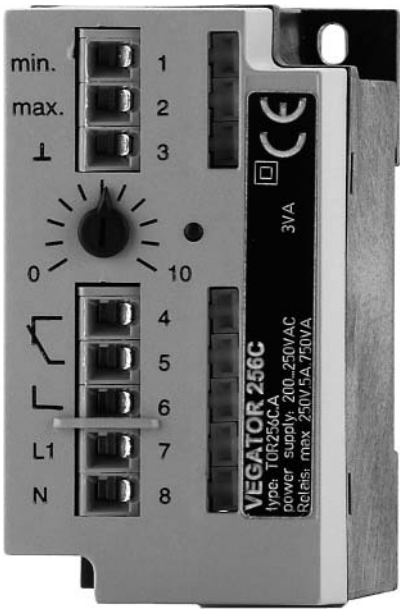
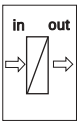
Operating Instructions

VEGATOR 256C

Signal conditioning instrument



Signal conditioning instruments
and communication



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1 About this document

1.1 Function

This operating instructions manual has all the information you need for quick setup and safe operation. Please read this manual before you start setup.

1.2 Target group

This operating instructions manual is directed to trained, qualified personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbolism used

Information, tip, note
This symbol indicates helpful additional information.

Caution: If this warning is ignored, faults or malfunctions can result.
Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.
Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.

Ex applications
This symbol indicates special instructions for Ex applications.

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

→ **Action**
This arrow indicates a single action.

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

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2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the operator. For safety and warranty reasons, any internal work on the instruments must be carried out only by personnel authorised by the manufacturer.

2.2 Appropriate use

VEGATOR 256C is a universal signal conditioning instrument for connection of a level switch.

You can find detailed information on the application range of VEGATOR 256C in chapter "*Product description*".

2.3 Warning about misuse

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

VEGATOR 256C is a high-tech instrument requiring the strict observance of standard regulations and guidelines. The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards (e.g. the VDE regulations in Germany) as well as all prevailing safety regulations and accident prevention rules.

2.5 CE conformity

VEGATOR 256C is in CE conformity with EMC (89/336/EWG) and LVD (73/23/EWG) as well as 93/68/EWG.

Conformity has been judged according to the following standards:

- EMC:
  - Emission EN 50081-1: 1992
  - Suceptibility EN 50082-2: 1995
- LVD: EN 61010-1: 1993

2.6 Safety instructions for Ex areas

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions manual and come with the Ex-approved instruments.

2.7 Environmental instructions

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.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Storage and transport*"
- Chapter "*Disposal*"

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3 Product description

3.1 Configuration

Scope of delivery

The scope of delivery encompasses:

- VEGATOR 256C signal conditioning instrument
- Documentation
  - this operating instructions manual

Components

VEGATOR 256C consists of:

- VEGATOR 256C signal conditioning instrument

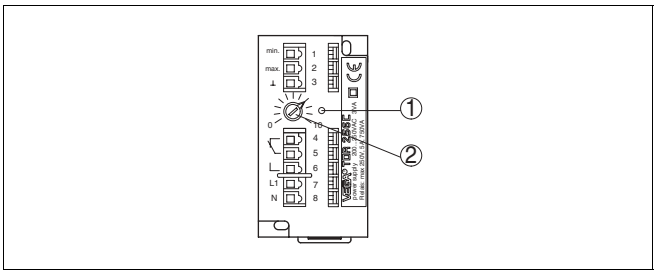

Fig. 1: VEGATOR 256C
1 Signal lamp - Relay output
2 Potentiometer for switching point adjustment

3.2 Principle of operation

Area of application

VEGATOR 256C is a single signal conditioning instrument for processing the signals of conductive probes.

Functional principle

VEGATOR 256C signal conditioning instrument can power connected instruments and process their measuring signals.

Supply

You can find detailed information on the power supply in chapter "*Technical data*" in the "*Supplement*".

3.3 Operation

A potentiometer is located on the front plate of VEGATOR 256C. With this potentiometer, the switching point can be adjusted.

3.4 Storage and transport

Packaging

Your instrument was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test according to DIN EN 24180.

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

Storage and transport temperature

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

4 Mount

4.1 General instructions

Installation location

VEGATOR 256C signal conditioning instrument with plug-in socket for mounting on carrier rail according to EN 50022.

