

# VACUUM GAUGE

VACUU·VIEW® VACUU·VIEW® extended



# Instructions for use





#### Original instructions Keep for further use!

This manual is only to be used and distributed in its complete and original form. It is strictly the user's responsibility to carefully check the validity of this manual with respect to the product.

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Thank you for purchasing this product from **VACUUBRAND GMBH + CO KG**. You have chosen a modern and technically high quality product.

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#### 1 Introduction

This manual is part of your product.

#### 1.1 User information

#### Safety

Instructions for use and safety

- Read this manual thoroughly and completely before using the product.
- Keep this manual in an easily accessible location.
- Proper use of the product is essential for safe operation. Comply with all safety instructions provided!
- In addition to this manual, adhere to any relevant local accident prevention regulations and comply with industrial safety regulations.

#### General

# General information

- Instead of the term VACUU-VIEW mostly the term Gauge or Vacuum gauge is used in this manual, in order to make the text more readable.
- The illustrations in this manual are provided as examples in order for a better understanding.
- They are intended to aid in your understanding of the proper use of the product.

#### **Contact**

Contact us

- Please ask for replacement in case of an incomplete manual or download the manual on our website: www.vacuubrand.com
- Contact us regarding any questions about this product, if you need further information, or to provide us with feedback.
- When contacting our Customer Service Department, please be sure to have the correct type and serial number of your product at call → see Rating plate on the product.

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#### 1.2 About this document

# 1.2.1 Display conventions

#### Warning levels



#### CAUTION

Indicates a potentially hazardous situation.

Disregarding the situation could result in slight or minor injury or damage to property.

⇒ Take appropriate action to avoid dangerous situation!

# **NOTICE**

Notice for a potentially harmful situation.

Disregarding the notice could lead to material damage.

#### Additional notes

#### **IMPORTANT!**

- ⇒ Information or specific use recommendation, which must be observed.
- ⇒ Important information for proper operation.



- ⇒ Helpful tips and tricks
- ⇒ Additional information

Additional symbols





Electric/electronic devices and batteries must not be disposed of in the domestic waste at the end of their service life

# 1.2.2 Handling instructions (action steps)

Presentation convention operating steps

# Action step (single step)

- ⇒ Do the described step.
  - ☑ Result of action

# **Handling instructions** (multiple steps)

- 1. first step
- 2. next step
  - ☑ Result of action

Follow steps in the described order.

#### 1.2.3 Abbreviations

Used abbreviations

_	
abs.	absolute
ATM	Atmospheric pressure
<b>d</b> <sub>i</sub> (di)	Interior diameter
DN	Nominal diameter
Gr.	Size
hPa	Pressure unit, Hectopascal (1 hPa = 1 mbar =
	0.75 Torr)
KF	Small flange
max	Maximum value
mbar	Pressure unit, millibar (1 mbar = 1 hPa = 0.75 Torr)
min	Minimum value
RMA-N°	Return Merchandise Authorization number
Torr	Pressure unit (1 Torr = 1.33 mbar = 1.33 hPa)
VAC	Vacuum



# 1.2.4 Term definition

Product specific terms

VACUU-BUS®	Bus system by VACUUBRAND
VACUU-SELECT®	Vacuum controller, controller with touchscreen; consisting of operating panel and vacuum sensor.
VACUU·BUS® connector	4-pin round connector for the bus system from <b>VACUUBRAND</b> .
CVC 3000	Vacuum controller, controller
DCP 3000	Vacuum gauge
Fine vacuum	Pressure measuring range in vacuum systems, from: 1 mbar-0.001 mbar (0.75 Torr-0.00075 Torr)
Rough vacuum	Pressure measuring range in vacuum systems, from: atmospheric pressure–1 mbar (atmospheric pressure–0.75 Torr)

# 2 Safety instructions

The complete information of this chapter must be observed by all persons working with the herein described product.

Use the product only when it is in proper working condition.

#### 2.1 Intended use

Intended use

**VACUU-VIEW** is a laboratory instrument for the measurement of absolute pressure in the range of rough vacuum or as **VACUU-VIEW extended** version for both measuring rough and fine vacuum.

The gauge may only be used indoors in non-explosive areas. Any other use is considered to be improper use.

# 2.2 Improper use

Improper use

Improper use includes:

- Using the product contrary to its intended use.
- Operation with obvious malfunctions.
- Operation at inadmissible operating conditions.
- Unauthorized modifications or repairs provided by the customer.

# 2.3 General safety instructions

#### 2.3.1 Safety precautions

#### Safety precautions

- ⇒ Use the gauge only if you have understood its function and this manual.
- ⇒ Please note that adhering process media can pose danger to humans and the environment.
- ⇒ When handling with contaminated parts, follow the relevant regulations and safety precautions.
- ⇒ Repairs are only allowed by the Service Department or your local supplier.

#### **IMPORTANT!**

# For all service works hazardous substances need to be excluded.

⇒ Fill in the form <u>Health and Safety Clearance</u> thoroughly and completely and confirm with your signature.

#### 2.3.2 Personnel

# **IMPORTANT!**

It is the owner's responsibility to observe the proper use of the device.

- ⇒ Always be conscious of safety, and work in a safe manner.
- ⇒ Observe the owners' directives at work, the national accident prevention regulations and occupational safety provisions.

# 2.3.3 ATEX equipment category

#### Installation and potentially explosive atmospheres

Installation and operation in areas where potentially explosive atmospheres can develop to a hazardous degree is not permitted.

The user is responsible for evaluating the hazards to the equipment so that, if necessary, protective measures can be taken for its installation and safe operation.

#### **ATEX** equipment labeling

ATEX category

VACUUBRAND devices with the marking shown on the rating plate.



VACUUBRAND devices marked (a) have an approval of ATEX equipment category 3 G; flammable substances as a mixture with air: gases, vapors.

Only use VACUUBRAND devices if they are in perfect working condition.

ATEX category and peripherals

ATEX approval<sup>1</sup> only applies to the internal, wetted parts of the of the product, not to its surroundings.

The ATEX equipment category of the product is dependent on the connected components and peripheral devices. Components and connected peripherals need to have the same or higher ATEX approval. Without concordant categorization of peripherals, the specified category of the VACUUBRAND equipment loses its validity.

Prevent ignition source

The use of venting valves is only permitted if this would not normally, or only rarely, cause explosive mixtures within the interior wetted part of the device, or do so only for a short time.

- ⇒ If necessary vent with inert gas.
- ⇒ After any work on the vacuum sensor, check its leakage rate.

Information on the ATEX equipment category is also available on our website at: <a href="VACUUBRAND/Anwendungen/Zulassung ATEX-Gerätekategorie 3">VACUUBRAND/Anwendungen/Zulassung ATEX-Gerätekategorie 3</a>

<sup>1 -&</sup>gt; See rating plate

#### Restrictions on operating conditions

Explanation of usage conditions X
Example extract type plate



Meaning for devices marked with X:

- The devices have a low mechanical protection and must be installed so that they cannot be mechanically damaged from the outside; e.g., installing pump stations with impact protection, attaching shatter protection for glass flasks, etc.
- The devices are designed for an ambient and media temperature of +10 °C to +40 °C during operation. These ambient and media temperatures must never be exceeded. When conveying/measuring non-explosive gases, extended gas suction temperatures apply, see chapter: Technical data, media temperature (gas).

# 2.4 Proper disposal

#### NOTE

Electronic components must not be disposed of in the domestic waste at the end of their service life.

Used electronic devices and batteries contain harmful substances that can cause damage to the environment or human health. Disused electrical devices also contain valuable raw materials, which can be recovered for reuse if the device is disposed of correctly within the recycling process.

End users are legally obliged to take used electric and electronic devices to a licensed collection point.

- ⇒ It is your responsibility to save and delete any data before disposing of your electronic device.
- ⇒ Correctly dispose of all electronic scrap and electric components at the end of their service life.
- Observe the national regulations regarding disposal and environmental protection.



# 3 Product description

#### **Goods arrival**

#### Goods arrival

Check the shipment for transport damage and completeness.

⇒ Report any transit damage immediately to the supplier.

# NOTICE

# Condensate could damage the gauge.

A large difference in temperature between storage location and installation location can cause condensation.

⇒ Let the product acclimatize for 3-4 hours before using it.

