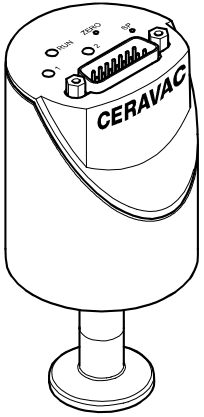
CERAVAC Transmitter

CTR 100

Operating Manual 17200257_002_A0

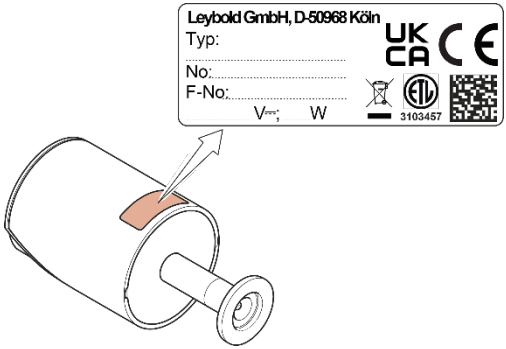
Part Numbers

230 300 V01	230 305 V01	230 310 V01	230 315 V01
230 301 V01	230 306 V01	230 311 V01	230 316 V01
230 302 V01	230 307 V01	230 312 V01	230 317 V01
230 303 V01	230 308 V01	230 313 V01	230 318 V01
230 304 V01	230 309 V01	230 314 V01	230 340 V01



Product Identification

In all communications with Leybold, please specify the information given on the product nameplate. For convenient reference copy that information into the space provided below.



Validity

This document applies to products with the following part numbers:

Part number	Flange	Measurement range, Full Scale (F.S.)		
		Torr	Pascal	mbar
230 300 V01	DN 16 ISO-KF	10^{-1} … 1000 (F.S.)	1.33×10^{1} … 133'322 (F.S.)	1.33×10^{-1} … 1333 (F.S.)
230 301 V01	DN 16 ISO-KF	10^{-2} … 100 (F.S.)	1.33×10^{0} … 13'332.2 (F.S.)	10^{-2} … 133 (F.S.)
230 302 V01	DN 16 ISO-KF	10^{-3} … 10 (F.S.)	1.33×10^{-1} … 1'333.22 (F.S.)	10^{-3} … 13.3 (F.S.)
230 303 V01	DN 16 ISO-KF	10^{-4} … 1 (F.S.)	1.33×10^{-2} … 133.322 (F.S.)	10^{-4} … 1.3 (F.S.)
230 304 V01	DN 16 ISO-KF	10^{-5} … 0.1 (F.S.)	1.33×10^{-3} … 13.3322 (F.S.)	10^{-5} … 0.13 (F.S.)
230 305 V01	DN 16 CF-R	10^{-1} … 1000 (F.S.)	1.33×10^{1} … 133'322 (F.S.)	1.33×10^{-1} … 1333 (F.S.)
230 306 V01	DN 16 CF-R	10^{-2} … 100 (F.S.)	1.33×10^{0} … 13'332.2 (F.S.)	10^{-2} … 133 (F.S.)
230 307 V01	DN 16 CF-R	10^{-3} … 10 (F.S.)	1.33×10^{-1} … 1'333.22 (F.S.)	10^{-3} … 13.3 (F.S.)
230 308 V01	DN 16 CF-R	10^{-4} … 1 (F.S.)	1.33×10^{-2} … 133.322 (F.S.)	10^{-4} … 1.3 (F.S.)
230 309 V01	DN 16 CF-R	10^{-5} … 0.1 (F.S.)	1.33×10^{-3} … 13.3322 (F.S.)	10^{-5} … 0.13 (F.S.)
230 310 V01	8 VCR®	10^{-1} … 1000 (F.S.)	1.33×10^{1} … 133'322 (F.S.)	1.33×10^{-1} … 1333 (F.S.)