4.2 Mounting instructions

Mount

You can mount the VEGATOR 256C signal conditioning instruments either to the wall (2 screws) or plug it onto a carrier rail.

Carrier rail mounting
Place the signal conditioning instrument onto the carrier rail (35x7.5 according to EN 50022) from below and press the instrument against the carrier rail until it snaps in.

Wall mounting
Fasten the instrument directly to the wall by means of two screws (max. ø 3 mm/0.12 in).

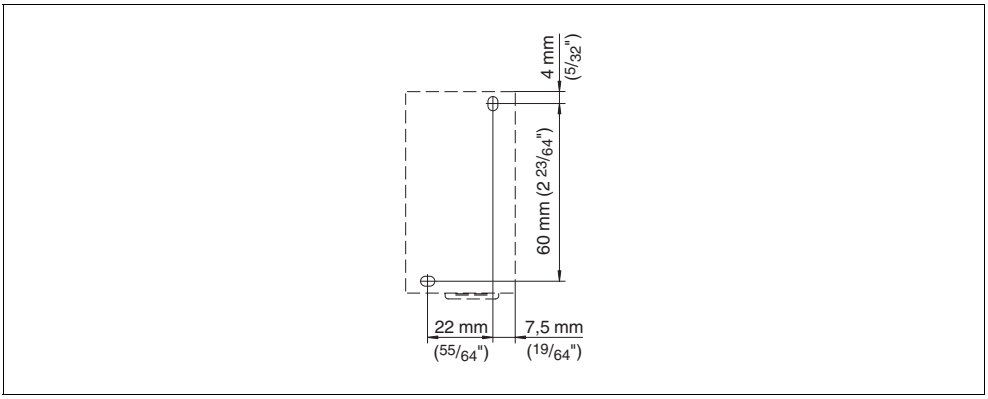

Fig. 2: Drilling template VEGATOR 256C

5 Connecting to power supply

5.1 Preparing the connection

Note safety instructions

Always keep in mind the following safety instructions:

- Connect only in the complete absence of line voltage
- If overvoltage surges are expected, overvoltage arresters should be installed

Tip:
We recommend VEGA overvoltage arresters B61-300 (power supply VEGATOR 256C) and B62-36G (sensor supply).

Select power supply

You can find detailed information on the power supply in chapter "*Technical data*" in the "*Supplement*".

Selecting connection cable

Power supply of VEGATOR 256C is connected with standard cable according to the national installation standards.

Standard two-wire cable without screening can be used to connect sensors. If electromagnetic interference is expected, screened cable must be used.

Cable screening and grounding

From a cable length of 50 m use one cable for each signal conditioning instrument.

If you want to use a common cable, the min. and max. cables must be screened. The screen must be connected to ground on both sides.

5.2 Wiring plan

Level detection

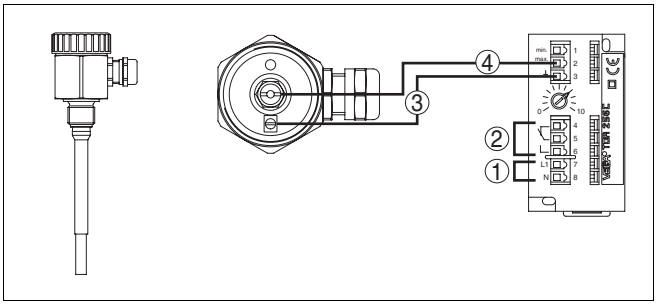

Fig. 3: Level detection
1 Supply
2 Relay output
3 Mass
4 max.

Pump control (min./max. control)

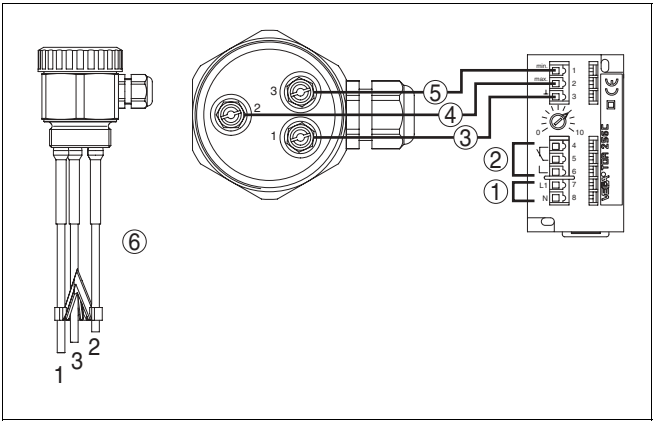

Fig. 4: Pump control
1 Supply
2 Relay output
3 Mass
4 max.
5 min.
6 Probe, e.g. EL3

Note:
Mutiple rod probes connected to several signal conditioning instruments or to a multiple channel instrument need a ground rod to keep the signal conditioning instruments from influencing each other.

