

VACUUM SENSOR

VACUU·SELECT® Sensor

VACUU·SELECT® Sensor with Venting valve



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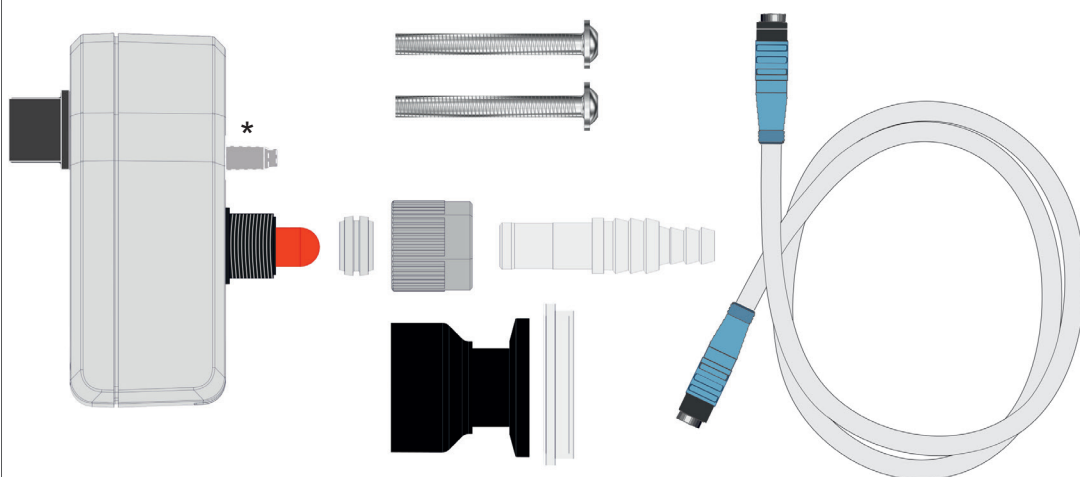
*Thank you for purchasing this product from **VACUUBRAND GMBH + CO KG**. You have chosen a modern and technically high quality product.*

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What's in the box



* Option

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 produkt.
- 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

- For better legibility, the general expression **Sensor** is used instead of the complete product name **VACUU-SELECT® Sensor**.
- When giving the product to a third party also hand out this manual.
- 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.

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Contact

Contact us

- Please ask for replacement in case of an incomplete manual or download the manual on our web page: 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
→ *see Rating plate*

1.2 About this document

1.2.1 Display conventions

Warning levels

Display conventions

	DANGER Indicates an imminent hazardous situation. Disregarding the situation will result in serious and even fatal injury or death. ⇒ Take appropriate action to avoid dangerous situation!
	WARNING Indicates a potentially hazardous situation. Disregarding the situation could result in serious, even fatal injury or massive damage to property. ⇒ Take appropriate action to avoid dangerous situation!
	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

1.2.2 Symbols and icons

This manual includes symbols and icons. Safety symbols indicate special danger in handling the product. Icons shall help to identify the danger directly and easier.

Safety symbols

Explanation
safety symbols



Hazardous substance - hazards to human health.



General prohibition symbol.



General warning symbol.



General mandatory sign.

Additional icons



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



Positive example – **Do!**
Result – **o. k.**



Negative example – **Do not!**



Refers to content in this manual.



Refers to content of other supplementary documents.

1.2.3 Handling instructions (action steps)

Action step (single step)

Presentation
convention operating
steps

⇒ 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.

1.2.4 Abbreviations

Used
Abbreviations

abs.	absolute
ATM	Atmospheric pressure (Bar graphic, program)
d_i (di)	Interior diameter
DN	Nominal diameter
	ATEX equipment labeling
FKM	Fluoroelastomer
gas type independent	gas type independent
KF	Small flange
max.	Maximum value
min.	Minimum value
Min	Minute
PA	Polyamide
PBT	Polybutylene terephthalate
PE	Polyethylene
RMA-N°	Return Merchandise Authorization number
SW	Wrench size (tool)
resp.	supervising specialist

1.2.5 Term definition

Product specific
terms

Fine vacuum	Pressure measuring range in vacuum technology, from: 1 mbar–0.001 mbar (0.75 Torr–0.00075 Torr)
Rough vacuum	Pressure measuring range in vacuum technology, from: atmospheric pressure–1 mbar (atmospheric pressure–0.75 Torr)
DCP 3000	Vacuum gauge
CVC 3000	Vacuum controller, controller
PC 3001 VARIO select *	Chemistry pumping unit with speed control for precise vacuum control by VACUU-SELECT® controller and VACUU-SELECT® Sensor .
PC 510 select **	like PC 3001 though with valve controlled vacuum control.
VACUU-BUS	Bus system by VACUUBRAND for communication of peripherals with VACUU-BUS® compatible gauges and controllers. The maximum permissible cable length of one wiring harness is 30 m.
VACUU-BUS address	Address that enables a unique assignment of a VACUU-BUS® client within the bus system, e. g., for connecting several sensors with the same measuring range.
VACUU-BUS client	Peripheral device or component with VACUU-BUS® connection, which is integrated into the bus system, e. g., sensors, valves, level indicators, etc ..
VACUU-BUS plug	4-pole round connector for the bus system by VACUUBRAND .
VACUU-BUS address assignment	Assigning a new VACUU-BUS® address to a VACUU-BUS® component, e. g., by gauge or controller.
VACUU-SELECT	Vacuum controller, controller, controller with touch screen
VACUU-SELECT Sensor ***	► Vacuum sensor for VACUU-SELECT® or ► as vacuum sensor separately.

* also valid for: PC 3002 VARIO select, PC 3003 VARIO select, PC 3004 VARIO select

** also valid for: PC 510 select, PC 511 select, PC 520 select, PC 610 select, PC 611 select, PC 620 select

*** available with or without venting valve

2 Safety instructions

The complete information of this chapter must be observed by all persons working with the herein described product. The safety instructions are valid for the complete life cycle of the product.

2.1 Usage

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

2.1.1 Intended use

Intended use The **VACUU-SELECT® Sensor** is a laboratory instrument for the measurement of absolute pressure in the rough vacuum range. Optionally, the vacuum sensor is also available with integrated venting valve.

The **VACUU-SELECT® Sensor** is intended for connection to a vacuum apparatus and may only be installed and used in a non-explosive area.

It can be connected as an accessory to a **VACUU-BUS®** compatible vacuum controller or gauge.