(continued)

(concluded)

Part number	Flange	Torr	Pascal	mbar
230 311 V01	8 VCR®	10^{-2} … 100 (F.S.)	1.33×100 … 13'332.2 (F.S.)	10^{-2} … 133 (F.S.)
230 312 V01	8 VCR®	10^{-3} … 10 (F.S.)	1.33×10^{-1} … 1'333.22 (F.S.)	10^{-3} … 13.3 (F.S.)
230 313 V01	8 VCR®	10^{-4} … 1 (F.S.)	1.33×10^{-2} … 133.322 (F.S.)	10^{-4} … 1.3 (F.S.)
230 314 V01	8 VCR®	10^{-5} … 0.1 (F.S.)	1.33×10^{-3} … 13.3322 (F.S.)	10^{-5} … 0.13 (F.S.)
230 315 V01	½" Rohr	10^{-1} … 1000 (F.S.)	1.33×10^{1} … 133'322 (F.S.)	1.33×10^{-1} … 1333 (F.S.)
230 316 V01	½" Rohr	10^{-2} … 100 (F.S.)	1.33×10^{0} … 13'332.2 (F.S.)	10^{-2} … 133 (F.S.)
230 317 V01	½" Rohr	10^{-3} … 10 (F.S.)	1.33×10^{-1} … 1'333.22 (F.S.)	10^{-3} … 13.3 (F.S.)
230 318 V01	½" Rohr	10^{-4} … 1 (F.S.)	1.33×10^{-2} … 133.322 (F.S.)	10^{-4} … 1.3 (F.S.)
230 319 V01	½" Rohr	10^{-5} … 0.1 (F.S.)	1.33×10^{-3} … 13.3322 (F.S.)	10^{-5} … 0.13 (F.S.)
230 340 V01	DN 16 ISO-KF	2×10^{-3} … 20 (F.S.)	2.66×10^{-1} … 2'666.44 (F.S.)	2.67×10^{-3} … 26.67 (F.S.)

The part number (No) can be taken from the product nameplate.

If not indicated otherwise in the legends, the illustrations in this document correspond to CTR 100 transmitter with the DN 16 ISO-KF vacuum connection. They apply to other vacuum connections by analogy.

Intended Use

The CERAVAC Transmitters of the CTR 100 series are intended for absolute pressure measurement of gases in their respective pressure ranges (→ 🗎 3).

The transmitters can be operated in connection with a Leybold Controller or another appropriate measuring unit.

Function

The CTR transmitter consists of a capacitive sensor element made of aluminum oxide ceramics and electronics that convert the capacitance into a DC voltage output signal.

The output signal is linear to the measured pressure and independent of the gas type.

Scope of Delivery

1× transmitter in clean room packaging
1× pin for adjusting settings via buttons
1× Calibration Test Report
1× Operating Manual German
1× Operating Manual English

Contents

For cross-references within this document, the symbol (→ 🗎 XY) is used, for cross-references to further documents, listed under literature, the symbol (→ 🕮 [Z]).

1 Safety

1.1 Symbols Used

DANGER

Information on preventing any kind of physical injury.

WARNING

Information on preventing extensive equipment and environmental damage.

Caution

Information on correct handling or use. Disregard can lead to malfunctions or minor equipment damage.

 Notice

<…> Labeling

1.2 Personnel Qualifications

Skilled personnel

All work described in this document may only be carried out by persons who have suitable technical training and the necessary experience or who have been instructed by the end-user of the product.

1.3 General Safety Instructions

- Adhere to the applicable regulations and take the necessary precautions for the process media used.

  Consider possible reactions with the product materials.

- Adhere to the applicable regulations and take the necessary precautions for all work you are going to do and consider the safety instructions in this document.

- Before beginning to work, find out whether any vacuum components are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Communicate the safety instructions to all other users.

1.4 Liability and Warranty

Leybold assumes no liability and the warranty becomes null and void if the end-user or third parties

- disregard the information in this document
- use the product in a non-conforming manner
- make any kind of interventions (modifications, alterations etc.) on the product
- use the product with accessories not listed in the product documentation.

The end-user assumes the responsibility in conjunction with the process media used.

Transmitter failures due to contamination are not covered by the warranty.