If there are several VEGATOR 256C, it is absolutely necessary that they be connected identically, i.e. the first supply line to all no. 7 terminals and the second supply line to all no. 8 terminals. Exchanging no. 7 and no. 8 or connecting to different phases is not permitted.

Exchange of a VEGATOR 256B

If you want to replace a VEGATOR 256B by a VEGATOR 256C or if you want to use a VEGATOR 256C as well as a VEGATOR 256B on a multiple rod probe, the supply voltage must be wired as follows.

	VEGATOR 256C	**VEGATOR 256B**
L1	7	7
N	8	5

Keep in mind that the function of the relay control lamp on VEGATOR 256C is inverted to that of VEGATOR 256B.

VEGATOR 256C
The relay control lamp lights when the relay is energized and extinguishes when the relay is deenergized.

VEGATOR 256B
The relay control lamp extinguishes when the relay is energized and lights when the relay is deenergized.

6 Set up

6.1 Adjustment system

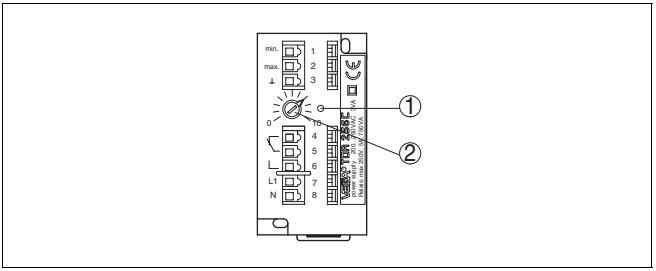

Fig. 5: Indicating and adjustment elements
1 Signal lamp - Relay output
2 Potentiometer for switching point adjustment

6.2 Adjustment elements

Control lamp

The yellow relay control lamp (LED) shows the switching condition of the relay.

In general, the relay control lamp indicates the activated (energised) condition of the relay.

A dark relay control lamp means that the relay is deenergised.

Potentiometer for switching point adjustment

A potentiometer for switching point adaptation is located on the front plate of the signal conditioning instrument. With this potentiometer you can adapt the measuring system to the conductivity of the product.

6.3 Switching point adjustment

Level detection

- Connecting the signal conditioning instrument to voltage supply
- Turn potentiometer (2) to position 0
- Fill the vessel until the max. probe is covered approx. 1 cm by the product
- Turn the potentiometer (2) slowly clockwise until the yellow LED extinguishes

The switching sensitivity of the signal conditioning instrument is now adapted to the conductivity of the product.

Pump control (min./max.)

- at first, connect only the ground and max. electrode to VEGATOR 256C (terminal 2 and 3)
- Connecting the signal conditioning instrument to voltage supply
- Turn potentiometer (2) to position 0
- Fill the vessel until the max. probe is covered approx. 1 cm by the product
- Turn potentiometer (2) slowly clockwise until the yellow LED extinguishes
- Connect min. electrode to terminal 1 of VEGATOR 256C

The switching sensitivity of the signal conditioning instrument is now adapted to the conductivity of the product, i.e. the relay output deenergises with max. level and the yellow control lamp extinguishes.

This switching condition remains until the level falls below the position of the min. electrode, i.e. the relay output energizes at min. level and the yellow control lamp lights.

The relay output deenergises again when the max. level is reached.

7 Maintenance and fault rectification

7.1 Maintenance

When used as directed in normal operation, VEGATOR 256C is completely maintenance free.

7.2 Remove interferences

Causes of malfunction

VEGATOR 256C offers maximum reliability. Nevertheless, faults can occur during operation. These may be caused by the following, e.g.:

- Measured value from sensor not correct
- Voltage supply
- Interference on the cables

Remove interferences

The first measures to be taken are to check the input/output signal. In many cases, the causes can be determined this way and the faults rectified.

24 hour service hotline

However, should this measures not be successful, call the VEGA service hotline in urgent cases under the phone no. **+49 1805 858550**.