Any other use is considered to be improper use.

2.1.2 Improper use

Incorrect use or any application which does not correspond to the technical data may result in injury or property damage.

Improper use includes:

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

2.2 General safety instructions

2.2.1 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 contaminated parts, follow the relevant regulations and safety precautions.
 - ⇒ Replace defective parts immediately, e. g., broken cable or faulty plug-connection.
 - ⇒ Repairs are only to be carried out by the manufacturer's Service Department.

IMPORTANT!

For all service works hazardous substances need to be excluded.

- ⇒ Take suitable measures for decontamination.
- ⇒ Fill in the form [Health and Safety Clearance](#) thoroughly and completely and confirm with your signature.

2.2.2 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.

2.2.3 Eliminate sources of danger

Sources of error during connection

NOTICE

Mismeasurement due to an obstructed vacuum line.

⇒ Prevent overpressure > 1060 mbar (795 Torr) inside the piping system.

Condensate can falsify the measurement. No condensate must enter the housing interior via the vacuum hose. No liquid should accumulate inside the vacuum hose.

⇒ Install vacuum hoses in such a way that condensate cannot flow into the sensor.

2.2.4 ATEX category

Installation and explosive environment



The installation and the operation in areas where an explosive atmosphere in a hazardous amount can occur is not permitted.

ATEX approval¹ is only valid for the internal, wetted parts area of the vacuum sensor, not for the environment of the gauge.

ATEX equipment labeling

ATEX
category



Vacuum equipment labeled with  has ATEX approval in line with the ATEX marking on the rating plate.

- ⇒ Use the sensor only when it is in proper working condition.
- ⇒ The devices are designed for a low level of mechanical stress and must be installed in a way that they cannot be mechanically damaged from the outside.
- ⇒ After any intervention at the vacuum sensor, the leak rate of the equipment has to be checked.

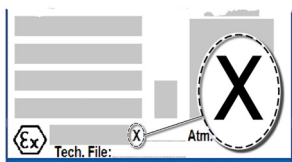
¹ -> compare with rating plate

Restrictions on operating conditions

Meaning for devices marked with X:

Explanation of usage conditions X

Example extract type plate



- 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 information, media temperature (gas).

ATEX approval

When using the sensor on equipment with potentially explosive atmospheres (according to ATEX approval), modifications of the sensor are not permitted and will invalidate its ATEX approval. Wetted attachment parts at the sensor must have at least equivalent ATEX approval as the sensor itself and must not adversely affect the ATEX approval of the sensor, in particular the temperature in the wetted area.

Avoid explosive mixtures

The use of gas ballast or the operation of venting valves is only permitted if thereby explosive atmospheres normally do not occur in the interior of the sensor or, if they do occur, are likely to do so only infrequently and for a short period.

⇒ If necessary vent with inert gas.

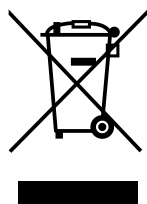
For more and detailed information about ATEX approval visit our website: www.vacuubrand.com/Information-ATEX

2.3 Proper disposal

NOTICE

Risk of environmental damage due to incorrect disposal of the product.

- ⇒ Do not dispose of your product in household waste! Electronic components are subject to hazardous waste treatment and must only be disposed of by certified specialists.
- ⇒ Observe the national regulations for safe disposal and environmental protection.
- ⇒ Receive detailed information for respective regulations from your competent administrative authority.



3 Product description

3.1 VACUU-SELECT® Sensor

Sensor and venting
valve

The **VACUU-SELECT® Sensor** is a sensor for measuring in the rough vacuum range. The sensor is equipped with a ceramic diaphragm sensor for measurement in the rough vacuum range. The sensor is highly chemically resistant. The sensor provides gas-independent pressure indication with precise capacitive readout. The measured pressure can be read by a **VACUU-BUS®** compatible gauge or vacuum controller.

Optionally, the sensor is equipped with an integrated venting valve. For the vacuum connection 3 possibilities are provided, either via small flange KF, hose nozzle or hose directly inserted.

Sensor with
controller

The **VACUU-SELECT® Sensor** can be directly mounted to the **VACUU-SELECT®** controller.

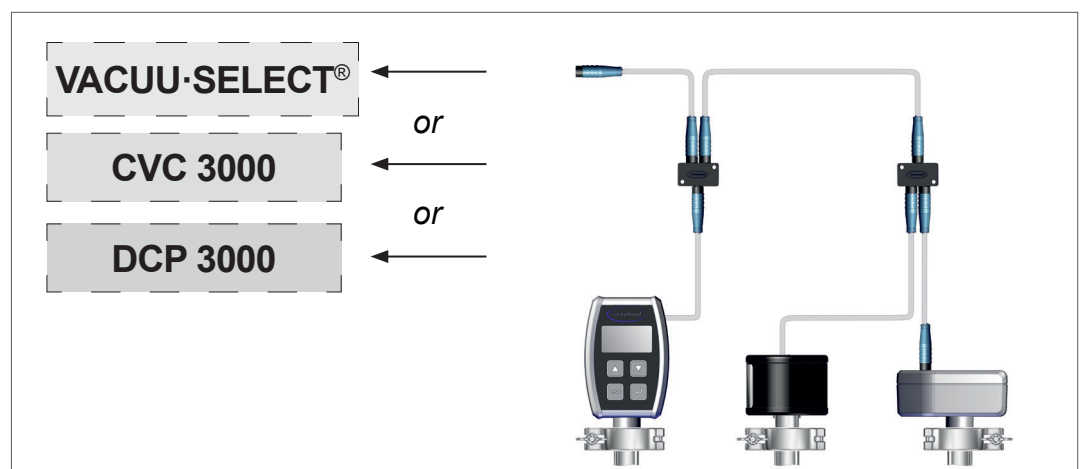
Individual sensor

Using a **VACUU-BUS®** extension cable, the sensor can also be operated as an external vacuum sensor for **VACUU-SELECT®, CVC 3000** or **DCP 3000**.