2 Technical Data

Measurement range	→ "Validity"
Accuracy [1]	
≥1 Torr (F.S.)	0.20% of reading
0.1 Torr (F.S.)	0.50% of reading
Temperature effect on zero	
≥10 Torr (F.S.)	0.0050% F.S./ °C
1 Torr (F.S.)	0.015% F.S./ °C
0.1 Torr (F.S.)	0.02% F.S./ °C
Temperature effect on span	
≥1 Torr (F.S.)	0.01% of reading / °C
0.1 Torr (F.S.)	0.03% of reading / °C
Resolution	0.003% F.S.
Gas type dependence	none
Output signal analog (measuring signal)	
Voltage range	–5 … +10.24 V
Measuring range	0 … +10V
Relationship voltage-pressure	linear
Output impedance	0 Ω (short-circuit proof)
Loaded impedance	>10 kΩ
Response time	
≥1 Torr (F.S.)	30 ms
0.1 Torr (F.S.)	130 ms
Transmitter identification	Resistance 13.2 kΩ referenced to supply common

[1] Non-linearity, hysteresis, repeatability at 23 °C ambient temperature without temperature effects after 2 h operation.

Switching functions	SP1, SP2
Setting range	0 … +10 V
Hysteresis	1% F.S.
Relay contact	30 V (dc) / ≤0.5 A (dc) floating (NO)
closed	at low pressure (LED is lit)
open	at high pressure (LED is off)
Switching time	≤50 ms

RS232C interface	
Transmission rate	9600 baud
Data format	binary 8 data bits one stop bit no parity bit no handshake
Connection	→ "Electrical Connection"

Further information about the RS232C interface → 🕮 [1]

Supply

DANGER

The transmitter may only be connected to power supplies, instruments or control devices that conform to the requirements of a grounded protective extra-low voltage (PELV) and limited power source (LPS), Class 2. The connection to the transmitter has to be fused.

Supply voltage	Class 2 / LPS
At the transmitter	+14 … +30 V (dc)
Ripple	≤1 V_{pp}
Current consumption	<500 mA (max. starting current)
Power consumption (depending on supply voltage)	≤1 W
Internal fuse	1 AT (slow), automatic reset (Polyfuse)

The transmitter is protected against reverse polarity of the supply voltage.

Electrical connection	15-pin D-sub, male
Sensor cable	5-pin plus shielding
Cable length	≤100 m (0.14 mm² conductor)

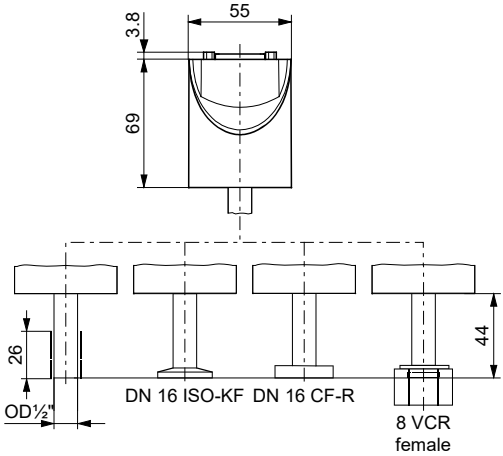
For longer cables, larger conductor cross-sections are required (R_{cable} ≤1.0 Ω).

Grounding concept	
Vacuum flange - signal common	→ "Electrical Connection"
Supply common - signal common	conducted separately; for differential measurement (10 Ω)

Materials exposed to vacuum	
Flange, tube	stainless steel AISI 316L
Sensor and diaphragm	ceramics (Al_2O_3 ≥99.5%)
Internal volume	≤3.6 cm^3
Admissible pressure (absolute)	
1000 Torr F.S	4 bar
1 … 100 Torr F.S.	2.6 bar
0.1 Torr F.S.	1.3 bar
Bursting pressure (absolute)	5 bar