#### **Included materials**

Original packaging

#### Included materials

Gauge	
VACUU·VIEW with 2 m connection cable	20683220
or	
VACUU·VIEW extended with 2 m connection cable	20683210
Hose nozzle 10/6 G1/4" with O ring	20642474
Wall power supply plug* 30 W 24 V; with adapters and 2 m connection cable	20612090
Instructions for use	20901330
Safety Information for Vacuum Equipment	20999254

<sup>\*</sup> not required when connected to a VACUU-BUS® compatible gauge or controller.

# 3.1 VACUU-VIEW vacuum gauge

Gauge description and designs

The gauge as stand-alone version will be supplied with wall power supply plug. The gauge includes a vacuum sensor and is equipped with an illuminated display for pressure display. The gauge is highly, chemically resistant.

**VACUU-VIEW** completes the **VACUU-BUS**® accessories program. For more demanding tasks the gauge can be used as an external vacuum sensor when connected to a controller **VACUU-SELECT**, **CVC 3000** or the gauge **DCP 3000**.

When operating with a *DCP 3000* measured values can be stored (data logger) and graphically displayed. Via the RS 232 interface the pressure can be read by an external Computer.

# 3.1.1 Designs

#### **VACUU-VIEW**



With chemically resistant ceramic diaphragm sensor for precise measurings in the range of **rough vacuum**. VACUU·VIEW provides gas-independent pressure indication with precise capacitive readout.

The material of the connection flange of **VACUU-VIEW** consists of black PP and is therefore easy to distinguish from the extended design.

#### **VACUU-VIEW** extended

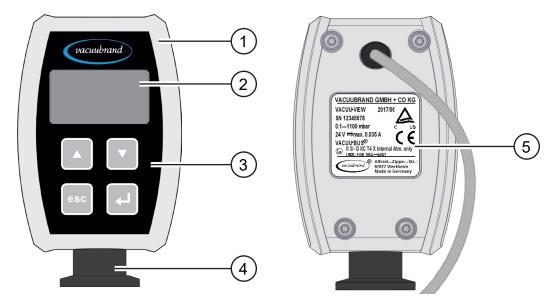


The heavy duty combination of ceramic diaphragm sensor and ceramic jacketed Pirani sensor ensures reliable readings in the wide range from atmosphere down to **rough until fine vacuum**. The gauge reliably measures in the complete measuring range.

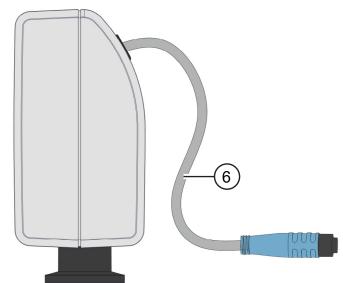
The connection flange of **VACUU-VIEW extended** consists of aluminium and has at the interior a PPS coating.

#### 3.1.2 Device view

Front and rear side



Side view



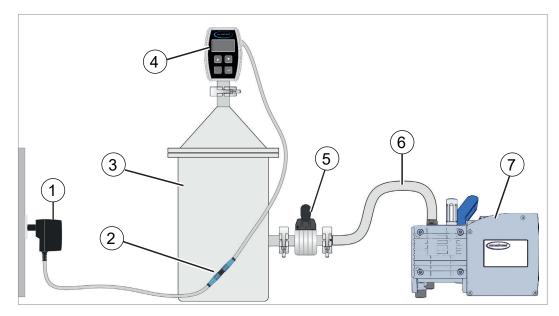
- 1 VACUU-VIEW
- 2 Display
- 3 Operating elements
- 4 Small flange KF DN16, inside thread G1/4"
  - ▶ Material: PP black ⇒ VACUU·VIEW
  - Material: Aluminium + PPS ⇒ VACUU·VIEW extended
- 5 Rating plate (here VACUU·VIEW)
- 6 Connection cable, 2 m
  - ▶ for connection to wall power supply plug or
  - ▶ for VACUU·BUS® connection to VACUU·SELECT, CVC 3000 or DCP 3000

# 3.2 Application example

→ Example

VACUU·VIEW direct

installation



- 1 Wall power supply, wall power supply plug
- 2 Plug connector, connection cable (each 2 m)
- 3 Vacuum chamber, tank, apparatus
- 4 VACUU-VIEW vacuum gauge (Stand-alone version including wall power supply plug)
- 5 Vacuum valve
- 6 Vacuum hose
- 7 Diaphragm pump, vacuum pump



Please observe the following points to get an optimal measuring result:

- ⇒ Connect the gauge as close as possible to the apparatus.
- ⇒ If possible use the small flange for connection.
- ⇒ Connect the vacuum line with a cross-section as wide as possible.

# 4 Connection and operation

#### 4.1 Connection

#### 4.1.1 Installation

#### **IMPORTANT!**

Never install the measuring instrument too close to hot equipment, like on top of a rotary vane pump, in order to avoid incorrect measurements or damages to the sensor.

The gauge is intended for assembly directly to the apparatus (application).

- ⇒ Observe all specifications for installation, connection and operation according to technical data,
  - → see chapter 9.1 Technical information.
- ⇒ Also observe rating plate data.
- ⇒ Compare the permitted limits which are described in this manual, with your actual application regarding operating media, pressures, forces, moments, temperatures and voltage.

#### Installation conditions

- The gauge has acclimatized.
- Ambient conditions are observed and are within the limitation of use.

# Consider installation conditions

Limitation of use		(US)	
Ambient temperature	10–40 °C	50-104 °F	
Altitude, max.	2000 m above sea level	6.562 ft above sea level	
Relative humidity	30-85 %, non condensing		
Protection type/Impact energy	IP 54/5 J		
Pollution degree	2		
Avoid condensation or contamination by dust or liquids.			



#### 4.1.2 Vacuum connection

#### **IMPORTANT!**

- → Maximum admissable pressure at vacuum sensor: 1.5 bar/ 750 Torr (absolute).
- ⇒ Pollution and damages, especially at the flange, could affect the measurement.
- ⇒ If possible assemble the vacuum gauge vertically; this prevents condensate accumulation.

#### Connection via small flange

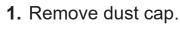
**Required connection material:** Clamping ring, centering or centering ring for KF DN 16.



- **1.** Remove dust cap.
- 2. Put the gauge with the centering onto the connection of the apparatus → small flange KF DN16.
- **3.** Fix the vacuum gauge with a clamping ring.

#### Connection via hose nozzle

**Required connection material:** Hose nozzle DN 6/10 mm G1/4" with O ring and compatible hose clip (option).



- **2.** Screw the hose nozzle plus the o ring hand-tight into the inside thread.
- **3.** Use the hose nozzle to assemble the gauge to a vacuum hose or directly at the apparatus.
- **4.** Fix the vacuum hose, e. g., with a hose nozzle.
- **5.** Fix the vacuum gauge.



- ⇒ Use a stable vacuum hose that is suitable for the required vacuum range. For fine vacuum range, flexible rubber hoses for example are not useful because of possible gas emission.
- ⇒ Connect hose tubes as short as possible.

#### 4.1.3 Electrical connection

# NOTICE

No wall power supply plug is required when connected as VACUU·BUS component, to a controller VACUU·SELECT, CVC 3000 or gauge DCP 3000.

⇒ Power supply of the gauge via VACUU·BUS.

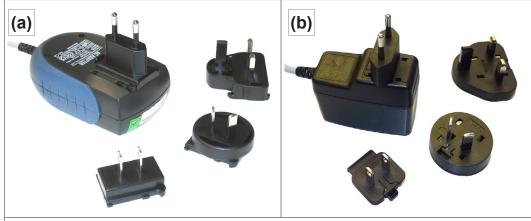
# NOTICE

The CE/UKCA mark and a cTÜVus mark (see rating plate) may be voided if not using a VACUUBRAND power supply.

- ⇒ Use a VACUUBRAND wall power supply plug or another VACUUBRAND peripheral device (e. g., controller VACUU·SELECT) to provide the supply voltage.
- ⇒ If the supply voltage is not provided by VACUUBRAND wall power supply plug or any other VACUUBRAND peripheral device (e. g., Chemistry pumping unit PC 3001 VARIO select), the power supply must provide a stabilized 24 V DC voltage which must not provide more than 6.25 A even in case of failure.
- ⇒ If using additional overcurrent protection devices (e. g., fuses), these protection devices must interrupt the supply voltage at a maximum current of 8.4 A after 120 s at the latest.