VACUU-BUS
product supplement

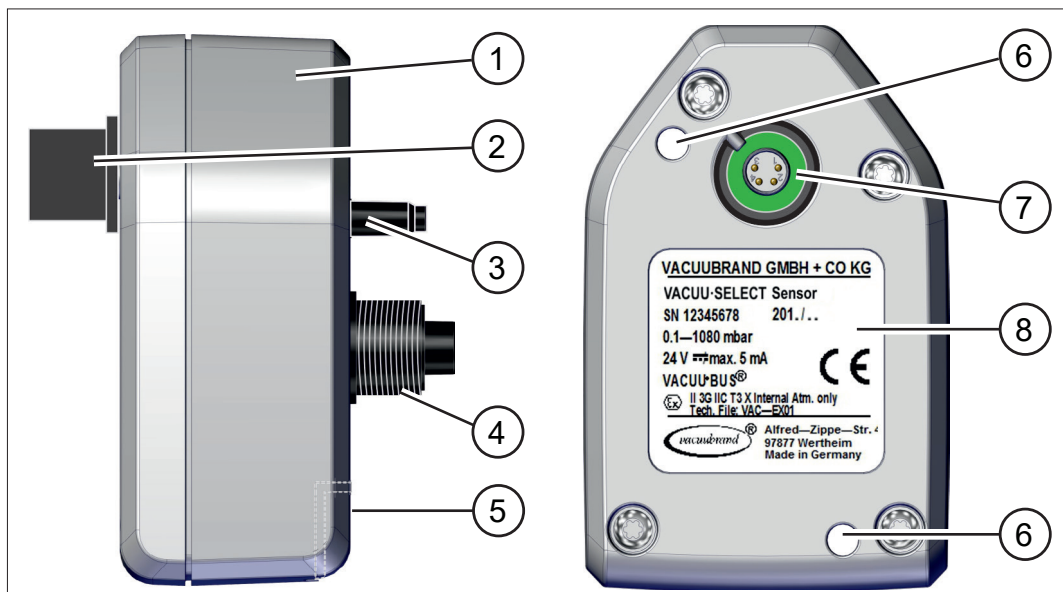
The **VACUU-SELECT® Sensor** complements the **VACUU-BUS®** accessories program of **VACUUBRAND**. Via **VACUU-BUS®** the sensor can be easily integrated into the bus system as client. By changing the **VACUU-BUS®** address up to 4 sensors within the same measuring range can be connected to a vacuum controller or gauge.

→ Example
VACUU-BUS
principle with several
sensor types



3.2 Product view

Top view,
side view



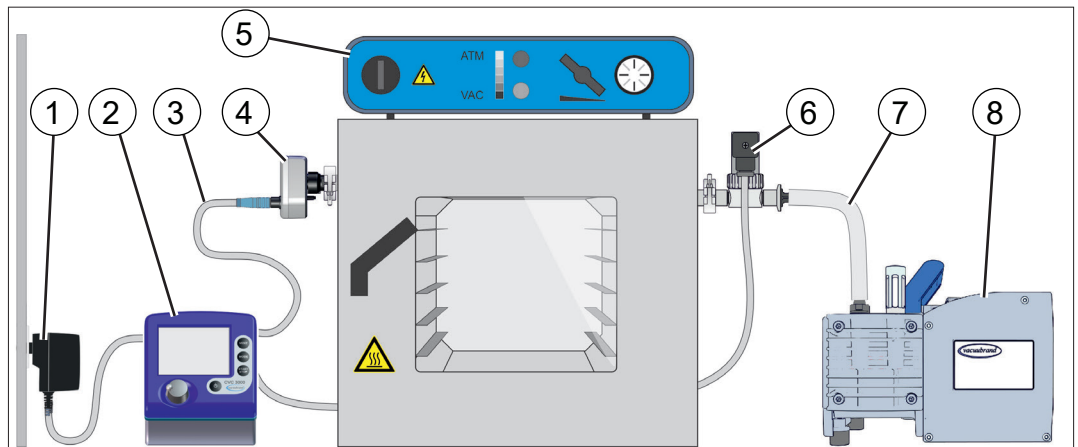
Meaning

- | | |
|---|---|
| 1 | VACUU-SELECT® Sensor |
| 2 | VACUU-BUS® plug adapter, removable (option) |
| 3 | Venting connection, e. g., inert gas (option) |
| 4 | Vacuum screw connection, support for <ul style="list-style-type: none"> ▶ Hose nozzle DN 6/10 with seal ring and union nut
or ▶ Hose PTFE 8/10 directly plugged
or ▶ Small flange KF 'DN 16, pre-assembled |
| 5 | Socket for VACUU-BUS® plug adapter (park socket) |
| 6 | Hole for fastening screws <ul style="list-style-type: none"> ▶ assembled to VACUU-SELECT® or ▶ separately |
| 7 | VACUU-BUS® connection
without plug adapter <ul style="list-style-type: none"> ▶ Sensor mounted directly at VACUU-SELECT®
with plug adapter and VACUU-BUS® extension cable at: <ul style="list-style-type: none"> ▶ VACUU-SELECT® or ▶ CVC 3000 or ▶ DCP 3000 |
| 8 | Rating plate |

3.3 Examples of use

Application with CVC 3000

→ Example
Cabinet dryer



Meaning

- | | |
|---|--|
| 1 | Wall power supply, wall power supply plug |
| 2 | CVC 3000 (vacuum controller) |
| 3 | VACUU-BUS[®] extension cable |
| 4 | VACUU-SELECT[®] Sensor |
| 5 | Examples of use: Cabinet dryer |
| 6 | Vacuum valve |
| 7 | Vacuum hose |
| 8 | Diaphragm pump, vacuum pump |