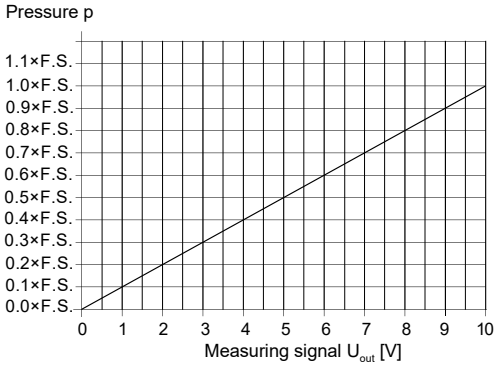
Admissible temperatures	
Storage	–40 °C … +65 °C
Operation	+5 °C … +50 °C
Bakeout (not in operation)	≤110 °C at the flange
Relative humidity	≤80% at temperatures ≤+31 °C decreasing to 50% at +40°C
Use	indoors only, altitude up to 2000 m NN
Pollution degree	2
Degree of protection	IP 30

Dimensions [mm]



Weight	≤370 g

Analog Measuring Signal vs. Pressure



$$p = (U_{out} / 10\ V) \times p(F.S.)$$

Conversion Torr ↔ Pascal

	Torr	mbar [2)]	Pa [2)]
c	1.00	1013.25 / 760 = 1.3332…	101325 / 760 = 133.3224…

Example: Transmitter with 10 Torr F.S.
Measuring signal U_{out} = 6 V

$$p = (6\ V / 10\ V) \times 10\ Torr$$
$$= 0.6 \times 10\ Torr = \mathbf{6\ Torr}$$

2) Source: NPL (National Physical Laboratory)
Guide to the Measurement of Pressure and Vacuum,
ISBN 0904457x / 1998

3 Installation

WARNING

Fragile components

The ceramic sensor may be damaged by impacts.

Do not drop the product and prevent shocks and impacts.

DANGER

Leaking process media

High-intensity mechanical, chemical or thermal impacts can cause leaks in the measuring sensor. Process media can thus leak and possibly cause hazards, if overpressure is in the vacuum system.

- Avoid high-intensity mechanical, chemical or thermal impacts and overpressure in the vacuum system.
- Take appropriate measures (e.g. shut off gas supply, extraction, leak test) to avoid hazards or damage due to leaking process media.

3.1 Vacuum Connection

DANGER

Overpressure in the vacuum system >1 bar

Injury caused by released parts and harm caused by escaping process gases can result if clamps are opened while the vacuum system is pressurized.

Do not open any clamps while the vacuum system is pressurized. Use the type clamps which are suited to overpressure.

DANGER

Overpressure in the vacuum system >2.5 bar

KF flange connections with elastomer seals (e.g. O-rings) cannot withstand such pressures. Process media can thus leak and possibly damage your health.

Use O-rings provided with an outer centering ring.

DANGER

Protective ground

Products that are not correctly connected to ground can be extremely hazardous in the event of a fault.

Electrically connect the transmitter to the grounded vacuum chamber. This connection must conform to the requirements of a protective connection according to EN 61010:

- CF and VCR flanges fulfill this requirement.
- For transmitters with a KF flange, use a conductive metallic clamping ring.
- For transmitters with a ½" tube, take appropriate measures to fulfill this requirement.

Caution

Vacuum component

Dirt and damages impair the function of the vacuum component.

When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

Caution

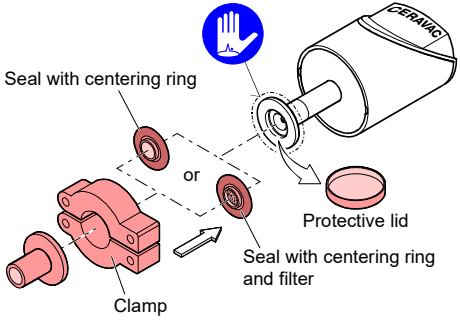
Dirt sensitive area

Touching the product or parts thereof with bare hands increases the desorption rate.

Always wear clean, lint-free gloves and use clean tools when working in this area.

Mount the transmitter so that no vibrations occur. The transmitter may be mounted in any orientation. To keep condensates and particles from getting into the measuring chamber preferably choose a horizontal to upright position. The use of a seal with a centering ring and filter keeps particles from getting into the transmitter.
If adjustment should be possible after the transmitter has been installed, be sure to install it so that the buttons can be accessed with a pin (→ 🗎 21).

Remove the protective lid and connect the product to the vacuum system.



Keep the protective lid.

