regulations.

Application example



A vessel should be filled to a level of e.g. max. 75 %. The filling procedure is controlled via a valve.

This application is possible as shown on the left e.g. with a capacitive electrode and a signal conditioning instrument VEGATOR 620 which is adjusted to the mode overflow protection.

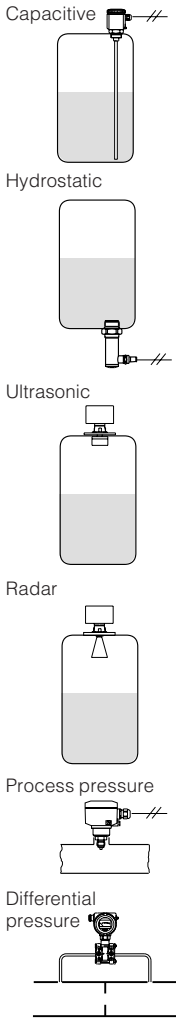
The relay output of the signal conditioning instrument can directly control a contactor or the mentioned filling valve.

See "Technical data relay output".

Continuous measurement

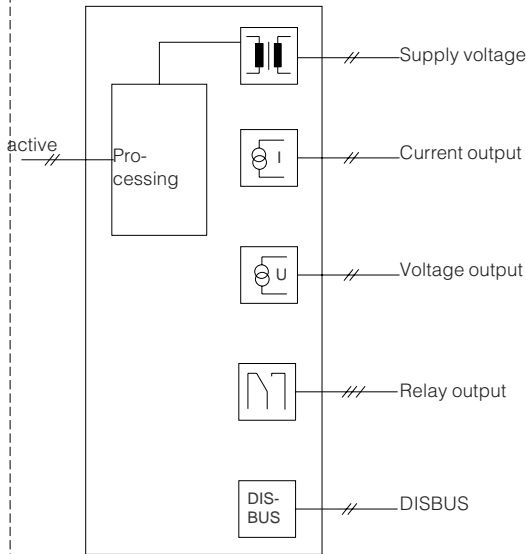
Measuring system

Input (sensor type)



Signal conditioning instrument VEGAMET

Outputs/Supply



A complete measuring system for continuous measurement consists of:

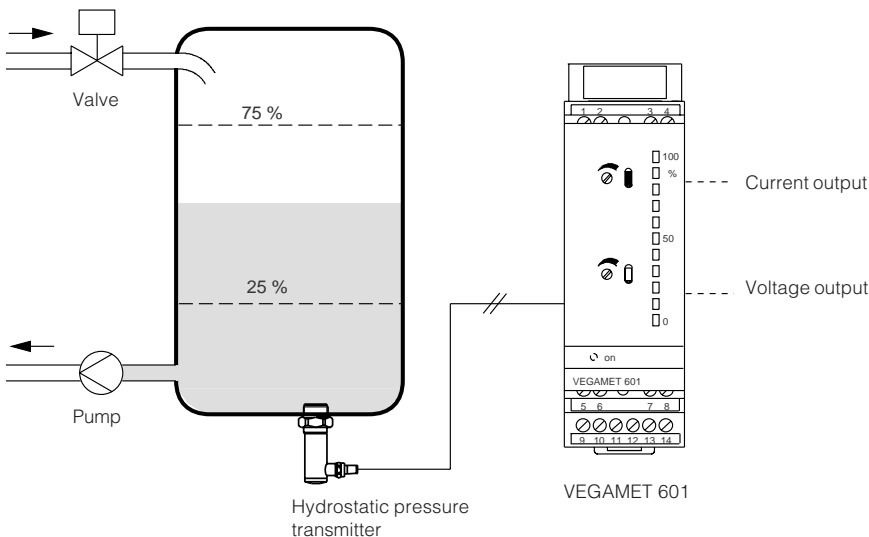
- a sensor
- a signal conditioning instrument VEGAMET in the requested version

Recommended accessory:

- overvoltage arresters for sensor as well as signal conditioning instrument
- indicating instrument VEGADIS 11
- auxiliary level switch VEGASEL 643

For measuring systems with approved instruments certification may sometimes require further clarification. Please refer to the appropriate mounting regulations.

Application example 1



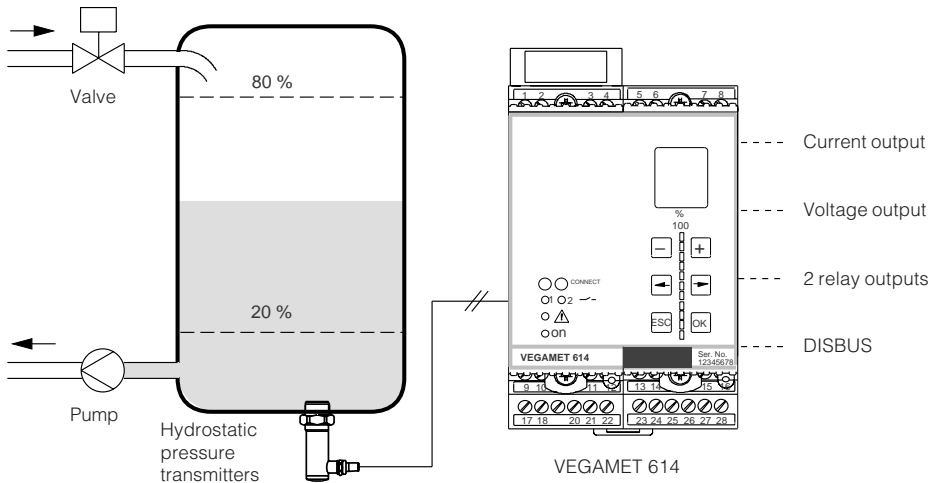
The level in a vessel should be measured continuously, filled to a) 75 % (max level) and emptied again to b) 25 % (minimum level).

This application is possible e.g. with a hydrostatic pressure transmitter and a signal conditioning instrument VEGAMET 601.

The level can be continuously indicated on an indicating instrument VEGADIS 11. With an auxiliary level switch VEGASEL 643, the valve for the filling or the pump for the emptying can be controlled via its relay output.

See "Auxiliary level switches" on the following page.

Application example 2

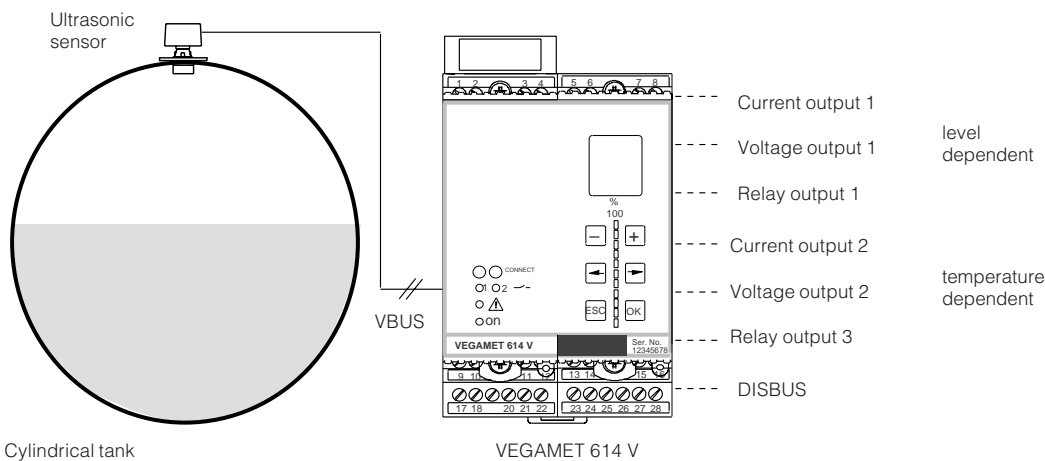


The level in a vessel should be continuously measured, filled to a) 80 % (max level) and then emptied to b) 20 % (minimum level). A relay output is coordinated to mode "Overfill protection". This relay controls the pump for emptying. The other relay output controls the inlet valve. Therefore it is coordinated to mode "Protection against dry running of pumps".

The current output or voltage output delivers a level dependent value (0/4 ... 20 mA or 0/2 ... 10 V). The VEGAMET 614 display can be scaled such that it displays the level as percentage value, level value, pressure, mass, density or volume.

The DISBUS-output can transfer the output signals of VEGAMET for further processing or e.g. control an indicating instrument VEGADIS. With VEGAMET 614 a certain level can be simulated to test the functions (in this example the inlet valve and the emptying pump).