# Wall power supply plug\*

Wall power supply, wall power supply plug



- \* Short-circuit-proofed multi-voltage power supply with integrated overload protection and changeable mains plugs:
  - (a) valid until 11/2020
- (b) valid from 12/2020



#### Prepare wall power supply plug

#### Prepare connection

- **1.** Take the wall power supply kit out of the packaging.
- **2.** Select the mains plug that fits to your mains socket.
- **3.** Connect the mains plug to the metal contacts of the wall power supply plug.
- 4. Slide the mains plug until it locks.

#### Remove mains plug

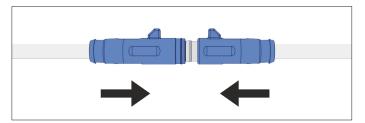
#### Remove mains plug

- 1. Press the locking knob on top of the wall power supply plug.
- 2. Remove the mains plug.
  - ☑ Another mains plug can be fixed.

#### Connect to mains

#### **IMPORTANT!**

- ⇒ Please install the power supply line in such a way, that no damage can cause to the cable due to sharp edges, chemicals or hot surfaces.
- **1.** Connect the mains connector from the gauge to the female plug of the wall power supply.



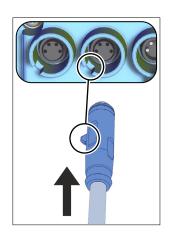
2. Plug the wall power supply into the mains socket.

# 4.1.4 Controller, gauge and VACUU-BUS®

Meaning

**VACUU·BUS**® is a communication system for peripheral accessories that are connected to **VACUUBRAND** controller or gauge.

**VACUU·BUS**® components will be automatically detected by VACUU·SELECT/CVC 3000/DCP 3000. By uniform connectors and Y adapter the bus-system can be extended with up to 32 peripherals.



# Connenct VACUU-VIEW as VACUU-BUS® component (client)

- ⇒ Plug the mains connector of **VACUU·BUS**® into the port on the rear side of VACUU·SELECT, DCP 3000 or CVC 3000.
  - ☑ Mains supply via controller or gauge.



Plug connectors of the newest series have a guide tongue for proper connection. Slide the connection into the guiding groove on the rear side of the controller or gauge.

#### **Feature**

VACUU·BUS Address assignment When using the gauge as **VACUU-BUS**® component, e. g., when connected to a CVC 3000, the controller detects the gauge automatically as vacuum sensor.

# **IMPORTANT!**

First perform address assignment at CVC or DCP, when working with several **VACUU·VIEW** gauges of the same type.

For detailed descriptions about address assignment → see online manual 20999151 (CVC 3000).

# Address assignment

VACUU·BUS component	Address-N°	Abbreviations in	
		CVC/DCP	VACUU- SELECT
VACUU·VIEW	1–4	VSK_	VS-C_
VACUU·VIEW extended	1–4	VSP_	VS-P_
Reference sensor	1–4	Ref	VS-REF_

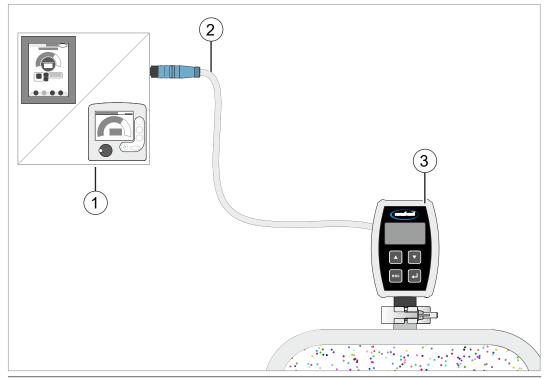
# Connection example VACUU·BUS® mit VACUU·VIEW

→ Example

VACUU·VIEW

as VACUU·BUS®

component (client)



- 1 VACUU-SELECT, CVC 3000\* (or DCP 3000\*)
- 2 Connection cable (power supply via VACUU·BUS)
- 3 VACUU·VIEW Rough vacuum measurement or

**VACUU·VIEW extended** – Rough- until fine vacuum measurement

#### \* Options with CVC 3000 or DCP 3000:

- ▶ using the RS 232 interface with an external application for reading the measuring data,
- ▶ with connection of several **VACUU·VIEW**s, address assignment and differential pressure measurement.

Y adapter



1

Up to 4 sensors VACUU-VIEW type and

4 sensors VACUU-VIEW extended type and

4 sensors **VACUU·VIEW** type -> reference sensor for differential pressure measurement

... can be connected to **VACUU-SELECT, CVC 3000** or **DCP 3000** by **VACUU-BUS**<sup>®</sup>-Y adapters.

→ see also: *Address assignment on page 21*Please regard the maximum total cable length of 30 m.

# 4.2 Operation

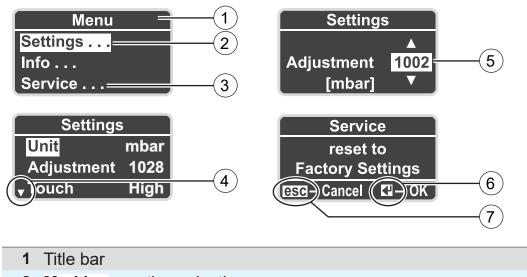
The operation is limited to the pre-settings about pressure unit and display settings, such as the sensitivity of the touch panel. Aside from that, version information can be displayed and factory settings or updates can be loaded. Operation of the gauge is unnecessary during the running measurement.

# 4.2.1 Display elements

Icons on the display show which key needs to be pressed to access a menu or submenu.

#### Meaning display and symbols

→ Examples Icons and illustrations on the display



- 2 Marking = active selection
- 3 ... = Refers to submenu
- 4 Press key arrow down
- 5 Adapt value with *up* or *down*
- 6 Press Enter
- 7 Press Esc

# 4.2.2 Operating elements

The front side of the gauge consists of a glass with a touch-sensitive control pad including 4 keys.

Operating elements touch keys

# Key Meaning Arrow up ▶ Menu selection Navigate upwards Increase value Arrow down Menu selection Navigate downwards Decrease value Enter ▶ Confirm entry Call up menu Confirm value Escape esc Abort action or exit menu Return to previous menu ▶ Return to pressure display

# **NOTICE**

# Damage of the glass surface.

Pointed or edged objects could damage the glass surface of the gauge.

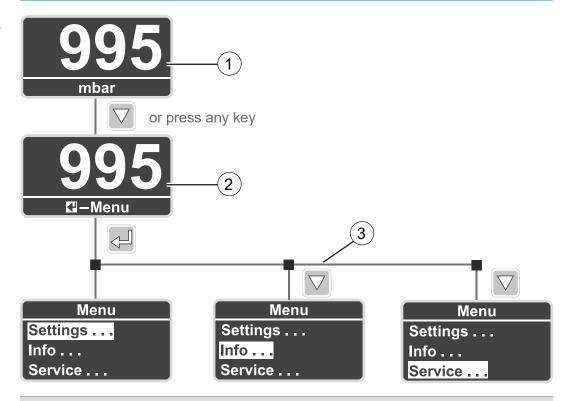
⇒ Operate the vacuum gauge only by a suitable touch stylus or finger.

#### 4.2.3 Menu structure

The display with text **Menu** in the footer can be called up by any touch key. The menu language is English.