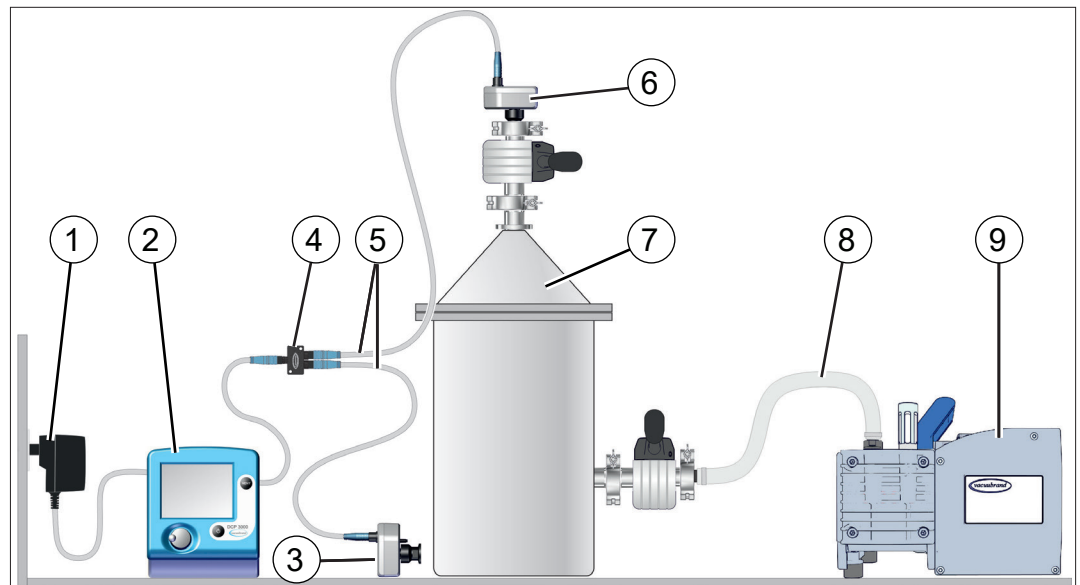


Please observe the following points to get an optimal measuring result:

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

Application with DCP 3000

→ Example
Relative pressure
measurement
(Differential pressure
measurement)



Meaning

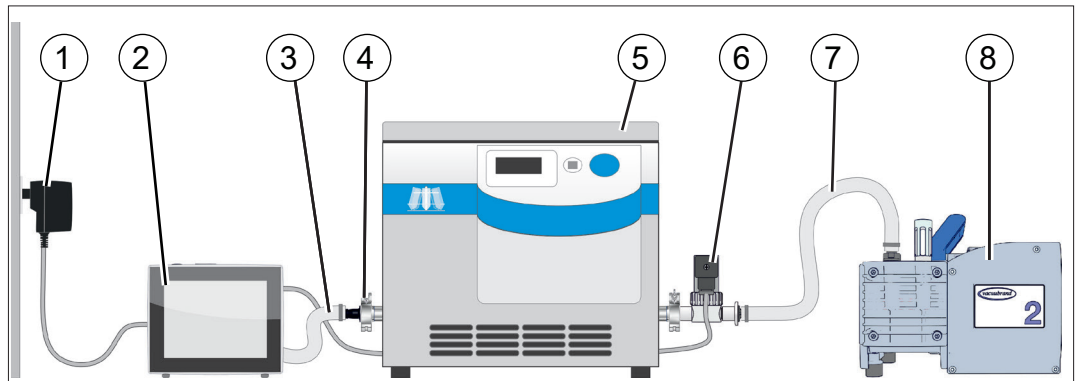
- | | |
|---|---|
| 1 | Wall power supply, wall power supply plug |
| 2 | DCP 3000 (vacuum gauge) |
| 3 | VACUU-SELECT® Sensor
▶ Sensor measures ambient pressure (Ref._) |
| 4 | VACUU-BUS® Y adapter |
| 5 | VACUU-BUS® extension cable |
| 6 | VACUU-SELECT® Sensor
▶ Sensor measures vacuum (VSK_) |
| 7 | Examples of use: Recipient with manual vacuum valves |
| 8 | Vacuum hose |
| 9 | Diaphragm pump, vacuum pump |



To a **DCP 3000**, **CVC 3000** or **VACUU-SELECT®** up to 4 vacuum sensors and 4 reference sensors can be connected via **VACUU-BUS®** Y adapter and extension cables. → see also: **4.3.3 Connecting several sensors on page 25**

Application with VACUU-SELECT®

→ Example
Vacuum
concentrator



Meaning

- | | |
|---|--|
| 1 | Wall power supply, wall power supply plug |
| 2 | VACUU-SELECT® (vacuum controller) with VACUU-SELECT® Sensor – mounted on the rear side |
| 3 | Vacuum hose |
| 4 | Vacuum connection |
| 5 | Examples of use: Vacuum concentrator |
| 6 | In-line suction valve |
| 7 | Vacuum hose |
| 8 | Diaphragm pump, vacuum pump |

4 Installation and connection

4.1 Transport and goods arrival

Transport and
packaging

Products from **VACUUBRAND** are packaged in a transport-proof, recyclable packaging.



The original packaging is accurately matched to your product in order for safe transport.

- ⇒ If possible, please keep the original packaging, e. g., for returning the product for repair.

Check incoming goods

Goods arrival

Check the shipment for transport damage and completeness.

- ⇒ Please compare the contents of the box with the delivery note.
- ⇒ Report any transit damage immediately to the supplier.

NOTICE

Condensate could damage the measuring chamber inside the sensor.

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.

4.2 Installation conditions

Check installation conditions

Installation
conditions

- The device is acclimatized.
- Ambient conditions are observed and are within the limitation of use.

Observe limitation of use

Limitation of use

Limitation of use		(US)
Ambient temperature	10–45 °C	50–113 °F
Altitude, max.	3000 m above sea level	9840 ft above sea level
Relative humidity	30–85 %, non condensing	
Degree of contamination	2	
Protection type (ICE 60529)	IP 41	
Protection type (UL 50)	Type 2	
Avoid condensation or contamination by dust, liquids or corrosive gases.		

IMPORTANT!

- ⇒ Observe the specified IP protection.
- ⇒ IP protection is only guaranteed if the sensor is mounted and connected correctly.
- ⇒ Also observe rating plate data and chapter **7.1.3 Rating plate on page 35**.

4.3 Electrical connection

Electrical connection The power supply for the sensor is provided by vacuum controller or vacuum gauge.

For power supply use the respective **VACUU·BUS[®]** connection.