Application example 3



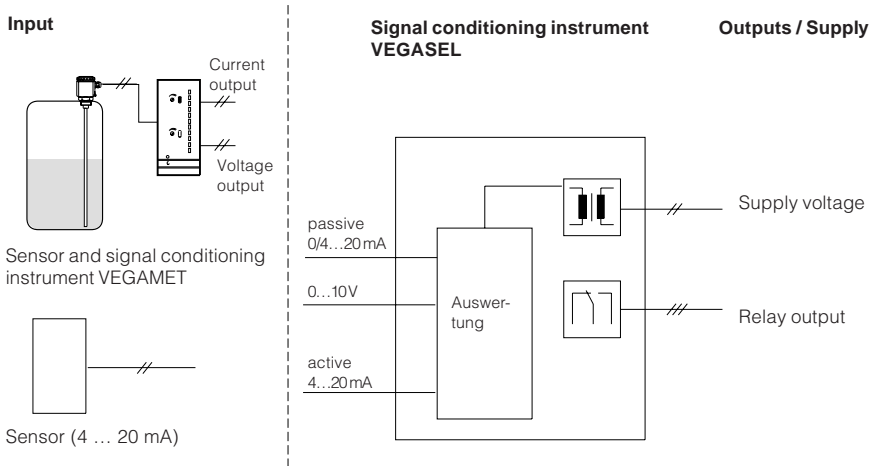
The volume in a cylindrical tank should be continuously measured with an ultrasonic sensor. Therefore the sensor measures the distance sensor - product surface. As not the level but the volume is requested, the linearisation curve "cylindrical tank" is activated.

Current output 1 and voltage output 1 deliver a value which is proportional to the volume of the medium. Relay output 1 can be used as overfill protection or protection against dry running of pumps. If a sensor with temperature signal is used, two measuring points are available with VEGAMET 614 V. Current output 2

and voltage output 2 deliver a temperature dependent value. Relay output 2 as a level switch can be used for a certain temperature value. The VEGAMET display shows level or volume values and also the temperature value.

Auxiliary level switches

Measuring system



A complete measuring system with one auxiliary level switch consists of:

- a sensor
- a signal conditioning instrument VEGAMET
- an auxiliary level switch VEGASEL 643

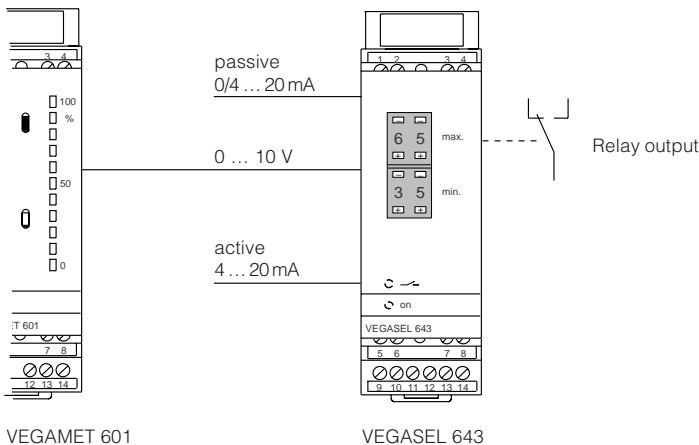
or an own measuring system consists of:

- a sensor (4 ... 20 mA)
- a VEGASEL 643

Recommended accessory:

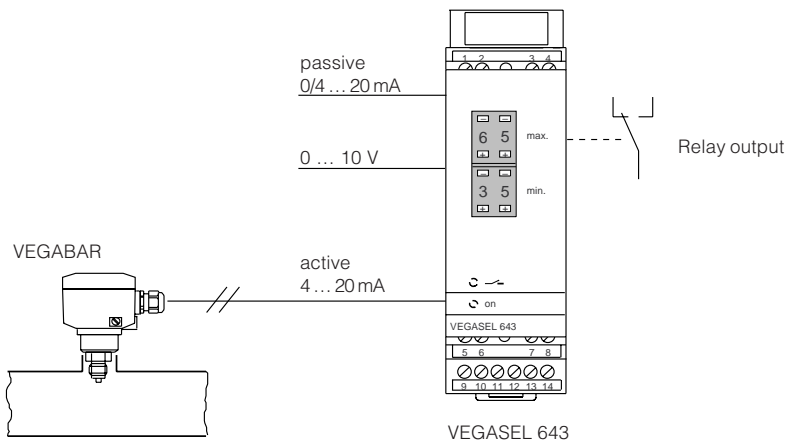
- overvoltage arresters for the sensor, the signal conditioning instrument as well as the VEGASEL

Application example 1



Demonstration of the application example "continuous measurement" shown on previous page.

Application example 2



The pressure in a tube should be measured and a valve should be closed via a relay contact when a previously defined pressure value is exceeded.

This application is possible e.g. with a process pressure transmitter VEGABAR (4 ... 20 mA), connected to an active current input of the auxiliary level switch VEGASEL 643.

3 Types and versions

3.1 Differences

	VEGATOR 620	VEGATOR 621	VEGATOR 622	VEGAMET 601	VEGAMET 602	VEGAMET 614	VEGAMET 614 V	VEGASEL 643
Application								
Level detection	•	•	•	–	–	–	–	•
Continuous	–	–	–	•	•	•	•	–
Parameter								
Level	–	–	–	•	•	•	•	•
Pressure	–	–	–	•	•	•	•	•
Gauge	–	–	–	–	–	•	•	–
Distance	–	–	–	–	–	•	•	–
Temperature	–	–	–	–	–	–	• ¹⁾	–
Possible sensor types								
Capacitive	•	•	•	•	•	•	–	•
Hydrostatic	•	•	•	•	•	•	• (VBUS)	•
Ultrasonic	–	–	–	–	–	• ²⁾	• (VBUS)	–
Radar	–	–	–	–	–	• ²⁾	• (VBUS)	–
Process pressure	•	•	•	•	•	•	• (VBUS)	•
Differential pressure	•	•	•	•	•	•	–	•
Inputs								
Active current input ³⁾	•	•	•	•	•	•	–	•
Passive current input ⁴⁾	•	–	–	–	–	–	–	•
Passive voltage input ⁵⁾	–	–	–	–	–	–	–	•
VBUS-input	–	–	–	–	–	–	•	–
Number of outputs								
Current output	–	–	–	1	1	1	2	–
Voltage output	–	–	–	1	1	1	2	–
Transistor output	–	1	1	–	–	–	–	–
Operating relay (spdt)	1	1	1	–	–	2	2	1
Fail safe relay (spdt)	–	–	–	–	1	1	1	–
DISBUS-output	–	–	–	–	–	1	1	–
Approvals								
Ex-approval	–	•	•	–	•	•	–	–
Overfill protection WHG	–	•	•	–	•	–	–	–

¹⁾ with hydrostatic pressure transmitters and ultrasonic sensors which additionally transfer a temperature value

²⁾ ultrasonic and radar sensors with analogue output (VEGASON 51 K ... 53 K and VEGAPULS 51 K ... 53 K)

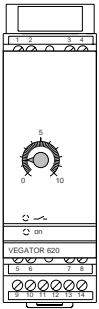
³⁾ active current input loop powered): The signal conditioning instrument powers the sensor. The current (4 ... 20 mA) collected by the sensor is level dependent and is used by the signal conditioning instrument as parameter.

⁴⁾ passive current input: The signal conditioning instrument receives a level dependent current (4 ... 20 mA) from the sensor

⁵⁾ passive voltage input: The signal conditioning instrument receives a level dependent voltage (0/2 ... 10 V) from the sensor

3.2 Survey

VEGATOR 620 ... 622



VEGATOR 620

Single point level switch (fixed switching hysteresis) with selectable mode A/B and adjustable integration time

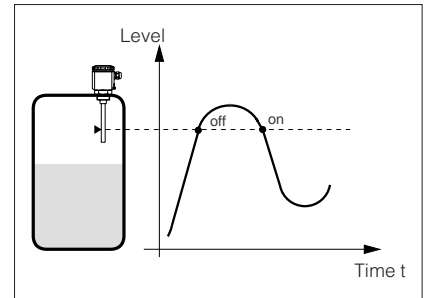
Inputs:

- active for
 - 1 capacitive electrode or
 - 1 hydrostatic pressure transmitter or
 - 1 process pressure transmitter
 - 1 differential pressure transmitter

- passive for connection to an active circuit

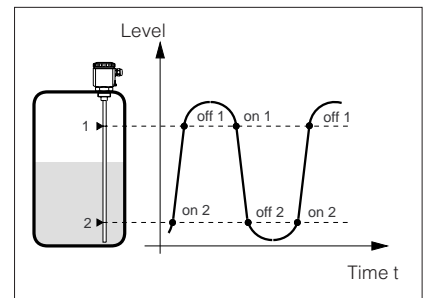
Outputs: 1 relay (spdt)

Application: level detection, overfill protection, protection against dry running of pumps

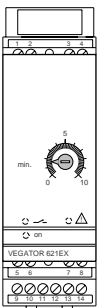


Single point level switch VEGATOR 620

With the use of two VEGATOR 620, connected to a sensor, it is possible to realize a double single point control. It is possible to connect up to 10 VEGATOR 620 to one sensor, see "5.3 Connection plans".