The hotline is available to you 7 days a week round-the-clock. Since we offer this service world-wide, the support is only available in the English language. The service is free of charge, only the standard telephone costs will be charged.

Failure

? The signal conditioning instrument does not switch when the respective probe is covered or uncovered

- Conductivity of the product too low

→ Check if the conductivity value of your product is at least 7.5 µS/cm

- Line break to the sensor

→ Check the connection cables from the probe to the signal conditioning instrument

7.3 Instrument repair

If a repair is necessary, please proceed as follows:

You can download a return form (23 KB) in the Internet from our homepage www.vega.com under: "*Downloads - Forms and Certificates - Repair form*".

By doing this you help us carry out the repair quickly and without having to call for needed information.

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and probably a safety data sheet outside on the packaging
- Please ask the agency serving you for the address of your return shipment. You find the respective agency on our website www.vega.com under: "*Company - VEGA worldwide*"

8 Dismounting

8.1 Dismounting steps

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

8.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the electronics to be easily separable.

WEEE directive 2002/96/EG
This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws (in Germany, e.g. ElektroG). Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

Correct disposal avoids negative effects to persons and environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

If you cannot dispose of the instrument properly, please contact us about disposal methods or return.

9 Supplement

9.1 Technical data

General data	
Series	Module unit for mounting on carrier rail 35x7.5 or 35x15 according to EN 50022
Dimensions	W = 37 mm (1.46 in), H = 68 mm (2.68 in), D = 66 mm (2.6 in)
Weight	approx. 170 g (6 oz)
Housing material	Noryl SE100, Lexan 920A

Voltage supply	
Supply voltage	
– Standard	200 … 250 V AC, 50/60 Hz
– optional	24 V, 42 V, 48 V, 100 … 130 V AC (+10 %, -15 %)
Power consumption	1 VA

Sensor input	
Quantity	1x level detection or 1x pump control (min./ max.)
Response resistor	1 … 200 kOhm adjustable
Measuring circuit	approx. 12 V eff., max. 1 mA
Switching hysteresis	approx. 20 %

Relay output	
Quantity	1 (1x level detection)
Mode	Max. detection or overfill protection
Integration time	approx. 500 ms
Contact	Changeover contact (spdt)
Contact material	AgNi 0.15 hard gold-plated
Turn-on voltage	min. 10 mV DC, max. 250 V AC, 250 V DC
Switching current	min. 10 µA DC, max. 5 A AC, 1 A DC
Breaking capacity	max. 750 VA, max. 54 W

Adjustment elements	
Control lamp	to the indication of the relay switching status
Potentiometer	to the adaptation of the product conductivity

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Ambient conditions	
Ambient temperature	-20 … +50 °C (-4 … +122 °F)
Storage and transport temperature	-40 … +70 °C (-40 … +158 °F)

Electromechanical data	
Spring-loaded terminals	for wire cross-section up to 1.5 mm^2 (0.0023 in^2)

Electrical protective measures	
Protection	IP 20
Protection class	II

9.2 Dimensions

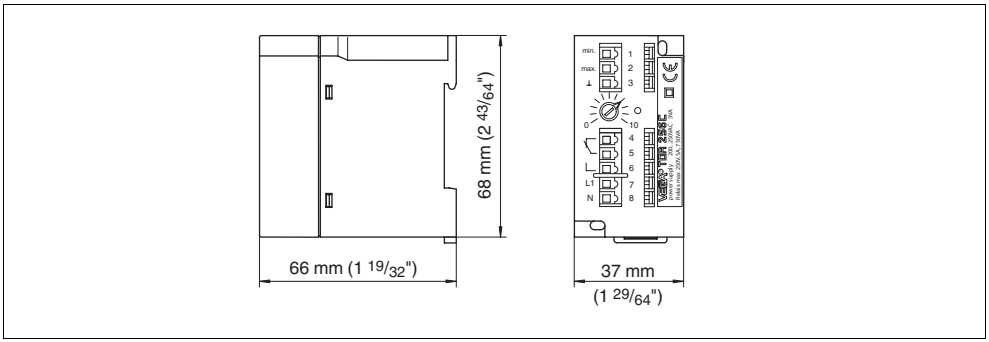

Fig. 6: Dimensions VEGATOR 256C

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All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice 23409-EN-070316