#### **VACUU-VIEW Menus**

Menu structure

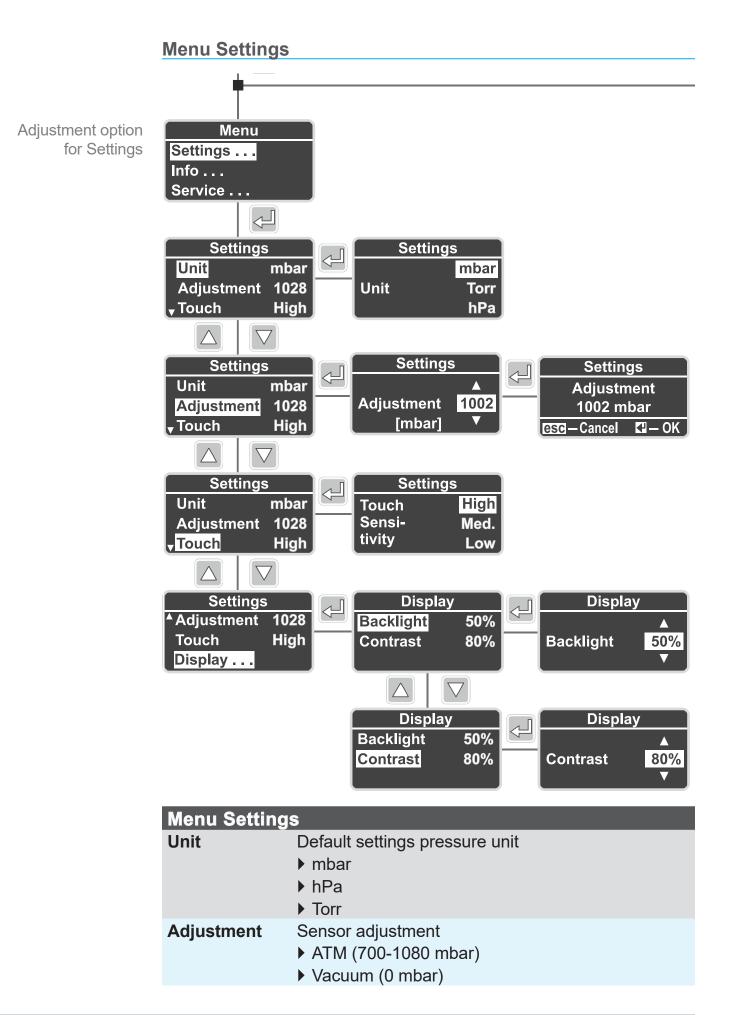


- 1 Pressure reading
- 2 Call-up selection menus
- 3 Menus
  - Settings
  - ▶ Info
  - ▶ Service



Without any action, the display returns automatically to pressure display.

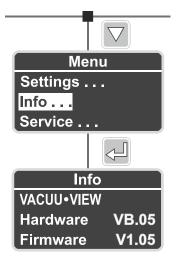
- Menu → return to basic screen after approximately 5 seconds.
- Submenu → return to basic screen after approximately 20 seconds.
- Submenu *Diagnostics* → return to basic screen after approximately 60 seconds.



Menu Settings			
Touch	Adjust sensitivity of the touch panel		
	▶ High		
	▶ Media		
	▶ Low		
<b>Display</b> Adjust brightness and contrast			
	▶ Backlight: 10% – 100 %		
	▶ Contrast: 10% – 100 %		

#### Menu Info

Call-up version information

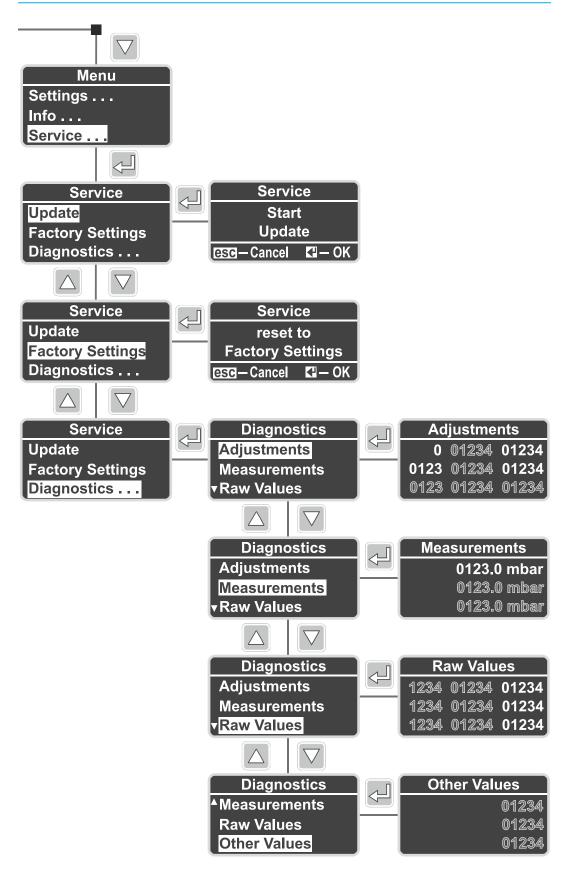


# Info Gauge type VACUU·VIEW VACUU·VIEW extended Gauge version (display example) Hardware: VB.xx Firmware: V1.xx



#### Service menu

Service menus



#### Service menus

Service menu			
Update	To perform software updates ▶ Start update		
Factory Settings	Reset to factory settings  reset to Factory Settings		
<b>Diagnostics*</b> from software version V1.04	Call-up diagnostics menu  Adjustment  Measurements  Raw Values		
from software version V1.05	▶ Other Values		

<sup>\*</sup> Menu for our Service department for error determination.



The display of diagnostics sub-menus for **VACUU-VIEW** and **VACUU-VIEW extended** do vary.

# 5 Operation

#### 5.1 Vacuum measurement

Directly after mains connection the gauge **VACUU-VIEW** (extended) starts measuring and displaying pressure reading. Also when connected to a **VACUU-BUS**® system, pressure reading starts immediately. The measurement starts immediately after switching on *CVC 3000* or *DCP 3000*.

The gauge is intended for continuous operation.

#### Warm-up (warm-up times)

#### **IMPORTANT!**

⇒ Observe the warm-up times until full measurement precision is reached.

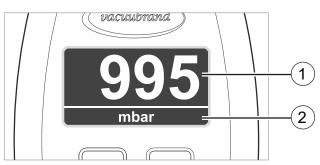
Warm-up times

VACUU-VIEW	Rough vacuum	▶ 3 minutes
VACUU-VIEW extended	Fine vacuum	▶ 15 minutes

# 5.2 Pressure reading

# Display with pressure reading

Pressure reading, basic display



1 Pressure reading (min./max.)

VACUU·VIEW

▶ 0.1–1100 [mbar/hPa]

▶ 0.075–825 [ Torr

VACUU·VIEW extended

▶ 0.001–1100 [mbar/hPa]

▶ 0.001–825 [Torr]

2 Pressure unit (mbar, hPa, Torr)

# 5.3 Adjustment

#### NOTICE

For pressure < 5 mbar the VACUU-VIEW extended measures the pressure-dependent thermal conductivity of gas.

The gauge is factory adjusted for air. For gases with higher mass, this may (<5 mbar) result in incorrect measurements.

- · light gases: Pressure reading increased
- heavy gases: Pressure reading decreased
- ⇒ If required perform the adjustment with the gas that is to measured. H₂, He, Ar, CO₂.

The adjustment is only possible after the warm-up time of the gauge has been completed.

⇒ Perform adjustment only when the gauge is ready for use.

# 5.3.1 Sensor adjustment, in general

Adjustment is not part of the everyday operation. Perform adjustment only when the measured values differ from reference normal or when irregularities in pressure reading emerge.

# **IMPORTANT!**

Only perform **sensor adjustment** during **operation** with a fully warmed-up sensor (consider warm-up time 15–20 minutes).

Precondition for a proper sensor adjustment is the connection to a reliable source of vacuum, e. g., adjustment of a **VACUU-VIEW extended** with a high vacuum pump and a precise reference gauge.

In case of a polluted vacuum system, e. g., with oil, particles or humidity could contaminate the sensor and cause mismeasurements and/or falsify sensor adjustment.

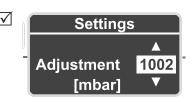
⇒ Clean polluted sensors before adjustment → see chapter: 8
Cleaning.

# 5.3.2 Adjustment at atmospheric pressure

#### Perform sensor adjustment at atmospheric pressure

Sensor adjustment at atmospheric pressure

1. Call up the *menu Settings/Adjustment*.



- **2.** If necessary, correct the value to the precise atmospheric pressure in accordance with the reference gauge by pressing the *arrow* keys.
- 3. Press *Enter* to confirm entry.
- **4.** Subsequently confirm safety prompt by pressing *Enter*.
  - ☑ The pressure value will be stored automatically after confirming the safety prompt.
  - ✓ VACUU·VIEW (extended) adjusted to atmospheric pressure.