Double single point control two VEGATOR 620



VEGATOR 621 (Ex)

Single point level switch (fixed switching hysteresis) fault monitored with selectable mode A/B and adjustable integration time

Input:

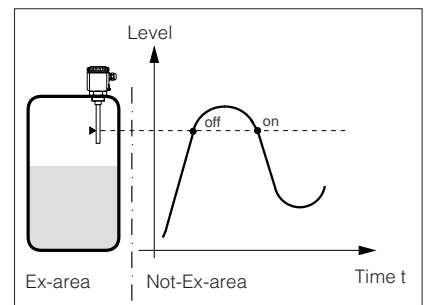
- 1 capacitive electrode or
- 1 hydrostatic pressure transmitter or
- 1 process pressure transmitter
- 1 differential pressure transmitter

Outputs: 1 relays (spdt)

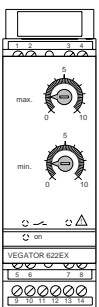
1 transistor

Approvals: [EEx ia] IIC, [EEx ia] IIB, as part of an overfill protection acc. to WHG, (VbF)

Application: level detection, overfill protection, protection against dry running of pumps



Single point level switch VEGATOR 621 Ex



VEGATOR 622 (Ex)

Double point level switch fault monitored, with adjustable switching hysteresis, selectable mode A/B and with adjustable integration time

Input:

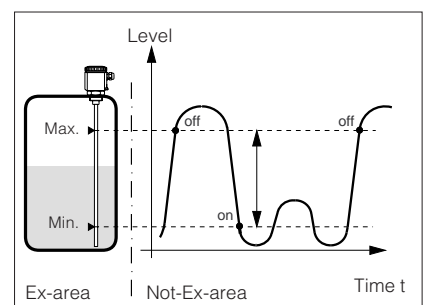
- 1 capacitive electrode or
- 1 hydrostatic pressure transmitter
- 1 process pressure transmitter
- 1 differential pressure transmitter

Outputs: 1 relay (spdt)

1 transistor

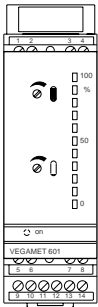
Approvals: [EEx ia] IIC, [EEx ia] IIB, as part of an overfill protection acc. to WHG, (VbF)

Application: Min./Max.-control, overfill protection, protection against dry running of pumps



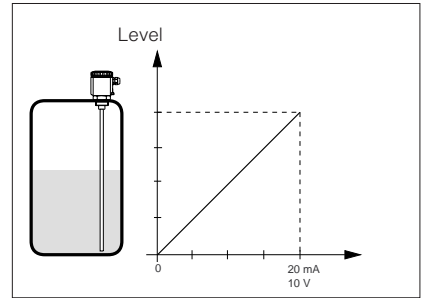
Double point level switch VEGATOR 622

VEGAMET 601 ... 602

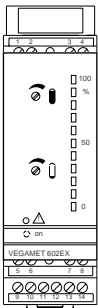


VEGAMET 601

Signal conditioning instrument for continuous measurement
 Adjustment via two potentiometers with adjustable integration time
 Input: 1 capacitive electrode or
 1 hydrostatic pressure transmitter or
 1 process pressure transmitter
 1 differential pressure transmitter
 Outputs: 1 current output 0/4 ... 20 mA
 1 voltage output 0 ... 10 V
 Application: level measurement, process pressure measurement

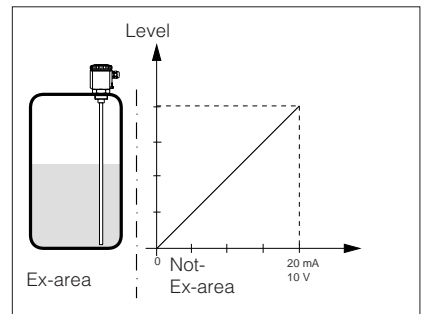


Continuous measurement VEGAMET 601



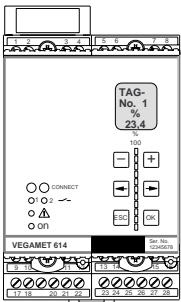
VEGAMET 602 (Ex)

Signal conditioning instrument for continuous measurement
 fault monitored
 Adjustment via two potentiometers with adjustable integration time
 Input: 1 capacitive electrode or
 1 hydrostatic pressure transmitter or
 1 process pressure transmitter
 1 differential pressure transmitter
 Outputs: 1 current output 0/4 ... 20 mA
 1 voltage output 0 ... 10 V
 1 fail safe relay
 Approvals: [EEx ia] IIC, [EEx ia] IIB,
 as part of an overfill protection acc. to WHG, (VbF)
 Application: level measurement, process pressure measurement



Continuous measurement VEGAMET 602 Ex

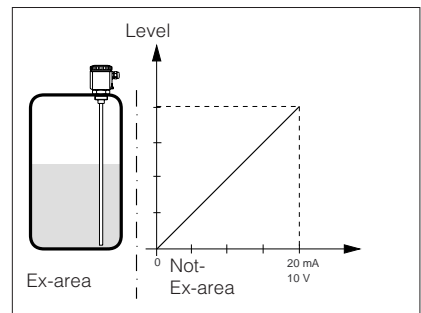
VEGAMET 614...



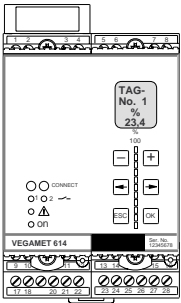
VEGAMET 614 (Ex)

Signal conditioning instrument for continuous measurement
 Adjustment via keyboard and text indication with adjustable
 integration time and adjustable linearisation curves (3 fixed
 and 3 user programmable curves)

Input: 1 capacitive electrode or
 1 hydrostatic pressure transmitter or
 1 ultrasonic sensor with analogue output or
 1 radar sensor with analogue output or
 1 process pressure transmitter or
 1 differential pressure transmitter
 Outputs: 1 current output 0/4 ... 20 mA individually adjustable
 1 voltage output 0/2 ... 10 V individually adjustable
 2 operating relays (spdt)
 1 fail safe relay (spdt)
 1 DISBUS-output
 1 LC-display
 Approvals: [EEx ia] IIC, [EEx ia] IIB,
 Application: level measurement, pressure measurement, distance
 measurement



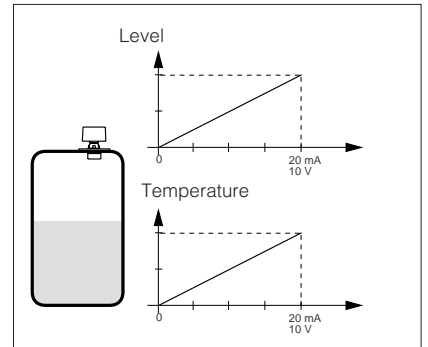
Continuous measurement VEGAMET 614 Ex



VEGAMET 614 V

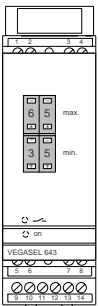
Signal conditioning instrument for continuous measurement
Adjustment via keyboard and text indication with adjustable integration time and adjustable linearisation curves (3 fixed and 3 user programmable curves)

- Input: 1 hydrostatic pressure transmitter with VBUS-output or
1 ultrasonic sensor with VBUS-output or
1 radar sensor with VBUS-output
- Outputs: 2 current outputs 0/4 ... 20 mA individually adjustable
2 voltage outputs 0 ... 10 V individually adjustable
2 operating relays (spdt)
1 fail safe relay (spdt)
1 DISBUS-output
1 LC-display
- Application: level measurement, pressure measurement, distance measurement, additional temperature measurement with appropriate sensor



Continuous measurement VEGAMET 614 V

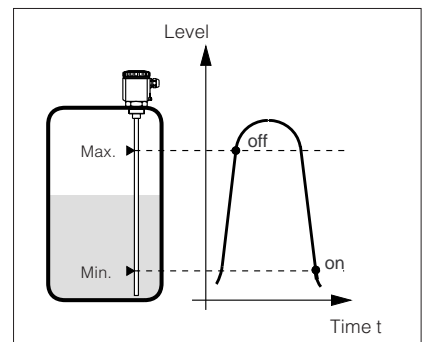
VEGASEL 643



VEGASEL 643

Two-point auxiliary level switch with selectable mode A/B and adjustable switching hysteresis

- Inputs:
- passive current input 0/4 ... 20 mA
 - active current input (connection possibility of one sensor 4 ... 20 mA)
 - passive voltage input 0/2 ... 10 V
- Outputs:
- 1 relay (spdt)
- Approvals: as part of an overfill protection acc. to WHG, (VbF)
- Application: level detection, overfill protection, protection against dry running of pumps