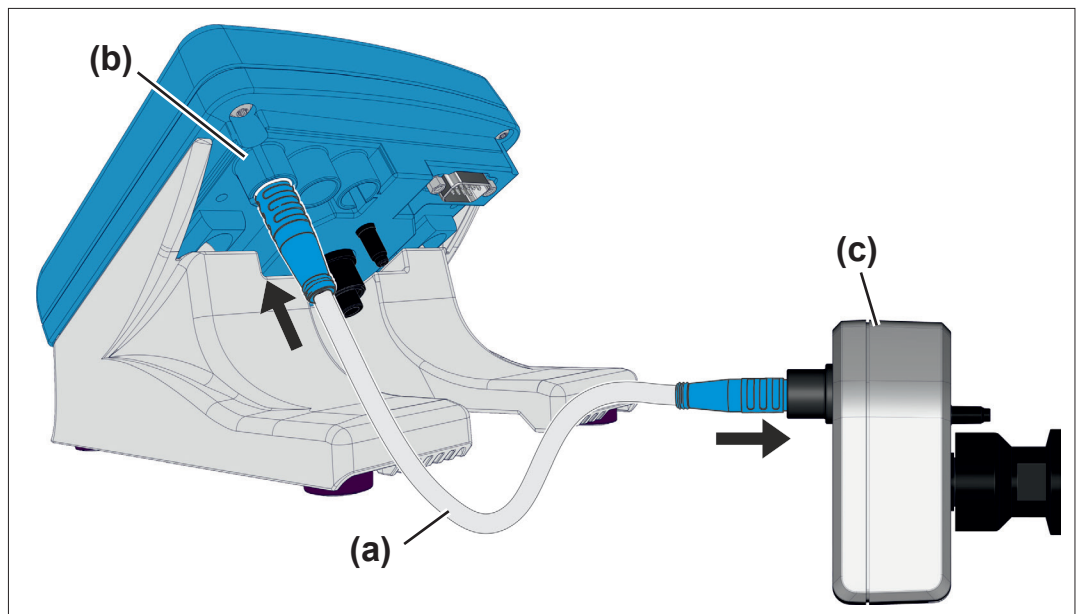
Via **VACUU·BUS[®]** interface the measured data will be read out and displayed by vacuum controller (or gauge).

4.3.1 Connection to CVC 3000 (DCP 3000)

Connect the sensor in the same way to the gauge DCP 3000 as to the controller CVC 3000.

Connect sensor to controller/gauge

Power supply via
VACUU·BUS[®] cable



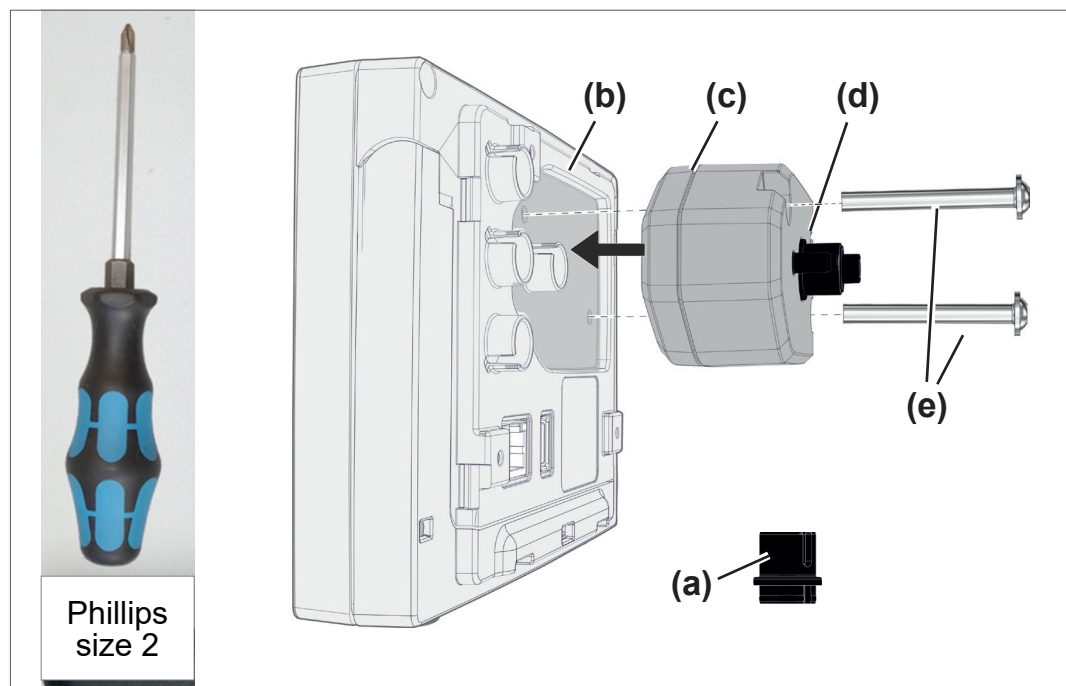
1. Plug one side of the extension cable (a) into the **VACUU·BUS[®]** port on the rear side of the controller or gauge (b).
2. Plug the other side of the extension cable (a) into the **VACUU·BUS[®]** port of the **VACUU·SELECT[®] Sensor (c)**.

4.3.2 Connection to VACUU-SELECT®

This description is intended for the independent retrofitting of the sensor, e. g., replacing a defective sensor.

Connect and assemble sensor

Power supply via
VACUU-BUS® direct
connection



1. Remove the **VACUU-BUS®** plug adapter (a) and put it into the park socket (d).
2. Push the **VACUU-SELECT®** Sensor (c) onto the **VACUU-BUS®** connection of the controller (b) into the pre-shaped contour.
3. Use a Phillips screwdriver to screw in the 2 fixing screws (e) hand tight.

4.3.3 Connecting several sensors

VACUU-BUS®
principle

Up to 4 sensors and additionally up to 4 reference sensors can be connected to a controller or gauge via **VACUU-BUS®**.

By uniform connectors and Y adapter the bus system can be extended with up to 32 peripherals. The maximum permissible total cable length is 30 m.

All connected **VACUU-BUS®** components are automatically detected by the controllers **CVC 3000** or **VACUU-SELECT®** or the gauge **DCP 3000**.

Sensors like **VACUU-SELECT® Sensor**, **VACUU-VIEW** and **VSK 3000** are sensors within the same measuring range, which will be detected as **VSK_** by the controller or gauge.

IMPORTANT!

Delivery state for **VACUU-BUS®** components is address n° 1. First perform address assignment, when working with several sensors of the same type.

⇒ Please read the description for address assignment in the corresponding manual of the gauge or controller.

Connecting several VACUU-BUS® sensors

Connecting several
sensors

1. Assign an individual **VACUU-BUS®** address to each sensor (= address configuration).
-> see description in the manual of controller or gauge.
2. Connect all sensors via Y adapters to the **VACUU-BUS®** port of your controller or gauge.

4.4 Vacuum connection



WARNING

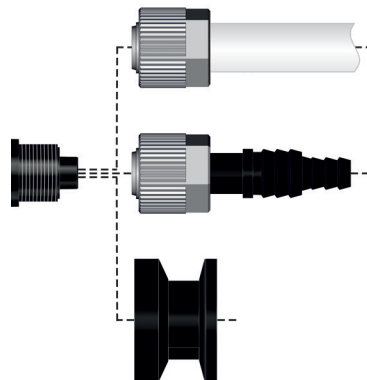
Risk of bursting due to overpressure

⇒ Prevent uncontrolled overpressure, e. g., when connecting to a closed or blocked tubing system.