**VACUU·VIEW** already displays the actual pressure. Normally, only corrections in the range of ± 5 are required.

# 5.3.3 Adjustment to reference pressure

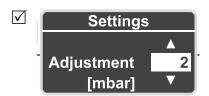
#### Adjustment VACUU-VIEW to reference pressure

Adjustment at reference pressure

**1.** Connect the gauge **VACUU·VIEW** to a vacuum pump which pumps to a precise vacuum, e. g., down to 2 mbar.

#### **IMPORTANT!**

- ⇒ Check the accuracy of the ultimate vacuum with a calibrated reference vacuum gauge.
- 2. Call up the menu Settings/Adjustment. The value on the display should be 2 referring to the reached vacuum of the vacuum pump.
- **3.** If necessary, correct the value for reference pressure **2** by pressing the **arrow** keys.



- **4.** Press *Enter* to confirm entry.
- **5.** Subsequently confirm safety prompt by pressing *Enter*.
  - ☑ VACUU·VIEW adjusted to reference pressure.



The adjustment to a reference pressure should only be carried out when this pressure is accurately and reliably known.

We recommend the adjustment to 0 mbar by using a high vacuum pump (end vacuum < 0,1 mbar)

→ see also 5.3.4 Adjustment under vacuum

# 5.3.4 Adjustment under vacuum

# NOTICE

The adjustment at vacuum for VACUU·VIEW extended always occurs to the final measured value with 0 mbar.

An adjustment to a reference vacuum value is not possible.

⇒ Pump down to an ultimate vacuum as low as possible.

#### VACUU-VIEW (extended) adjusted under vacuum.

Adjustment under vacuum

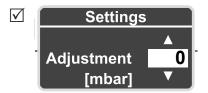
 Connect the gauge VACUU-VIEW extended to a high vacuum pump which pumps to a precise end vacuum lower than < 10<sup>-3</sup> mbar

or

connect the gauge **VACUU·VIEW** to a high vacuum pump which pumps to a precise vacuum lower than < 0,1 mbar.

#### **IMPORTANT!**

- ⇒ Check the accuracy of the ultimate vacuum with a calibrated reference vacuum gauge.
- **2.** Please wait until the high vacuum pump has reached ultimate vacuum and until the gauge has completed warm-up.
- **3.** Call up the *menu Settings/Adjustment*. The value on the display should be *0* .



- 4. Press *Enter* to confirm entry.
- **5.** Subsequently confirm safety prompt by pressing *Enter*.
  - ☑ VACUU·VIEW (extended) adjusted under vacuum.

# 6 Service menus

# 6.1 Update

#### NOTICE

Damage to the gauge due to incorrect execution of updates.

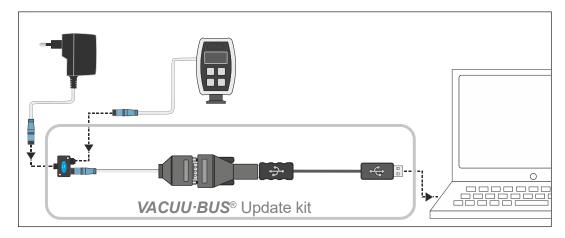
Gauges may be damaged by incorrect or unauthorized procedure.

- Please note that you must have the necessary authorizations and basic knowledge for an update.
- Always connect only one gauge to the VACUU·BUS® Update kit and run updates individually.

#### 6.1.1 Preparation

#### Connect VACUU·BUS®-Update-Kit¹

→ Example Connect Update kit



- **1.** Disconnect **VACUU·BUS**® connector from gauge and wall power supply plug.
- **2.** Connect wall power supply plug, gauge and *VACUU·BUS*® Update kit one after the other to the Y adapter.
- **3.** Connect the **VACUU·BUS**® Update kit to a PC or laptop (= end device).
  - ☑ With the first connection of the Update kit the operating system displays an information prompt, e. g., Hardware Wizard displays Found New Hardware.
- **4.** Plug the wall power supply into the mains socket.

<sup>1 →</sup> see chapter 9.2 Ordering information



#### Download and start update software<sup>2</sup>

Download update file

- 1. Download the <u>ZIP file</u> with updates for your device from **VACUUBRAND** homepage onto your computer.
- Unzip the ZIP file:
   Right-click on the ZIP file ⇒ Extract to...
- 3. Open the extracted folder.

Start application (exe)

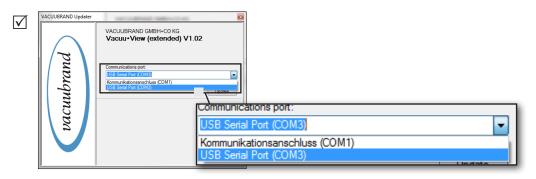
**4.** Start the update application by double-click on the icon





**5.** Select the required COM port from the drop down list to which the *VACUU·BUS*® Update kit is connected: *USB Serial Port*.







If no COM port is displayed for selection, you need to install the hardware driver for RS485/USB.

⇒ Ask the responsible staff member of your IT department to install the required hardware driver (CD-ROM is included to the Update kit).



⇒ First, please read the description in chapter
6.1.2 Update gauge carefully before proceeding.

<sup>2</sup> Valid for both VACUU·VIEW as well as VACUU·VIEW extended.

# 6.1.2 Update gauge

#### **IMPORTANT!**



- ⇒ Please regard that you ever need to use the gauge and then promptly switch to the Update window on your monitor.
- ⇒ Also note that the time window in which the update application searches a connected device, takes **20 seconds**.

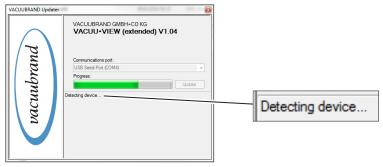
## Perform software update

 At your VACUU·VIEW gauge call-up the menu Service/Update.

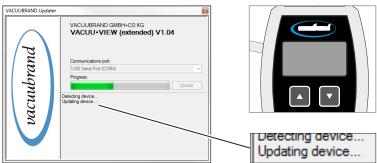
Perform software update



- 2. Click on the button Update
  - ☑ Detection for connected device starts.



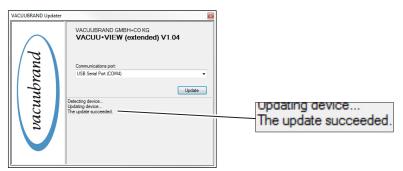
- **3.** Press *Enter* key on the gauge within the time the progress bar is displayed.
  - ☑ Update starts.
  - ☑ Within the update progress the display is switched off.





Perform software update

- **4.** Wait until the update is completely loaded.
  - $\ensuremath{\square}$  The following prompt appears in the update application:



- ☑ Update succeeded.
- ☑ The display of the gauge is switched on again.



IMPORTANT!

⇒ Regard the warm-up time also after updating the gauge.

# **6.2 Factory Settings**

# **Reset to factory settings**

Factory settings

1. Call up menu Service/Factory Settings .



- 2. Press *Enter* to start Reset.

# **6.3 Submenu Diagnostics**

From *software version V1.04* a diagnostic menu is included for **VACUU-VIEW**<sup>®</sup> gauges.

## Call-up diagnostics menu

Diagnostics menus

⇒ Call up the *menu Service/Diagnostics* ....



#### Call-up sub-menus

- **1.** Press arrow key to select one of the sub-menus.
- **2.** Press *Enter*, to call up the selected sub-menu.

When contacting our Service Department the *Diagnostics* values might help to localize an error.

### **IMPORTANT!**

- ⇒ Please send us photos of the displayed values. As well measured under vacuum as at atmospheric pressure.
- ⇒ Email the photos to: service@vacuubrand.com
- ⇒ Details about the product type and serial number from the rating plate are also required.

# 7 Resolving problems



### **CAUTION**

Malfunction because of incorrect repair by the customer.

The gauge is not intended for the repair by customer.

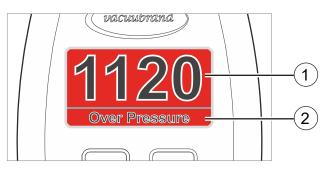
- ⇒ Never open the vacuum gauge.
- ⇒ If the gauge is defective, please send it to our Service Department or your local supplier.

# 7.1 Error display

For error indication the backlight of the display switches to red.