Two-point auxiliary level switch VEGASEL 643

3.3 Technical data

General data

Electrical connection

Screw terminal max. 1,5 mm²

Electrical protective measures

Protection
 - instrument IP 30
 - socket IP 20
 Protection class II
 Overvoltage category II

Mechanical data

Series module unit with plug-in socket incl. transparent cover, cover of sensor terminals, coded pins, two connection bridges
 Mounting carrier rail mounting acc. to DIN 46 277, Bl. 3
 Dimensions
 - VEGAMET 614... W = 36 mm, H = 118,5 mm, D = 134 mm
 W = 72 mm, H = 118,5 mm, D = 134 mm
 Weight approx. 170 g
 - VEGAMET 614... approx. 480 g

Ambient conditions

Permissible ambient temperature -20°C ... +60°C
 VEGATOR 620:
 with an operating voltage of 60 V DC ... 72 V DC
 the permissible ambient temperature reduces linear from 60°C to 40°C.
 Storage and transport temperature -40°C ... +70°C
 - VEGAMET 614... -40°C ... +80°C

VEGATOR 620 ... 622

Data of the standard instruments

Power supply

Operating voltage 20 ... 250 V AC, 50/60 Hz
 20 ... 72 V DC
 in case of emergency power supply with considerably deviating curve form from mains sinus
 U_{max} = 125 V AC rectangular
 Power consumption 3 W (3 ... 18 VA)
 Fuse T 1A, 250 V

Meas. data input

Number 1 current input
 Kind of input active two-wire input analogue
 Range 4 ... 20 mA
 Sensor capacitive electrodes
 hydrostatic pressure transmitters
 process pressure transmitters
 Sensor supply voltage
 - VEGATOR 620 24 V DC
 - VEGATOR 621 Ex, 622 Ex approx. 15 ... 18 V DC
 Switching threshold 4 ... 20 mA adjustable
 Min. hysteresis
 - VEGATOR 620, 621 Ex 80 µA fix
 - VEGATOR 622 Ex 80 ... 16000 µA
 Current limitation at 24 mA, permanently shortcircuit proof
 Temperature error 0,05 %/10 K of range
 Connection cable 2-wire (standard line)
 Resistance per conductor
 - VEGATOR 620 max. 250 ý
 - VEGATOR 621 Ex, 622 Ex max. 35 ý

Meas. data input only with VEGATOR 620

Number	1 additional current input
Kind of input	passive two-wire input analogue
Range	4 ... 20 mA
Inner resistor	Ri 22 Ω
Application	switching in series with active inputs of e.g. VEGATOR 620, VEGAMET 601
Hysteresis	80 μ A (fixed)
Temperature error	0,05 %/10 K of range

Relay output

Number	1 output
Contact	1 spdt each
Contact material	AgCdO and Au plated
Turn-on voltage	min. 10 mV DC max. 250 V AC, 60 V DC
Switching current	min. 10 μ A DC max. 2 A AC, 1 A DC
Breaking capacity	max. 125 VA, 54 W

Transistor output (not with VEGATOR 620)

Number	1 output (synchronously switching with relay outputs)
Turn-on voltage U_B	max. 36 V DC
Switching current I_B	max. 60 mA DC (shortcircuit proof)
Voltage loss U_{CE}	- 1,5 V at $I_B = 60$ mA
Blocking current I_O	< 10 μ A

Indicating elements

LED in front plate	green on: operating voltage on yellow: switch point control red: fault signal
--------------------	---

Functions

Mode (changeover)	overflow protection (A) protection against dry running of pumps (B)
Integration time	range 0 ... 20 sec.

Adjustment elements

Front plate	one or two potentiometers with scale 1 ... 10 for switch point adjustment
Laterally on top	DIL-switch for adjustment: - mode A/B - integration time - switch on/off delay

Electrical separating measures

Reliable separation acc. to VDE 0106, part 1 between	power supply, meas. data input, level relay and transistor output
- reference voltage	250 V
- isolation resistance	3 kV

CE-conformity 

VEGATOR 620 ... 622 signal conditioning instruments meet the protective regulations of EMVG (89/336/EWG) and NSR (73/23/EWG). The conformity has been judged acc. to the following standards:

EMVG	Emission	EN 50 081 - 1
	Susceptibility	EN 50 082 - 2
NSR		EN 61 010

Ex-technical data 

Power supply

Operating voltage U_{nom} corresponds to standard version
Um 250 V AC or 125 V DC

Meas. data input (intrinsically safe signal circuit)

Classification [EEx ia] IIC or [EEx ia] IIB
 Max. values
 - voltage U_o - 20 V
 - current I_o - 125 mA
 - efficiency P_o - 624 mW
 Characteristics linear
 Effective inner inductance L_i negligible
 Effective inner capacitance C_i negligible

	EEx ia IIC			EEx ia IIB	EEx ib IIC	EEx ib IIB
Max. permissible outer inductance L_o (mH)	0,5	1	1,5	2	2	9
Max. permissible outer capacitance C_o (nF)	97	78	68	486	200	1000

The intrinsically safe circuits are reliably separated from the not intrinsically safe circuits up to a peak value of 375 V.
 The max. voltage on the not intrinsically safe circuits must not exceed $250 V_{eff}$ in case of failure.

VEGAMET 601 ... 602

Data of the standard instruments

Power supply

Operating voltage 20 ... 250 V AC, 50/60 Hz
 20 ... 72 V DC
 in case of emergency power supply with considerably deviating curve form from mains sinus:
 $U_{max} = 125$ V AC rectangular
 max. 3 W (3 ... 18 VA)
 Fuse T 1A, 250 V

Meas. data input

Number 1 current input
 Kind of input active two-wire input analogue
 Range 4 ... 20 mA
 Sensor capacitive electrodes
 hydrostatic pressure transmitters
 process pressure transmitters
 Sensor supply voltage
 - VEGAMET 601 24 V DC
 - VEGAMET 602 Ex approx. 15 ... 18 V DC
 Current limitation at 24 mA, permanently shortcircuit proof
 Connection cable 2-adrig (standard line)
 Resistance per conductor
 - VEGAMET 601 max. 250 Ω
 - VEGAMET 602 Ex max. 35 Ω

Current output

Number 1 output
 Function analogue output of processing
 Range 0/4 ... 20 mA
 Load max. 500 Ω
 Resolution 0,05 % of range
 Linearity error 0,05 % of range
 Temperature error 0,08 %/10 K of range

Voltage output

Number 1 output
 Function analogue output of processing
 Range 0 ... 10V
 Current max. 1 mA
 Resolution 0,05 % of range
 Linearity error 0,05 % of range
 Temperature error 0,08 %/10 K of range

Relay output

Number	1 output
Contact	1 floating spdt each AgNi and hard gold plated
Turn-on voltage	min. 10 mV DC max. 250 V AC, 60 V DC
Switching current	min. 10 μ A DC max. 2 A AC, 1 A DC
Breaking capacity	max. 125 VA, 54 W

Indicating elements

LED in front plate	green on: operating voltage on red: fault signal
Analogue indication	11 segments, 0 % ... 100 %

Functions

Integration time	0 ... 20 sec.
Adjustment possibility of the current output	0 ... 20 mA/4 ... 20 mA

Adjustment elements

Front plate	two potentiometers for adjustment of the empty and full adjustment
Laterally on top	DIL-switch - adjustment possibility of the current output 0 ... 20 mA/4 ... 20 mA - integration time

Electrical separating measures

Reliable separation acc. to VDE 0106, part 1 between	power supply, meas. data input and signal outputs
- reference voltage	250 V
- isolation resistance	3 kV

CE-conformity 

VEGAMET signal conditioning instruments meet the protective regulations of EMVG (89/336/EWG) and NSR (73/23/EWG). The conformity has been judged acc. to the following standards:

EMVG	Emission	EN 50 081 - 1
	Susceptibility	EN 50 082 - 2
NSR		EN 61 010

Ex-technical data**Power supply**

Operating voltage	U_{nom} corresponds to standard version U_m 250 V AC or 125 V DC
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Meas. data input (intrinsically safe signal circuit)

Classification	[EEx ia] IIC or [EEx ia] IIB
Max. values	
- voltage	U_o - 20 V
- current	I_o - 125 mA
- efficiency	P_o - 624 mW
Characteristics	linear
Effective inner inductance L_i	negligible
Effective inner capacitance C_i	negligible

	EEx ia IIC			EEx ia IIB	EEx ib IIC	EEx ib IIB
Max. permissible inductance L_o (mH)	0,5	1	1,5	2	2	9
Max. permissible capacitance C_o (nF)	97	78	68	486	200	1000

The intrinsically safe circuits are reliably separated from the not intrinsically safe circuits up to a peak value of the nominal voltage of 375 V.