IMPORTANT!

- ⇒ Maximum admissible pressure at vacuum sensor: 1,5 bar/1126 Torr (absolute).
- ⇒ Pollution and damages, especially at the flange, could affect the measurement.
- ⇒ Avoid contamination of the sensor by oil / oil mist when using with an oil lubricated vacuum pump.
- ⇒ Connect the sensor as close as possible to the apparatus.

Connection options



Connection via PTFE hose DN 8/10
or

Connection via hose nozzle DN 6/10
or

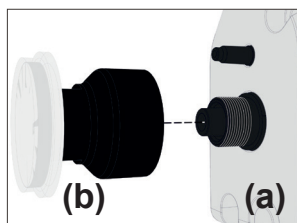
Connection via small flange KF DN 16

4.4.1 Connection via small flange

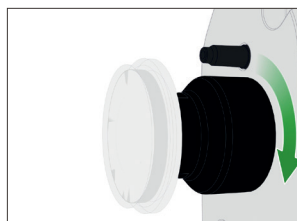
Sensor connection via small flange

Required connection material: Clamping ring with centering or centering ring for KF DN 16 (tool: open-end wrench size 17).

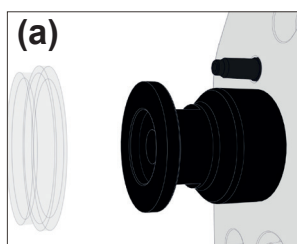
1. Remove the cap and put the small flange KF DN 16 **(b)** onto the vacuum connection of the sensor **(a)**.



2. Screw in the small flange KF DN 16 hand tight.

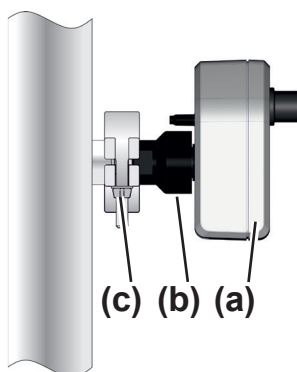


3. Remove dust cap **(a)**.



4. Put the sensor with the centering ring on the connection of the apparatus → small flange KF DN 16 **(b)**.

5. Fix the sensor **(a)** with the clamping ring **(c)** at the vacuum line, like shown in the example.



☒ Prepared for operation with a controller or gauge.

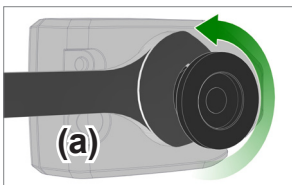
4.4.2 Connection via hose nozzle or flexible hose

IMPORTANT!

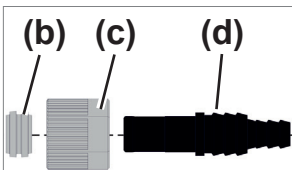
- ⇒ Use a vacuum hose that is suitable for the required vacuum range.
- ⇒ Connect hose tubes as short as possible.
- ⇒ The vacuum hose may not be kinked.

Connect sensor via hose nozzle to vacuum

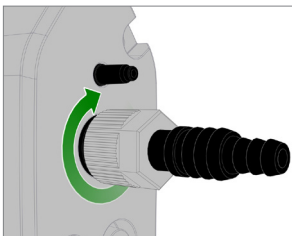
Required connection material: Hose nozzle DN 6/10 mm, union nut M14x1, locking ring; optionally: Rubber hose and matching hose clamp, tool: Open-end wrench SW17.



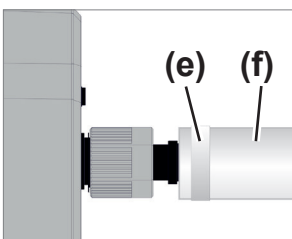
1. If installed, unscrew the small flange from the sensor **(a)**.



2. Connect locking ring **(b)**, union nut **(c)** and hose nozzle **(f)** as shown in figure.



3. Push the hose nozzle into the vacuum connection of the sensor and fasten it with the union nut.

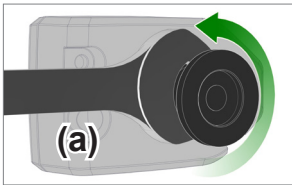


4. Push the vacuum hose **(f)** of the apparatus onto the hose nozzle and fasten the hose, e. g., with a hose clamp **(e)**.

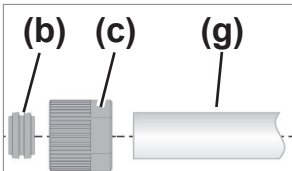
☒ Prepared for operation with a controller or gauge.

Connect sensor via PTFE hose to vacuum

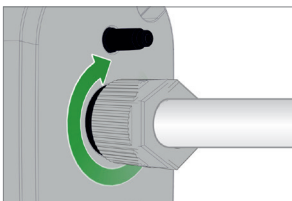
Required connection material: Union nut M14x1, locking ring; optionally: PTFE hose , tool: Open-end wrench SW17.



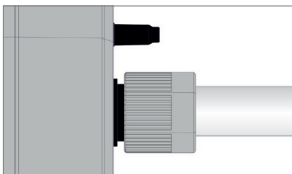
1. If installed, unscrew the small flange from the sensor **(a)**.



2. Connect locking ring **(b)**, union nut **(c)** and PTFE hose **(g)** as shown in figure.



3. Push the PTFE-hose into the vacuum connection connection of the sensor and fasten it with the union nut.



- ☒ PTFE hose fixed.
- ☒ Prepared for operation with a controller or gauge.

4.5 Venting connection (Option)

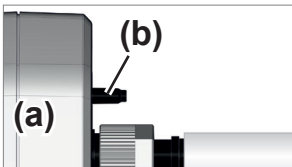


DANGER

Risk of explosion by venting with air.

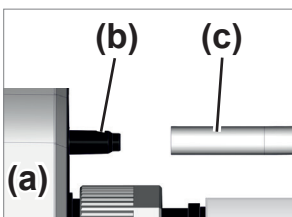
Depending on the running process, explosive mixtures can form during venting or other hazardous situations could result!

- ⇒ Never vent processes with air which could form an explosive mixture.
- ⇒ If necessary vent with inert gas (max. 1,2 bar/900 Torr absolute).