## **Example error display**

Error display (red)



- 1 Error display with red backlight
- 2 Error indication as clear text
  - Over Pressure pressure overload
  - Under Range measuring fallen below lowest range
  - ▶ Sensor Failure sensor error

# 7.2 Fault - Cause - Remedy

Resolving problems

Fault	▶ Possible cause	√Remedy
Over Pressure	<ul><li>Pressure too high.</li><li>Measuring range exceeded.</li></ul>	<ul> <li>✓ Vent the system or apparatus.</li> <li>✓ Reduce pressure.</li> <li>✓ Perform sensor adjustment.</li> <li>✓ Call-up diagnostics menu and inform our Service about the status.</li> </ul>
Under Range	Below measuring range (negative pres- sure reading).	<ul> <li>✓ Perform sensor adjustment.</li> <li>✓ Call-up diagnostics menu and inform our Service about the status.</li> </ul>
Sensor Failure	▶ Defective sensor.	<ul><li>✓ Call-up diagnostics menu and inform our Service about the status.</li><li>✓ Send in.</li></ul>
Front glass bro- ken	<ul><li>Incorrect cleaning agent used.</li><li>Mechanically damaged.</li></ul>	✓ Send in.
Readings de- viate from the reference stan- dard	<ul><li>Sensor measures incorrectly.</li><li>Reading of other gas than air.</li></ul>	<ul> <li>✓ Perform sensor adjustment.</li> <li>✓ Perform sensor adjustment with the gas to be measured.</li> <li>✓ Call-up diagnostics menu and inform our Service about the status.</li> </ul>
Adjustment	▶ A for sensor adjust- ment inadmissible pressure is reached (no adjustment possi- ble in between pres- sure range 20 – 700 mbar).	<ul> <li>✓ Wait approximately 5 –         10 minutes until the sensor is ready for use.</li> <li>✓ Perform adjustment at &gt; 700 mbar or &lt; 20 mbar.</li> <li>✓ For adjustment connect a vacuum pump with precise vacuum and then move pump down to the possible pressure range.</li> </ul>
Menu Settings/ Adjustment warm up	Sensor warm-up not completed.	<ul> <li>✓ Wait approximately 5 –</li> <li>10 minutes until the sensor is ready for use.</li> <li>✓ Subsequently perform sensor adjustment if necessary.</li> </ul>

Possible error during an update

Fault	▶ Possible cause	√ Remedy
No display	No power, wall power supply plug defective or not connected.	✓ Check power supply, connect wall power supply plug to a socket.
USB serial port not detected (No COM-port for selection listed)	<ul> <li>No driver installed for RS485/USB interface.</li> <li>Driver for RS485/USB interface not enabled.</li> </ul>	✓ Install the driver for the RS485 / USB interface from the supplied CD-ROM or via Internet download. ✓ Enable connection at the Device Manager.
Display switched off,	Update running = no error.	✓ Wait until the update is completed.
no device reaction	▶ Update failed.	<ul> <li>✓ Repeat Update:</li> <li>1. Remove VACUU·BUS® connector from Y adapter.</li> <li>2. Click on <i>Update</i> button in the update application.</li> <li>3. Reconnect VACUU·BUS® connector to Y adapter within detection for connected device (progress bar).</li> <li>✓ Send in the gauge, if the problem persists.</li> </ul>
Update failed	<ul> <li>▶ Update failed.</li> <li>▶ Connection: Device</li></ul>	<ul> <li>✓ Connection: Do not interrupt connection: Device           Update kit           End device.</li> <li>✓ Check power supply, connect wall power supply plug to a socket.</li> <li>✓ Connect the device that needs to be updated          → see also illustration in chapter 6.1.1 Preparation.</li> </ul>

## **Technical support**

⇒ To identify errors and potential remedies, please refer to the troubleshooting

Fault – Cause – Remedy table:

For technical help or in case of errors you need additional help for, please contact your local supplier or our <u>Service</u><sup>1</sup> department.

⇒ For practical help in contact with our Service department also use *6.3 Submenu Diagnostics on page 40* 

<sup>1 -&</sup>gt; Phone: +49 9342 808-5660, Fax: +49 9342 808-5555, service@vacuubrand.com

# 8 Cleaning

Clean the sensor to remove malfunctions that are caused by a polluted sensor. We recommend to clean the sensor before adjustment.

#### **IMPORTANT!**

This chapter does not contain descriptions for the decontamination of the product. This chapter describes only simple cleaning and care measures.

# 8.1 Housing surface

#### Clean surface

Clean surface

⇒ Clean polluted surface with a clean, slightly wetted cloth. To moisten the cloth we recommend water or mild soap.

#### 8.2 Sensor

#### Clean sensor

Clean sensor

- **1.** Fill a small amount of solvent via flange into the gauge, e. g., cleaning solvent.
- **2.** Let the solvent react for a few minutes.
- 3. Pour the solvent.
  - ☑ Dissolved substances or discolorations in the solvent are possible.
- **4.** Repeat this procedure until no more pollutants are in the solvent.
- **5.** Air or ventilate the gauge until the internal chamber has dried.
- **6.** Re-adjust the sensor.

# 9 Appendix

# 9.1 Technical information

Designs	
Vacuum gauge – Rough vacuum	<b>VACUU·VIEW</b>
Vacuum gauge – Fine vacuum	VACUU·VIEW extended

# 9.1.1 Technical data

Technical data

Ambient conditions		(US)
Ambient temperature	10-40 °C	50-104 °F
Working temperature	10–40 °C	50-104 °F
Transport and storage temperature	-10–60 °C	14–140 °F
Altitude, max.	2000 m above sea level	6.562 ft above sea level
Protection class (IEC 60529)	IP 54	
Protection class (UL 50E)		Type 5
Impact energy	5 J	
Relative humidity	30-85 %, non conde	nsing
Pollution degree	2	
Avoid condensation or contamination by dust, liquids or corrosive gases.		

Plug-in power supply	30 W	25 W
Input voltage	100-240 VAC	100-240 VAC
Frequency	50–60 Hz	50–60 Hz
Power consumption, max.	0,8 A	0,7 A
Output current, max.	1,25 A	1,05 A
Output voltage, short circuit proof	24 VDC	24 VDC
Weight	0.3 kg	0.14 kg
Dimensions L x B x H	108 mm x 58 mm x 34 mm 4.3 in. x 2.3 in. x 1.4 in.	71 mm x 57 mm x 33 mm 2.8 in. x 2.2 in. x 1.3 in.
Cable length, approx.	2 m (79 in.)	
Power plug	AC, replaceable: CE	E/UK/US/AUS

Electrical data gauge		(US)
Supply voltage, max.	24 VDC	24 VDC
Capacity, max.	1,3 W	1.3 W

Technical data

Power Surge Category	II	
Interface	VACUU·BUS®	
Vacuum data		
<b>VACUU·VIEW</b>		(US)
Measuring range, absolute	1100–0,1 mbar	825–0.075 Torr
Accuracy of measurement	< ±1 mbar/hPa/Torr, ±1 (after adjustment, const	•
Measuring principle	Ceramic diaphragm (alugas type independent, a	•
Temperature coefficient	< ±0,07 mbar/K	< ±0.05 Torr/K
Sensor	internal	internal
Max. admissible pressure, absolute	1,5 bar	1125 Torr
Max. admissible media tem	nperature (gas) non-exp	olosive atmosphere:
momentarily	80 °C	176 °F
Continuous operation	40 °C	104 °F
ATEX approval if the ATEX marking is shown on the rating plate Inner part (pumped gases)	II 3/- G Ex h IIC T4 Gc > Internal Atm. only Tech.File: VAC-EX02	<
Max. admissible media ten	nperature (gas) 🖾 atm	nosphere:
momentarily	40 °C	104 °F
Continuous operation	40 °C	104 °F

VACUU·VIEW extended (only deviant items)		
Measuring range,	1100–0,001 mbar	825–0.001 Torr
absolute	1100–0,001 hPa	
Temperature coefficient	< ±0,2 mbar/K	< ±0.15 Torr/K
Resolution at pressure ranges	0,001 hPa (0,001–0,1 l 0,01 hPa (0,1– hPa) 0,1 hPa (1–10 hPa) 1 hPa (10–1100 hPa)	hPa)
Accuracy of measurement	±15% of indicated value 0,01–5 mbar/hPa/Torr,	<u> </u>
Measuring principle	Ceramic diaphragm ser + ceramic jacketed Pira	

2 m

VACUU·BUS®

Small flange KF DN 16

Hose nozzle DN 6/10

Connections
Cable (length)

Plug connector

Vacuum connection

79 in.