The max. voltage on the not intrinsically safe circuits must not exceed 250 V_{eff} in case of failure.

VEGAMET 614**Data of standard instruments****Power supply**

Operating voltage	20 ... 250 V AC, 50/60 Hz 20 ... 72 V DC
Power consumption	approx. 4 W (10 VA)

Meas. data input

Number	1 input
Kind of input	active two-wire input, analogue (sensor is powered by VEGAMET)
Range	4 ... 20 mA
Possible sensors (loop powered)	capacitive electrodes, pressure transmitters, ultrasonic sensors (4 ... 20 mA-instrument), radar sensors (4 ... 20 mA-instrument), process pressure transmitter, differential pressure transmitter
Voltage	
- at 4 mA	approx. 19,5 V DC
- at 20 mA	approx. 16 V DC
Current limitation	at approx. 26 mA, shortcircuit proof
Detection-line break	< 3,6 mA
Detection-shortcircuit	> 21 mA
Min. adjustment delta	2 % of the adjusted sensor values
Connection line	2-wire standard line (screening recommended)
max. resistance per wire	35 Ω
Resolution	1 μ A
Linearity error	0,025 % at 4 ... 20 mA
Temperature error	0,04 %/10 K at 4 ... 20 mA

Current output

Number	1 output
Function	analogue output of the processing results
Range	in the range of 0 ... 20 mA individually adjustable
Load	max. 500 Ω
Resolution	1 μ A
Linearity error	0,05 % (relating to 20 mA)
Temperature error	0,05 %/10 K (relating to 20 mA)

Voltage output

Number	1 output
Function	analogue output of the processing results
Range	in the range of 0 ... 10 V individually adjustable
Current	max. 1 mA
Resolution	0,5 mV
Linearity error	0,05 % (relating to 10 V)
Temperature error	0,06 %/10 K (relating to 10 V)

Relay outputs

Number	2 switching relays 1 fail safe relay
Contact	floating spdt
Contact material	AgNi, hard gold plated
Turn-on voltage	min. 10 mV DC max. 250 V AC/DC
Switching current	min. 10 μ A max. 3 A AC, 1 A DC
Breaking capacity	max. 500 VA, 54 W
Min. switching hysteresis (Low-/High-Delta)	0,5 %

DISBUS-output

Function	for wiring of the signal conditioning instruments and for connection of digital indicating instruments
Connection line	2-wire standard line (screening recommended)
max. line length	1000 m

Indicating elements

Clear text indication	LC-display - 4-lines, 6 digits each - background lightning
Analogue indication	LED-chain consisting of: - 11 segments 0% ... 100 % - indicates the actual value of the selected measuring point
LED in front plate	green: operating voltage on red: fault signal (LED lights with de-energized relay) yellow: relay switching conditioning (standard adjustment: LED lights with energized relay)

Adjustment elements

Front plate Upper housing side	6 keys for configuration and parameter adjustment rotating switch for adjustment of instrument address on DISBUS (in mounted condition covered by plug-in socket)
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Electrical separating measures

Reliable separation acc. to VDE 0106, part 1 between	power supply, fail safe and level relay and meas. data inputs
- reference voltage	250 V
- isolation resistance	2,3 kV
Galvanic isolation	between the relay outputs
- reference voltage	250 V
- isolation resistance	1,4 kV
Potential separation	between DISBUS and outputs
- reference voltage	50 V
- isolation resistance	0,5 kV
Common reference potential at	voltage and current output

CE-conformity

VEGAMET 614 and VEGAMET 614 Ex signal conditioning instruments meet the protective regulations of EMVG (89/336/EWG) and NSR (73/23/EWG). The conformity has been judged acc. to the following standards:

EMVG	Emission	EN 50 081 - 2: 1993
	Susceptibility	EN 50 082 - 2: 1995
NSR		EN 61 010 - 1: 1993

Ex-technical data

Power supply

Operating voltage	U_{nom} corresponds to not-Ex-version
Reference voltage	$U_m = 253$ V AC or 125 V DC

Meas. data input (intrinsically safe circuit)

Classification	II(1) G [EEx ia] IIC, [EEx ia] IIB	
Max. values		
- voltage	$U_o = 22,2$ V	
- current	$I_o = 112$ mA	
- efficiency	$P_o = 620$ mW	
Characteristics	linear	
Effective inner inductance L_i	negligible	
Effective inner capacitance C_i	negligible	

	EEx ia IIC	EEx ia IIB
Max. permissible outer inductance L_o	2 mH	10 mH
Max. permissible outer capacitance C_o	160 nF	1100 nF

The intrinsically safe circuits are reliably separated from the not intrinsically safe circuits up to a peak value of the nominal voltage of 375 V. The max. voltage on the not intrinsically safe circuits must not exceed 253 V_{eff} in case of failure.

VEGAMET 614 V

Power supply

Operating voltage	20 ... 250 V AC, 50/60 Hz
Power consumption	approx. 14 VA

Meas. data input

Number	1 input
Kind of input	active two-wire input, digital (VBUS) (sensor powered by VEGAMET)
Possible sensors (loop powered)	pressure transmitters, ultrasonic sensors, radar sensors
Voltage	approx. 25 V DC
Limitation	at approx. 4,5 W, shortcircuit proof
Min. adjustment delta	2 % of sensor range (hydrostatic) 5 mm (ultrasonic, radar)
Connection line	2-wire standard line (screening recommended)
max. resistance per conductor	20 Ω

Current output

Number	2 outputs
Function	analogue output of the processing results
Range	in the range of 0 ... 20 mA individually adjustable
Load	max. 500 Ω
Resolution	1 μ A
Linearity error	0,05 % (relating to 20 mA)
Temperature error	0,05 %/10 K (relating to 20 mA)

Voltage output

Number	2 outputs
Function	analogue output of the processing results
Range	in the range of 0 ... 10 V individually adjustable
Current	max. 1 mA
Resolution	0,5 mV
Linearity error	0,05 % (relating to 10 V)
Temperature error	0,06 %/10 K (relating to 10 V)

Relay outputs

Number	2 switching relays 1 fail safe relay
Contact	floating spdt
Contact material	AgNi, hard gold plated
Turn-on voltage	min. 10 mV DC max. 250 V AC/DC
Switching current	min. 10 μ A max. 3 A AC, 1 A DC
Breaking capacity	max. 500 VA, 54 W
Min. switching hysteresis (Low-/High-Delta)	0,5 %

DISBUS-output

Function	digital transmission, for wiring between signal conditioning instruments and for connection of digital indicating instruments
Connection line	2-wire standard line (screening recommended)
max. line length	1000 m
max.resistance per wire	15 Ω

Indicating elements

Clear text indication	LC-display - 4-lines, 6 digits each - background lightning
Analogue indication	LED-chain consisting of: - 11 segments 0 % ... 100 % - indicates the actual value of the selected measuring point
LED in front plate	green: operating voltage on red: fault signal (LED lights with de-energized relay) yellow: relay switching condition (standard adjustment) LED lights with energized relay)

Adjustment elements

Front plate Upper housing side	6 keys for configuration and parameter adjustment rotating switch for adjustment of instrument address on DISBUS (in mounted condition covered by plug-in socket)
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Electrical separating measures

Reliable separation acc. to VDE 0106, part 1 between	power supply, fail safe and level relay and meas. data inputs
- reference voltage	250 V
- isolation resistance	2,3 kV
Galvanic separation	between relay outputs
- reference voltage	250 V
- isolation resistance	1,4 kV
Potential separation	between DISBUS and outputs
- reference voltage	50 V
- isolation resistance	0,5 kV
Common reference potential at	voltage and current output

CE-conformity 

VEGAMET 614 V signal conditioning instrument meets the protective regulations of EMVG (89/336/EWG) and NSR (73/23/EWG). The conformity has been judged acc. to the following standards:

EMVG	Emission	EN 50 081 - 2: 1992
	Susceptibility	EN 50 082 - 2: 1995
NSR		EN 61 010 - 1: 1993

VEGASEL 643**Power supply**

Operating voltage	20 ... 250 V AC, 50/60 Hz, 20 ... 72 V DC
Power consumption	approx. 1,7 W (4,5 VA)
Fuse	T 1A, 250 V