Venting with ambient air¹

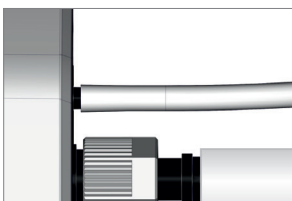
For venting with ambient air **(b)** no connection is required **(a)**.



Vent with inert gas – connect venting valve¹

Required connection material: Flexible hose for hose nozzle, e. g., silicone tube 3/6 mm

- ⇒ Push the hose **(c)** onto the connection of the venting valve **(b)**.



- ☒ Venting valve with hose for venting with inert gas².

¹ Only valid for sensors with integrated venting valve.

² Avoid overpressure.

5 Resolving problems

	CAUTION
Malfunction due to incorrect repair by the customer.	
The sensor is not intended for repair by customers.	
⇒ Never open the sensor housing.	
⇒ If the sensor is defective, please send it to our Service Department or your local supplier.	

5.1 Fault – Cause – Remedy

Fault	► Possible cause	✓ Remedy
Defective housing	► Wrong cleaning agent used. ► Mechanically damaged.	✓ Send in.
Readings deviate from the reference standard	► Condensate and deposits in the measuring chamber falsify the measurement result. ► Defective sensor, e. g., caused by aggressive media ► Sensor measures incorrectly.	✓ Clean measuring chamber. ✓ For aggressive media connect a gas washing bottle in front of the sensor. ✓ Perform sensor adjustment.
Sensor does not pass on measured value	► No voltage ► VACUU·BUS plug connection defective or not connected.	✓ Check VACUU·BUS connection at gauge/controller. ✓ Check Y adapter and extension cable.

5.2 Technical support

⇒ To identify errors and potential remedies, please refer to the table: ***Fault – Cause – Remedy***

For technical help or in case of errors you need additional help for, please contact your local supplier or our [Service](mailto:service@vacuubrand.com)¹ department.

¹ -> Phone: +49 9342 808-5660, Fax: +49 9342 808-5555, service@vacuubrand.com

6 Cleaning

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

IMPORTANT!

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

6.1 Housing surface

Clean surface

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

6.2 Sensor

Clean measuring chamber

- Clean sensor
1. Fill in a small amount of solvent, e. g., cleaning solvent, into the measuring chamber.
 2. Let the solvent react for a few minutes.
 3. Pour out the solvent.
 - ☑ Dissolved substances or discolorations in the solvent are possible.
 4. Repeat this procedure until there are no more pollutants in the solvent.
 5. Air or evacuate the sensor until the internal chamber has dried.
 6. If necessary readjust the sensor → *see manual of the connected gauge or controller.*

7 Appendix

7.1 Technical information

Designs	
Vacuum sensor	VACUU·SELECT® Sensor
Vacuum sensor with venting valve	VACUU·SELECT® Sensor

7.1.1 Technical data

Technical data

Ambient conditions		(US)
Working temperature	10–45 °C	50–113 °F
Transport and storage temperature	-10–60 °C	14–140 °F
Altitude, max.	3000 m above sea level	9840 ft above sea level
Degree of contamination	2	
Protection type (ICE 60529)	IP 41	
Protection type (UL 50)	Type 2	
Relative humidity	30–85 %, non condensing	
Avoid condensation or contamination by dust or liquids.		

Connections	
Plug connector	VACUU·BUS®
Vacuum connection	Small flange KF DN 16
	Hose nozzle DN 6/10
	PTFE Hose DN 8/10
Venting valve, option	Silicone tube DN 3/6

Electrical data	with venting valve	without venting valve
Nominal voltage	24 VDC	24 VDC
Power, max.	1,2 W	0,2 W
Interface	VACUU·BUS®	VACUU·BUS®

Technical data

Vacuum data		
VACUU·SELECT® Sensor		(US)
Measuring range, absolute	1060–0,1 mbar	795–0.1 Torr
Accuracy of measurement	< ±1 mbar/hPa/Torr, ±1 digit, with VACUU·SELECT® controller (after adjustment, constant temperature)	
Measuring principle	Ceramic diaphragm (aluminium oxide, gold-coated), capacitive, gas type independent, absolute pressure	
Temperature coefficient	< ±0.15 mbar (hPa)/K	< ±0.11 Torr/K
max. permissible absolute pressure	1,5 bar	1125 Torr
Max. admissible media temperature (gas) non-explosive atmosphere:		
momentarily (< 5 Min)	80 °C	176 °F
Continuous operation	45 °C	113 °F
ATEX approval if the ATEX marking is shown on the rating plate	II 3/- G Ex h IIC T4 Gc X Internal Atm. only Tech.File: VAC-EX02	
Inner part (pumped gases)		
Max. admissible media temperature (gas)  atmospheres:		
momentarily	40 °C	104 °F
Continuous operation	40 °C	104 °F
Weight and dimensions*		(US)
with small flange	155 g	0.3 lb
Dimensions	77 mm x 53 mm x 81 mm	3 in. x 2 in. x 3.2 in.
with hose nozzle	147 g	0.3 lb
Dimensions	100 mm x 53 mm x 81 mm	3.9 in. x 2 in. x 3.2 in.
with hose nozzle	145 g	0.3 lb
Dimensions	67 mm x 53 mm x 81 mm	2.6 in. x 2 in. x 3.2 in.

* without cable

7.1.2 Wetted materials

Wetted materials

Component	Wetted materials
Vacuum sensor	Aluminium oxide ceramics, gold-coated
Measurement chamber	PPS
Small flange	PP
Sealing ring at the sensor	chemically resistant fluoroelastomer
O-Ring inside small flange	FKM
Hose nozzle	PP
Venting valve seal	FFPM
Blind plug venting valve	Epoxy resin adhesive