#### Technical data

Display	
Туре	LC display (LCD)
Brightness control	yes
Pressure reading	switchable: mbar, Torr, hPa

Weight and dimensions*		(US)
Weight	190 g	0.4 lb
Dimension sheet	103 mm x 62 m	m x 50 mm
	4 in. x 2.4 in. x 2	2 in.

<sup>\*</sup> without wall power supply

# 9.1.2 Wetted materials

#### Wetted materials

Component	Wetted materials
<b>VACUU·VIEW</b>	
Vacuum sensor	Aluminium oxide ceramics
Metering box + small flange	PP
Sealing ring at the sensor	chemically resistant fluorelastomer
Hose nozzle	PPS, glass fiber reinforced
O ring (KF 16)	FKM

VACUU-VIEW extended (only deviant items)		
Metering box + small flange PPS, glass fiber reinforced		
Sealing ring at the sensor FFPM		

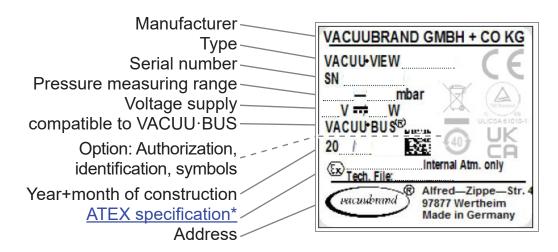
# 9.1.3 Rating plate



- ⇒ In case of malfunction, please note type and serial number on the rating plate.
- ⇒ When contacting our service department, name us product type and serial number. With this information we can offer selective support and advice for your product.

### Rating plate VACUU-VIEW, in general

Rating plate



<sup>\*</sup> Group and category, marking G (gas), type protection, explosion group, temperature class (additionally see : Approval for ATEX equipment).

# 9.2 Ordering information

Vacuum gauge	Order N°
<b>VACUU·VIEW</b> , ready-for-use inclusive wall power supply plug	20683220
<b>VACUU·VIEW</b> extended, ready-for-use inclusive wall power supply plug	20683210

# Ordering information accessories

Accessories	Order N°
Vacuum hose DN 6 mm (I = 1000 mm)	20686000
Vacuum hose DN 8 mm (I = 1000 mm)	20686001
PTFE hose KF DN 16 (I = 1000 mm)	20686031
Stainless steel tubing KF DN 16 (I = 1000 mm)	20673336
Calibration with first delivery (DAkkS accredited)	20900214
Recalibration (DAkkS accredited)	20900215
VACUU·BUS®/USB Update kit	20683230

# Ordering information spare parts

Spare parts	Order N°
VACUU-VIEW	20683221
VACUU-VIEW extended	20683211
Hose nozzle 10/6 G1/4" with O ring	20642474
Wall power supply plug 30 W, 24 V; with adapters	20612090
Wall power supply plug 25 W, 24 V; with adapters	20612089
Y adapter VACUU·BUS	20636656
Extension cable VACUU·BUS, 2m	20612552
Wall duct VACUU·BUS	20636153
Instructions for use	20901330

# Source of supply

International sales offices and specialized trade

Purchase original accessories and spare parts from your specialized distributor or through international sales offices of **VACUUBRAND GMBH + CO KG**.



- ⇒ Information about the complete product range are available in the current product catalog.
- ⇒ For orders, questions about vacuum control and optimal accessories, please contact your specialized distributor or an <u>international sales office</u> of VACUUBRAND GMBH + CO KG.

#### 9.3 Service

Service offer and service range

Take advantage of the comprehensive service range of **VACUUBRAND GMBH + CO KG**.

#### Service in detail

- product guidance and practical solutions,
- fast delivery of spare parts and accessories,
- professional maintenance,
- immediate repairs processing,
- Service on the spot (on request),
- <u>Calibration</u> (DAkkS accredited),
- return, disposal.
- ⇒ Visit our website for further information: www.vacuubrand.com.

### Servicing handling

Meet the terms of service

- **1.** Contact your local supplier or our Service Department.
- **2.** Request a RMA number for your order.
- **3.** Clean the product thoroughly and if necessary decontaminate it professionally.
- **4.** Please fill in this form <u>Health and Safety Clearance</u> completely.

#### Return (reshipment)

- 5. Return your product including:
  - RMA-N°,
  - Repair- or service order,
  - Form Health and Safety Clearance,
  - Short error description.



- ⇒ Reduce downtime, speed up the service process. Please keep the required data and documents ready when contacting our Service Department.
  - ▶ Your order can be quickly and easily processed.
  - ▶ Hazards can be excluded.
  - ▶ A short description or photos may help for error location.

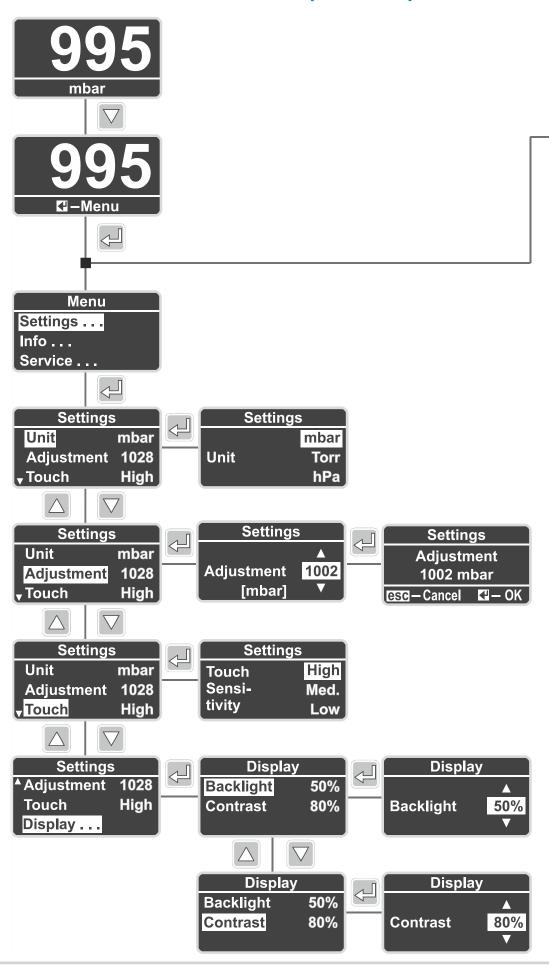


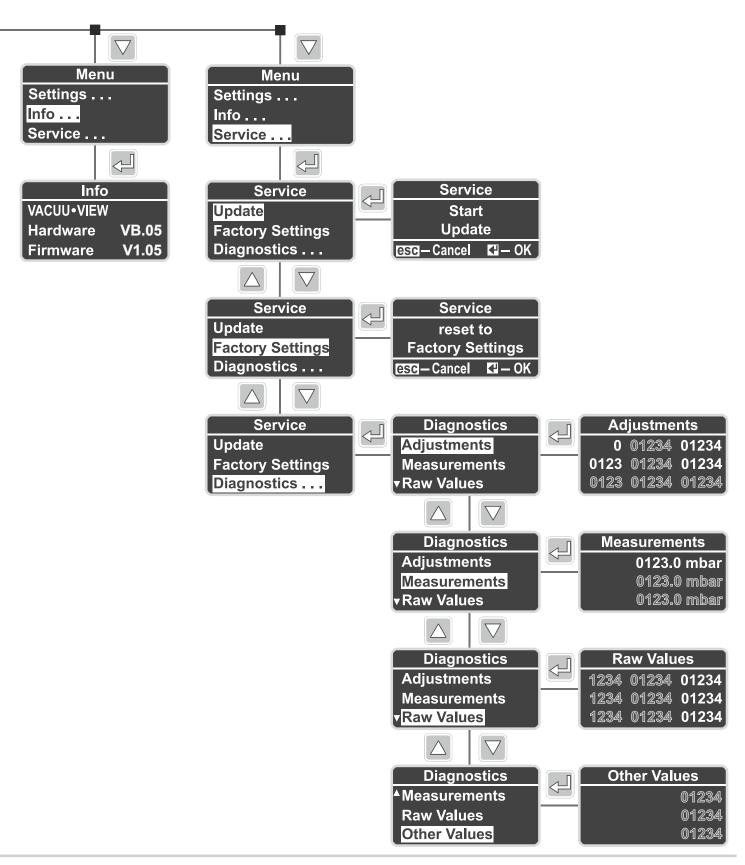
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# 9.5 Overview menu structure Vacuu-View (extended)