Meas. data input

Input 1	1 current input
Kind of input	active two-wire input analogue
Range	4 ... 20 mA
Application	connection of sensors (4 ... 20 mA)
Sensor supply voltage	18 ... 24 V DC
Switching threshold	adjustable via coded key
Min. hysteresis	1 %
Current limitation	approx. 25 mA, permanently shortcircuit proof
Temperature error	0,05 %/10 K of range
Deviation from adjusted %-value	0,2 %
Connection cable	2 wire (standard line)
Resistance per conductor	max. 35 Ω
Interlock diode	for connection of a meas. instrument max. load 15 Ω
Input 2	1 additional current input
Kind of input	passive two-wire input analogue
Range	0/4 ... 20 mA
Inner resistance	R _i = 50 Ω
Application	direct connection with active current output of e.g. VEGAMET 601, 602 Ex
Switching threshold	adjustable via coded key
Min. hysteresis	1 %
Temperature error	0,05 %/10 K of range
Deviation from adjusted %-value	0,2 %
Input 3	1 voltage input
Kind of input	passive two-wire input analogue
Range	0/2 ... 10 V DC
Inner resistance	R _i = 100 k Ω
Application	direct connection with active voltage output of e.g. VEGAMET 601, 602 Ex
Switching threshold	adjustable via coded key
Min. hysteresis	1 %
Temperature error	0,05 %/10 K of range
Deviation from adjusted %-value	0,2 %
Connection cable	2-wire (standard line)
Resistance per conductor	max. 100 Ω

Relay output

Number	1 output
Contact	1 spdt AgCdO and Au plated
Turn-on voltage	min. 10 mV DC max. 250 V AC, 60 V DC
Switching current	min. 10 µA DC max. 2 A AC, 1 A DC
Breaking capacity	max. 125 VA, 54 W

Indicating elements

LED in front plate	green on: operating voltage on yellow: switch point control
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Functions

Mode	overflow protection (A) protection against dry running of pumps (B)
Adjustment possibility of inputs	0 ... 20 mA/4 ... 20 mA 0 ... 10 V/2 ... 10 V

Adjustment elements

Front plate	2 coded keys 0 ... 99 %
Laterally on top	1 DIL-switch for adjustment - mode A/B - adjustment possibility of inputs 0 ... 20 mA/4 ... 20 mA 0 ... 10 V/2 ... 10 V

Electrical separating measures

Reliable separation acc. to VDE 0106, part 1 between	power supply, meas. data inputs and level relays
- reference voltage	250 V
- isolation resistance	3 kV

CE-conformity 

VEGASEL signal conditioning instruments meet the protective regulations of EMVG (89/336/EWG) and NSR (73/23/EWG). The conformity has been judged acc. to the following standards:

EMVG	Emission	EN 50 081 - 1
	Susceptibility	EN 50 082 - 2
NSR		EN 61 010

VEGASTAB 690**Power supply**

Operating voltage	20 ... 250 V AC, 50/60 Hz 20 ... 72 V DC
Power consumption	max. 3 W (3 ... 16 VA)
Fuse, supply range	T 1 A, 250 V

Output

Output voltage	2 x 24 V DC floating
Current limitation	approx. 26 mA (permanently shortcircuit proof)
Load	
- not-Ex-circuits	max. 500 ý
- intrinsically safe circuits	max. 75 ý
Interlock diode	for circuit 1 max. instrument load 15 ý

Indicating elements

LED in front plate	green on: operating voltage on
--------------------	--------------------------------

Electrical separating measures

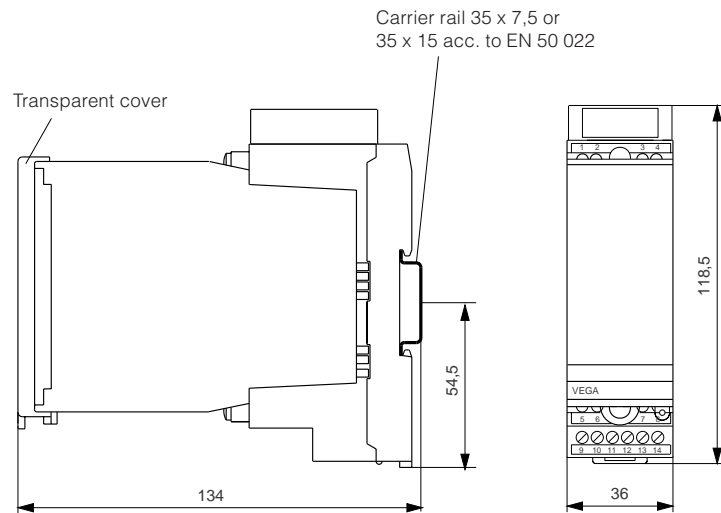
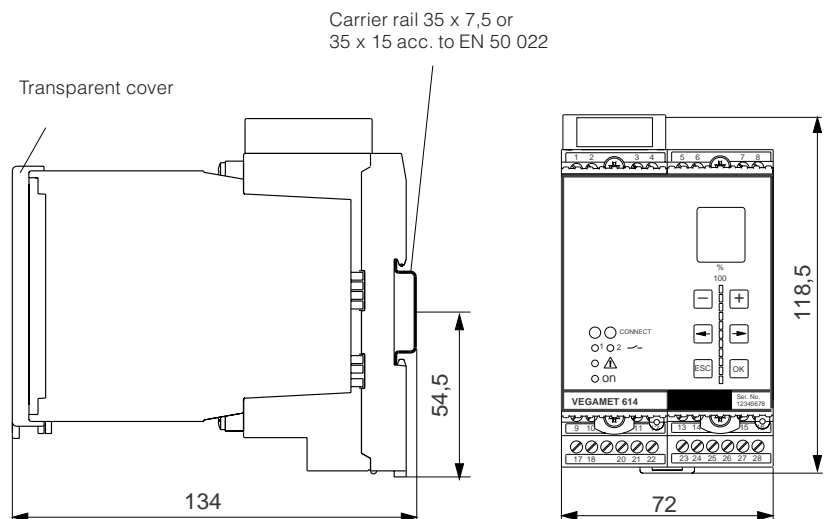
Reliable separation acc. to
VDE 0106, part 1 between
- reference voltage
- isolation resistance

power supply output 1 and output 2
250 V
3 kV

CE-conformity 

VEGASTAB 690 power supply unit meets the protective regulations of EMVG (89/336/EWG) and NSR (73/23/EWG). The conformity has been judged acc. to the following standards:

EMVG	Emission	EN 50 081 - 1
	Susceptibility	EN 50 082 - 2
NSR		EN 61 010

3.4 Dimensions**VEGAMET 614...**

4 Mounting and installation instructions

Mounting

Each series 600 signal conditioning instrument consists of a plug-in socket for carrier rail mounting DIN 46 277 and a module unit.

The supply voltage can be connected to terminals 9 and 10.

For neighbouring series 600 signal conditioning instruments it is possible to continue the connection L1 and N via the supplied bridges.

This is also valid for connection of 0 ... 10 V VEGAMET-voltage output to 0 ... 10 V VEGASEL-voltage input (terminals 7 and 8).

Note!

The bridges must never be used for single instruments or at the appropriate end of an instrument row.

If this instruction is not observed, there is danger of in touching operating voltage or causing a shortcircuit.

The signal conditioning instrument must be generally installed outside the hazardous area or special Ex-protective measures must be taken.

Coding

The plug-in socket is provided with pins and the signal conditioning instrument with appropriate gaps (mechanical coding) to avoid interchanging of the various signal conditioning instruments.

An instrument coding ensures that with coded pins in different positions, the various signal conditioning instruments are not interchanged.

An Ex-coding ensures that not-Ex and Ex-instruments are not interchanged.

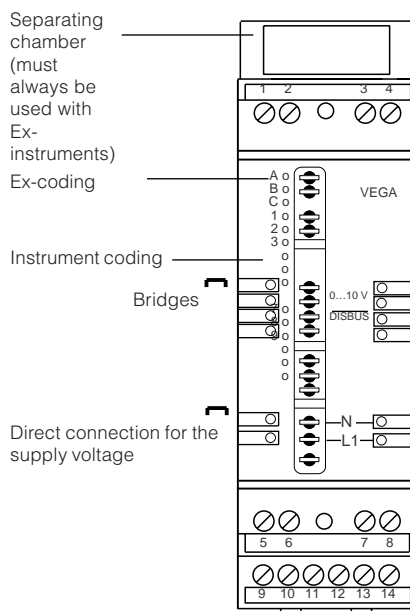
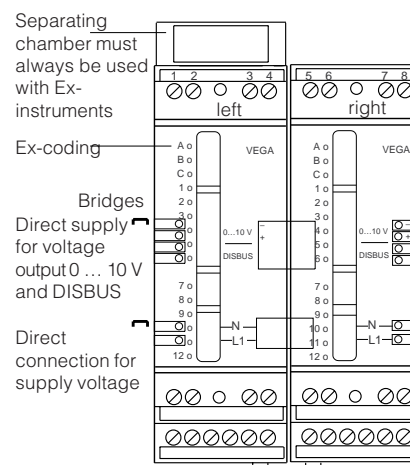


The coding is part of the explosion protection: on VEGATOR 62. Ex, VEGAMET 602 Ex and VEGAMET 614 Ex the supplied coded pins (instrument coded pin and Ex-coded pin) must be inserted by the user according to the below table.