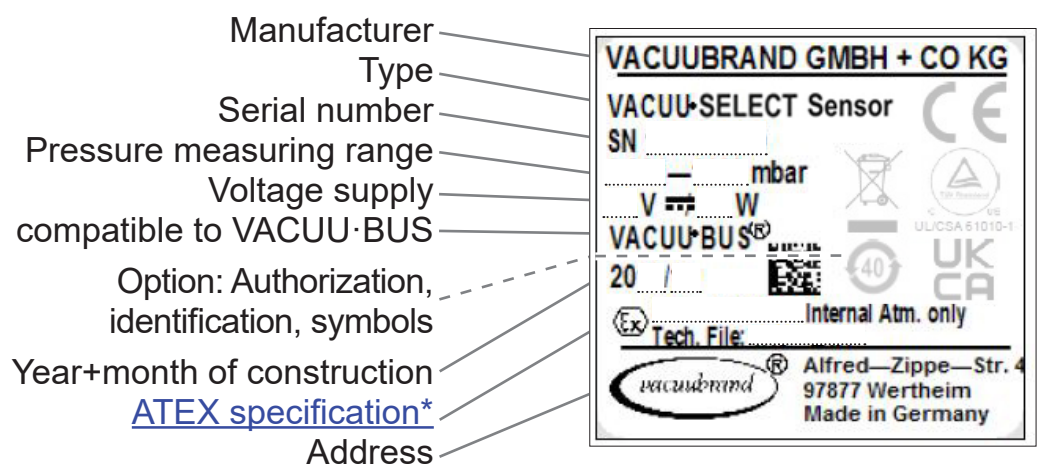
7.1.3 Rating plate



- ⇒ 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-SELECT® Sensor, generally

Data on rating plate



* Documentation, group and category, marking G (gas), type protection, explosion group, temperature class (additionally see : [Approval for ATEX equipment](#)).

7.2 Ordering information

Vacuum gauge	Order N°
VACUU-SELECT® Sensor	20700020
VACUU-SELECT® Sensor without venting valve	20700021

Ordering information
accessories

Accessories	Order N°
Vacuum hose DN 6 mm (l = 1000 mm)	20686000
PTFE hose KF DN 16	20686031
Silicone rubber hose 3/6 (venting with inert gas)	20636156
Wall duct VACUU-BUS	20636153
Y adapter VACUU-BUS	20636656
Calibration with first delivery (DAkkS accredited)	20900214
Recalibration (DAkkS accredited)	20900215

Ordering information
spare parts

Spare parts	Order N°
Hose nozzle DN 6/10	20636635
Small flange KF DN 16 PP	20635008
Protective cap DN 10/16	
O-ring	
Extension cable VACUU-BUS, 0.5 m	20612875
Extension cable VACUU-BUS, 2 m	20612552
Extension cable VACUU-BUS, 10 m	22618493
2x fixing screw 4x35	23126369
Safety Information for Vacuum Equipment	20999254
Instructions for use	20999349

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 [international sales office](#) of **VACUUBRAND GMBH + CO KG**.

7.3 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),
- [Calibration](#) (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 or if necessary decontaminate it professionally.
4. Please download form Health and Safety Clearance.
5. Please fill in this form [Health and Safety Clearance](#) completely.

Return
(reshipment)

6. Return your product including:
 - RMA-N°,
 - Repair or service order,
 - 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.

7.4 Index

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7.5 EC Declaration of Conformity

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

Vakuummessgerät / Vacuum gauge / Vacuomètre::

Typ / Type / Type: **VACUU-SELECT Sensor**

Artikelnummer / Order number / Numéro d'article: **20700020, 20700021**

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, 27.09.2024

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Geschäftsführer / Managing Director / Gérant

ppa.

(Jens Kaibel)

*Technischer Leiter / Technical Director /
Directeur technique*

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Web: www.vacuubrand.com

7.6 UKCA Declaration of Conformity

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-SELECT Sensor**

Order number: **20700020, 20700021**

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, 27.09.2024

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Managing Director

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VACUUBRAND®

7.7 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 biphenyls (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 Part name	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr(+VI)	多溴联苯 PBB	多溴二苯醚 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	X	0	0	0	0	0
电子电气组件 Electrical and electronic parts	X	0	0	0	0	0
控制器 / 测量设备 Controller / measuring device	X	0	0	0	0	0
金属外壳 / 组件 Metal housing / parts	X	0	0	0	0	0
电机 Motor	X	0	0	0	0	0
配件 Accessories	X	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

V5_September 2022

Copyright 2022

VACUUBRAND®

- 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图用铅（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



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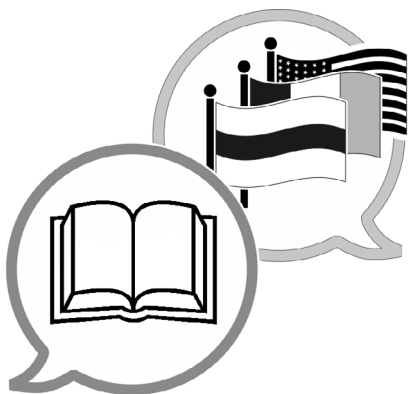
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E-Mail: info@vacuubrand.com

Web: www.vacuubrand.com

7.8 CU Certificate

Certificate		
Certificate no. CU 72228817 01		
License Holder: VACUUBRAND GMBH + CO KG Alfred-Zippe-Str. 4 97877 Wertheim Deutschland	Manufacturing Plant: VACUUBRAND GMBH + CO KG Alfred-Zippe-Str. 4 97877 Wertheim Deutschland	
Test report no.: USA- 31880183 003 Client Reference: Dr. A. Wollschläger		
Tested to: UL 61010-1:2012 R7.19 CAN/CSA-C22.2 NO. 61010-1-12 + GI1 + GI2 (R2017) + A1		
Certified Product: Measurement and control device for vacuum		License Fee - Units
Model : (1) VACUU VIEW; (2) VACUU VIEW extended;		7
Designation : (3) VACUU SELECT; (4) VACUU SELECT complete;		
(5) VACUU SELECT Sensor;		
(6) VSP 3000; (7) CVC 3000; (8) VSK 3000;		
(9) VSK PV; (10) DCP 3000		
Rated Voltage: DC 24V; class III (all devices)		
Rated Power : (1+2) 1.3W; (3) 5.0W; (4) 13W; (5) 1.2W;		
(6) 1.6W; (7+10) 3.4W; (8+9) 0.12W		
Degree of : (7+10) IP20/Type 1 (UL50E)		
Protection : (3+4) IP40/Type 1 (UL50E)		
(5) IP41/Type 2 (UL50E)		
(1+2+6+8+9) IP54/Type 5 (UL50E)		
Appendix: 1, 1-13		7
Licensed Test mark:  C U S	Date of Issue (day/mo/yr) 09/02/2023	
TUV Rheinland of North America, Inc., 12 Commerce Road, Newtown, CT 06470, Tel (203) 426-0888 Fax (203) 426-4009		



www.vacuubrand.com/manuals

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