# 9.6 Declaration of Conformity (EC)

# EG-Konformitätserklärung für Maschinen EC Declaration of Conformity of the Machinery Déclaration CE de conformité des machines



Hersteller / Manufacturer / Fabricant:

**VACUUBRAND GMBH + CO KG** · Alfred-Zippe-Str. 4 · 97877 Wertheim · Germany

Hiermit erklärt der Hersteller, dass das Gerät konform ist mit den Bestimmungen der Richtlinien: Hereby the manufacturer declares that the device is in conformity with the directives: Par la présente, le fabricant déclare, que le dispositif est conforme aux directives:

- 2014/35/EU
- 2014/30/EU
- 2014/34/EU
- 2011/65/EU, 2015/863

Messgerät / Vacuum gauge / Vacuomètre:

Typ / Type / Type: VACUU·VIEW / VACUU·VIEW extended

Artikelnummer / Order number / Numéro d'article: **20683220 / 20683210, 20683211, 20636315** Seriennummer / Serial number / Numéro de série: Siehe Typenschild / See rating plate / Voir plaque signalétique

Angewandte harmonisierte Normen / Harmonized standards applied / Normes harmonisées utilisées:

EN ISO 12100:2010 (ISO 12100:2010), EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019

(IEC 61010-1:2010 + COR:2011 + A1:2016, modifiziert / modified / modifié + A1:2016/COR1:2019)

EN IEC 61326-1:2021 (IEC 61326-1:2020)

EN 1127-1:2019; EN ISO 80079-36:2016 (ISO 80079-36:2016)

EN IEC 63000:2018 (IEC 63000:2016)

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen / Person authorised to compile the technical file / Personne autorisée à constituer le dossier technique:

Dr. Constantin Schöler · VACUUBRAND GMBH + CO KG · Germany

Ort, Datum / place, date / lieu, date: Wertheim, 16.10.2024

(Dr. Constantin Schöler)

Geschäftsführer / Managing Director / Gérant

(Jens/Kaibel)

Technischer Leiter / Technical Director / Directeur technique

**VACUUBRAND GMBH + CO KG** 

Alfred-Zippe-Str. 4 97877 Wertheim Tel.: +49 9342 808-0 Fax: +49 9342 808-5555

E-Mail: info@vacuubrand.com
Web: www.vacuubrand.com

**VACUU**BRAND®

# 9.7 Declaration of Conformity (UK)

#### **Declaration of Conformity**



Manufacturer:

VACUUBRAND GMBH + CO KG · Alfred-Zippe-Str. 4 · 97877 Wertheim · Germany

Hereby the manufacturer declares that the device is in conformity with the directives:

- Electrical Equipment (Safety) Regulations 2016 (S.I. 2016 No. 1101, as amended by S.I. 2019 No. 696)
- Electromagnetic Compatibility Regulations 2016
   (S.I. 2016 No. 1091, as amended by S.I. 2019 No. 696)
- The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 (S.I. 2016 No. 1107, as amended by S.I. 2019 No. 696)
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (S.I. 2012 No. 3032)

Vacuum gauge:

Type: VACUU·VIEW / VACUU·VIEW extended

Order number: 20683220 / 20683210, 20683211, 20636315

Serial number: See rating plate

Designated standards applied:

EN ISO 12100:2010, EN 61010-1:2010+A1:2019, EN 61010-1:2010/A1:2019/AC:2019-04

EN 61326-1:2013

EN 1127-1:2019, EN ISO 80079-36:2016

EN IEC 63000:2018

Person authorised to compile the technical file:

Dr. Constantin Schöler · VACUUBRAND GMBH + CO KG · Germany

Place, date: Wertheim, 16.10.2024

(Dr. Constantin Schöler)

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**VACUUBRAND**®

# 9.8 Declaration of Conformity 符合性声明 – China RoHS 2 VACUUBRAND。

#### **DECLARATION OF CONFORMITY - China RoHS 2**

VACUUBRAND GMBH + CO KG has made reasonable efforts to ensure that hazardous materials and substances may not be used in its products.

In order to determine the concentration of hazardous substances in all homogeneous materials of the subassemblies, a "Product Conformity Assessment" (PCA) procedure was performed. As defined in GB/T 26572 the "Maximum Concentration Value" limits (MCV) apply to these restricted substances:

Lead (Pb): 0.1%
Mercury (Hg): 0.1%
Cadmium (Cd): 0.01%
Hexavalent chromium (Cr(+VI)): 0.1%
Polybrominated biphenlys (PBB): 0.1%
Polybrominated diphenyl ether (PBDE): 0.1%

#### **Environmentally Friendly Use Period (EFUP)**

EFUP defines the period in years during which the hazardous substances contained in electrical and electronic products will not leak or mutate under normal operating conditions. During normal use by the user such electrical and electronic products will not result in serious environmental pollution, cause serious bodily injury or damage to the user's assets. The Environmentally Friendly Use Period for VACUUBRAND products is 40 years.



MATERIAL CONTENT DECLARATION FOR VACUUBRAND PRODUCTS						
	有毒有害物质或元素 Hazardous substances					
部件名称	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
Part name	Pb	Hg	Cd	Cr(+VI)	PBB	PBDE
包装 Packaging	0	0	0	0	0	0
塑料外壳 / 组件 Plastic housing / parts	0	0	0	0	0	0
真空油 Vacuum oil	0	0	0	0	0	0
电池 Battery	0	0	0	0	0	0
玻璃 Glass	Х	0	0	0	0	0
电子电气组件 Electrical and electronic parts	Х	0	0	0	0	0
控制器 / 测量设备 Controller / measuring device	Х	0	0	0	0	0
金属外壳 / 组件 Metal housing / parts	X	0	0	0	0	0
电机 Motor	Х	0	0	0	0	0
配件 Accessories	Х	0	0	0	0	0
此表格是按照SJ/T 11364-2014中规定所制定的。 This table is created according to SJ/T 11364-2014.						

**Declaration of Conformity - China RoHS 2** 

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- O: 表示该有毒有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
- O: Indicates that the above mentioned hazardous substance contained in all homogeneous materials of the part is below the required limit as defined in GB/T 26572.
- X: 表示该有毒有害物质至少在该部件某一均质材料中的含量超出GB/T 26572规定的限量要求。
- X: Indicates that the above mentioned hazardous substance contained in at least one of the homogeneous materials of this part is above the required limit as defined in GB/T 26572.

电池、玻璃器皿和配件可能不属于所附设备所包含的内容,它们可能有各自单独的EFUP标记和/或可能正在维 护其部件EFUP标记的更新。

Batteries, glassware and accessories might not be content of the enclosed device and may have its own EFUP-marking and/or might be maintaining parts with changing EFUP-marking.

除上表所示信息外,还需声明的是,这些部件并非是有意用铅(Pb)、汞 (Hg)、铬(Cd)、六价铬 (Cr(+VI))、多溴联苯(PBB)或多溴二苯醚(PBDE)来制造的。

Apart from the disclosures in the above table, the subassemblies are not intentionally manufactured or formulated with lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr+VI), polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE).

Products manufactured by VACUUBRAND may enter into further devices (e.g., rotary evaporator) or can be used together with other appliances (e.g., usage as booster pumps).

With these products and appliances in particular, please note the EFUP labeled on these products.

VACUUBRAND will not take responsibility for the EFUP of those products and appliances.

Place, date: Wertheim, 06 September 2022

(Dr. Constantin Schöler)

**Managing Director** 

Technical Director

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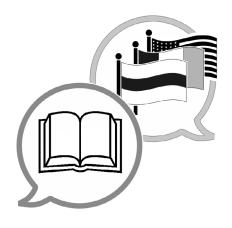
#### 9.9 CU Certificate













#### www.vacuubrand.com/manuals

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