	Instrument coding	Ex-coding
VEGATOR 620	2	—
VEGATOR 621 Ex	2	A
VEGATOR 622 Ex	2	A
VEGAMET 601	1	—
VEGAMET 602 Ex	1	A
VEGASEL 643	4	—
VEGASTAB 690	5	—

VEGAMET 614... and 614 V

	Instrument coding	Ex-coding
VEGAMET 614	right 1 left B right B	—
VEGAMET 614 Ex	right 1 left B right B	left A
VEGAMET 614 V	right 2 right B left B	—



5 Electrical connection

5.1 Connection instructions

The following connection plans are valid for standard as well as for Ex-versions. Please note the following instructions:

- the relay contacts are shown in currentless condition
- if strong electromagnetic interferences have to be expected, we recommend using screened cable for the signal lines
- the screening must only be earthed at one end on the sensor side
- in case of overvoltages, we recommend the use of VEGA-overvoltage arresters
- the connection must be made according to the appropriate national installation standards (e.g. in Germany acc. to the VDE-regulations).

5.2 Connection instructions for approved applications



The following applications require the use of certified instruments:

- in hazardous areas (note possible special national regulations)
- as part of an overfill protection acc. to WHG
- in shipbuilding
- in pressurized vessels.

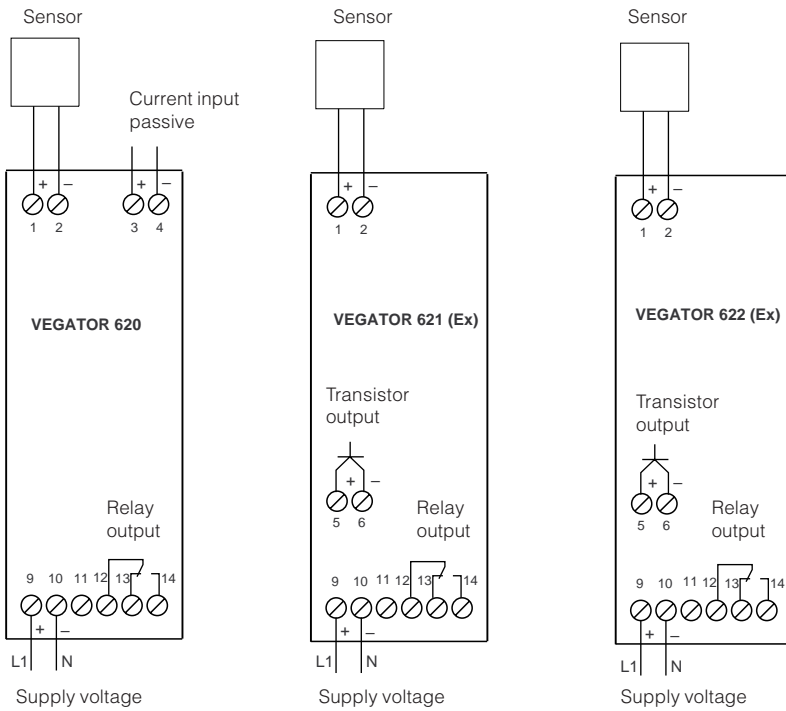
For these applications the appropriate legal documents (test reports, test certificates, general type approval and conformity certificates) as well as the valid installation and operating regulations must be noted. The legal documents are enclosed for the appropriate instrument.

In Ex-applications the voltage supply of the sensors must only be via an intrinsically safe circuit. There are the following possibilities:

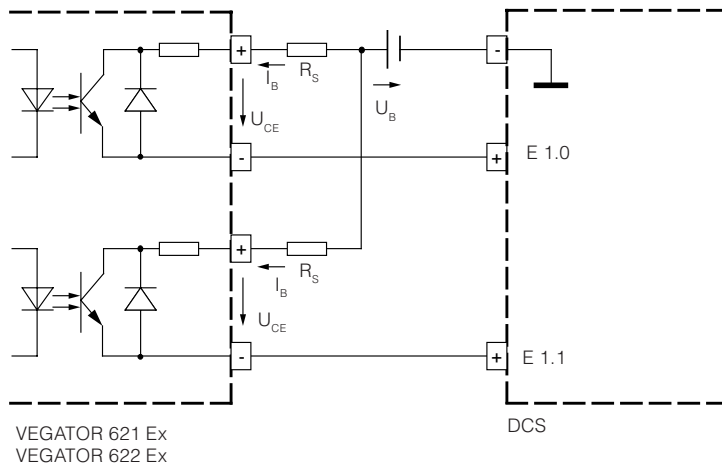
- series 600 signal conditioning instruments in Ex-version
- not certified series 600 signal conditioning instrument with VEGA-safety barrier type 145

The legal documents of these additional instruments must also be noted.

5.3 Connection plans



Transistor outputs in conjunction with a DCS



The resistor R_s is used as current limitation to approx. 60 mA

Example:

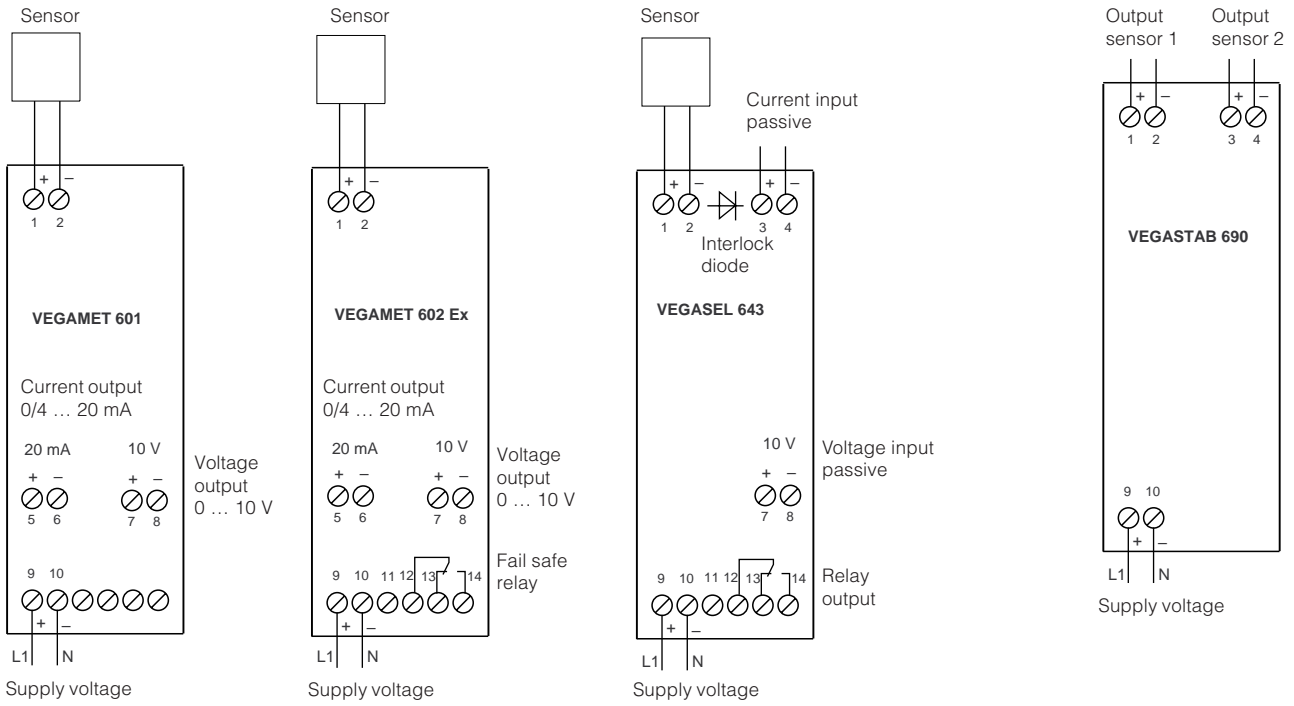
$$U_B = 24 \text{ V}, U_{CE} = 1,5 \text{ V}, I_B = \text{max. } 60 \text{ mA}$$

$$R_s = \frac{U_B - U_{CE}}{I_B} = \frac{24 \text{ V} - 1,5 \text{ V}}{60 \text{ mA}} = 375 \text{ } \Omega, \text{ selected } 330 \text{ } \Omega$$