3.2 Electrical Connection

Make sure the vacuum connection is properly made (→ 14).

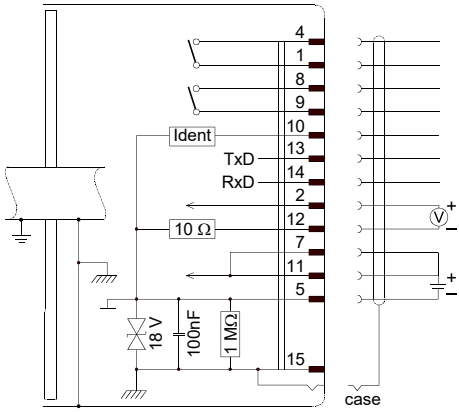
DANGER

The gauge may only be connected to power supplies, instruments or control devices that conform to the requirements of a grounded protective extra-low voltage (PELV) and limited power source (LPS), Class 2. The connection to the gauge has to be fused.

Ground loops, differences of potential, or EMC problems may affect the measurement signal. For optimum signal quality, please do observe the following notes:

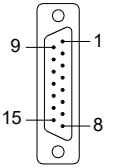
- Connect the cable shield to ground on one side via the chassis ground. Do not connect the other side of the shield.
- Connect the supply common with protective ground directly at the power supply.
- Use differential measurement input (signal common and supply common conducted separately).
- Potential difference between supply common and housing ≤18 V (overvoltage protection).

❶ If no sensor cable is available, make one according to the following diagram.



Electrical connection

Pin 1, 4	Relay SP1, closing contact
Pin 2	Signal output (measuring signal) or thresholds SP1/2
Pin 5	Supply common, GND
Pin 7, 11	Supply
Pin 8, 9	Relay SP2, closing contact
Pin 10	Transmitter identification
Pin 12	Signal common
Pin 13	RS232, TxD
Pin 14	RS232, RxD
Pin 15	Housing (Chassis Ground)
case	Connector case



D-Sub,15-pin female soldering side

❷ Connect the sensor cable to the transmitter and secure it using the lock screws.

❸ Connect the sensor cable to the controller.

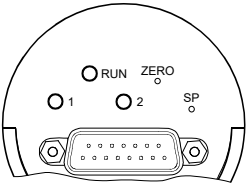
4 Operation

Put the gauge into operation. If you are using a Leybold controller, define the measurement range.

Warm-up time

- for general purpose reading (within specifications) >15 minutes
- for zero adjustment and precision measurement >2 hours

4.1 Displays



LED	State	Meaning
<RUN>	lit	Measurement mode
	flashing	Other mode (→ chapter 4.2), error, over/underrange
<1>	lit	p ≤ setpoint level 1
	flashing	Adjusting setpoint <1>
<2>	lit	p ≤ setpoint level 2
	flashing	Adjusting setpoint <2>

4.2 Zeroing the Transmitter

The transmitter is factory calibrated while "standing upright" (→ "Calibration Test Report").

We recommend performing a zero adjustment, when the gauge is operated for the first time.

Due to long time operation or contamination, a zero drift could occur and zero adjustment may become necessary.

For adjusting the zero, operate the gauge under the same constant ambient conditions and in the same mounting orientation as normally.

The output signal (measuring signal) is depending on the mounting orientation. The signal difference between the vertical and horizontal mounting orientation is:

F.S.	ΔU / 90°
1000 Torr	≈2 mV
100 Torr	≈10 mV
10 Torr	≈50 mV
1 Torr	≈300 mV

If the transmitter is operated via a controller, the zero of the whole measuring system has to be adjusted on the controller: first, adjust the zero of the transmitter and then, the zero of the controller.

4.2.1 <ZERO> Adjustment

The zero can be adjusted via

- the <ZERO> button on the transmitter,
- the RS232C interface (→ 🕮 [1]).