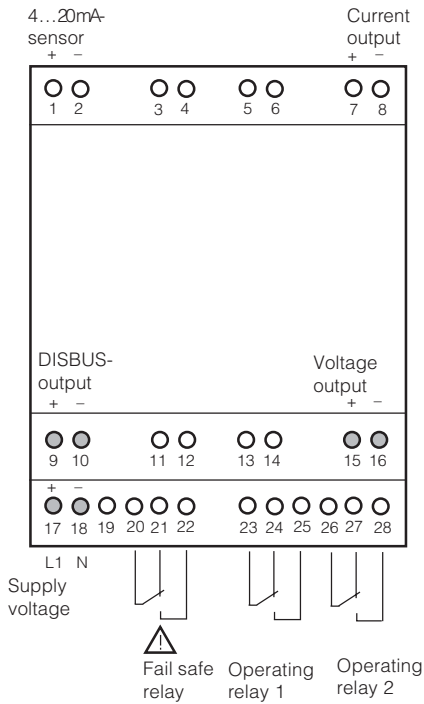
$$\text{Power loss } P_v = I^2 \cdot R_s = 60 \text{ mA}^2 \cdot 330 \text{ } \Omega = 1,188 \text{ W}, \text{ selected } 1,5 \text{ W}$$

Selection table

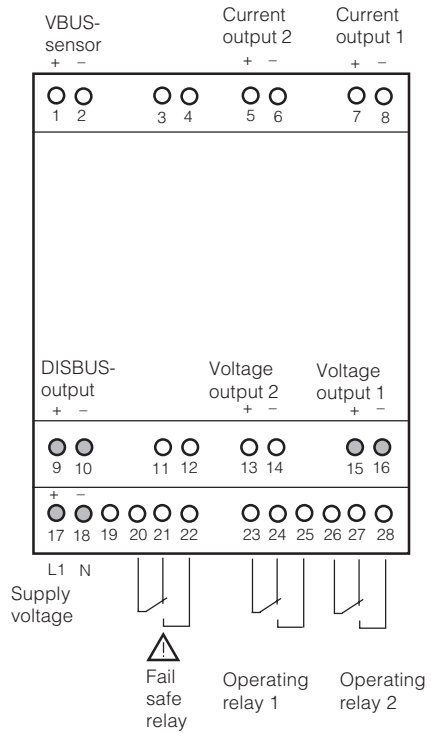
U_B	R_s	P
5 V	47 Ω	0,25 W
12 V	150 Ω	0,75 W
24 V	330 Ω	1,5 W
36 V	560 Ω	2,2 W



VEGAMET 614 (Ex)



VEGAMET 614 V



● These connections can be connected via the supplied bridges with neighbouring series 600 signal conditioning instruments.

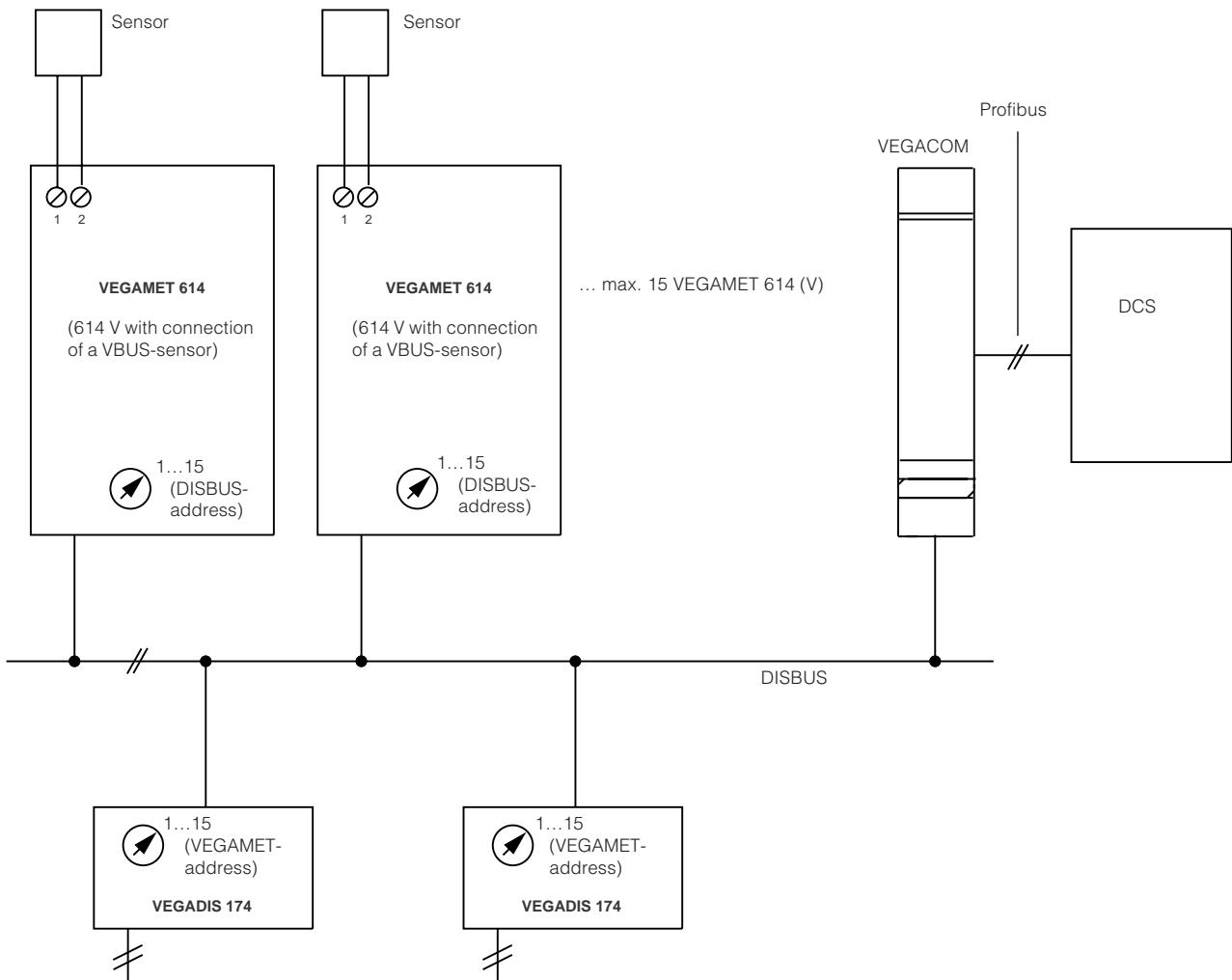
● These connections can be connected via the supplied bridges with neighbouring series 600 signal conditioning instruments.

Extension examples 4

Up to 15 VEGAMET 614 (V) can be connected via DISBUS (two wires). The DISBUS can transfer the data of all signal conditioning instruments VEGAMET to an interface converter VEGACOM. The interface converter transfers the values (e.g. as Profibus-protocol) to a DCS.

Please note in this case: A different DISBUS-address must be coordinated to each instrument. In addition several indicating instruments VEGADIS can be connected to the DISBUS for each VEGAMET (VEGAMET 614: three VEGADIS, VEGAMET 614 V: seven VEGADIS). A VEGADIS can be e.g. mounted to the vessel and indicates the level in percent, another VEGADIS indicates the pressure in the control room.

Note: The VEGAMET-address (DISBUS-address) of the signal conditioning instrument must be adjusted on VEGADIS, the values of which it should indicate.



6 Order code

6.1 VEGATOR

VEGATOR 620

Order number for VEGATOR 620

VEGATOR 621

Approval

.X without
 EX0.X [EEx ia] IIC
 EX0.C [EEx ia] IIC, overfill protection acc. to WHG
 .M Ship approval

Order number for VEGATOR 621

VEGATOR 622

Approval

.X without
 EX0.X [EEx ia] IIC
 EX0.C [EEx ia] IIC, overfill protection acc. to WHG
 .M Ship approval

Order number for VEGATOR 622

6.2 VEGAMET

VEGAMET 601

Order number for VEGAMET 601

VEGAMET 602

Approval

.X without
 EX0.X [EEx ia] IIC
 EX0.C [EEx ia] IIC, overfill protection acc. to WHG
 .M Ship approval

Order number for VEGAMET 602

VEGAMET 614

Approval

.X without
 EX0.X [EEx ia] IIC
 EX0.C [EEx ia] IIC, overfill protection acc. to WHG
 .M Ship approval

Language of the menu (can be modified)

01 German
 02 English
 03 French
 04 Dutch
 05 Italian

Order number for VEGAMET 614

VEGAMET 614 V

Language of the menu (can be modified)

01 German
 02 English
 03 French
 04 Dutch
 05 Italian

Order number for VEGAMET 614 V

6.3 VEGASEL

VEGASEL 643

Order number for VEGASEL 643

6.4 VEGASTAB

VEGASTAB 690

Order number for VEGASTAB 690

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Deutschland
Tel. (07836) 50-0
Fax (07836) 50-201
e-mail info@de.vega.com
www.vega.com