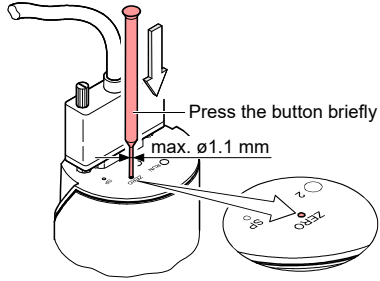
❶ Evacuate the transmitter to a pressure according to the table below:

F.S.	Recommended final pressure for zero adjustment		
1000 Torr	$<5\times10^{-2}$ Torr	$<6.65\times10^{0}$ Pa	$<5\times10^{-2}$ mbar
100 Torr	$<5\times10^{-3}$ Torr	$<6.65\times10^{-1}$ Pa	$<5\times10^{-3}$ mbar
20 Torr	$<10^{-3}$ Torr	$<1.33\times10^{-1}$ Pa	$<10^{-3}$ mbar
10 Torr	$<5\times10^{-4}$ Torr	$<6.65\times10^{-2}$ Pa	$<5\times10^{-4}$ mbar
1 Torr	$<5\times10^{-5}$ Torr	$<6.65\times10^{-3}$ Pa	$<5\times10^{-5}$ mbar
0.1 Torr	$<5\times10^{-6}$ Torr	$<6.65\times10^{-4}$ Pa	$<5\times10^{-6}$ mbar

If the final pressure in the transmitter is too high for zero adjustment (>25% of the F.S.), the zero cannot be reached and the <RUN> LED blinks. If this is the case, activate the factory setting and adjust the zero again (→ 🗎 28).

❷ Operate the transmitter for at least 2 hours (until the signal is stable).

❸ Press the <ZERO> button briefly with a pin (max. ø1.1 mm). The zero adjustment runs automatically. The <RUN> LED flashes until the adjustment (duration ≤8 s) is completed.



After zero adjustment the transmitter automatically returns to measurement mode. The <RUN> LED lit.

The <RUN> LED blinks if

- the signal output is negative (< -20 mV) when the final pressure has been attained
- the zero adjustment has failed.

4.2.2 <ZERO> Adjustment with Ramp Function

The ramp function allows to adjust the zero at a known reference pressure within the measuring range of the transmitter.

It also permits to adjust an offset of the characteristic curve in order to

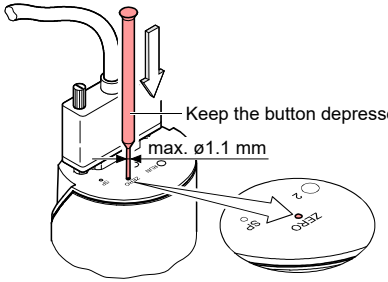
- compensate for the offset of the measuring system or
- obtain a slightly positive zero for a 0 … 10 V AD-converter.

The offset should not exceed 2% of the F.S. (+200 mV). At a higher positive offset, the upper limit of the measuring range is passed.

Recommended procedure for adjusting the offset of a measuring system: → Notice 🗎 21.

❶ Operate the transmitter for at least 2 hours (until the signal is stable).

❷ Push the <ZERO> button with a pin (max. ø1.1 mm) and keep it depressed. The <RUN> LED starts flashing. After 5 s, the zero adjustment value, starting at the current output value, keeps continually changing (ramp) until the button is released or until the setting limit (max. 25% F.S.) is reached. The corresponding output signal is delayed by about 1 s.



❸ Push the <ZERO> button again:

Fine adjustment within 0...3 s:	the zero adjustment value changes by one unit (push <ZERO> button in intervals of 1 s)
Change of direction within 3...5 s:	the zero adjustment changes its direction (the blinking frequency of the <RUN> LED changes briefly)

If the <ZERO> button is released for more than 5 s, the transmitter returns to the measurement mode.

The zero with ramp function can also be adjusted via the RS232C interface (→ 🕮 [1]).

The <RUN> LED blinks if the signal output is negative (< -20 mV).

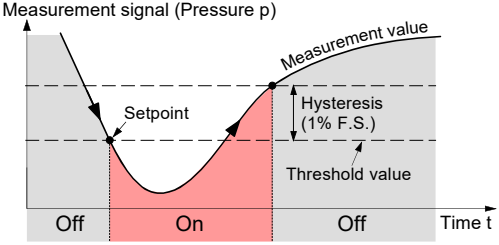
4.3 Switching Functions

The two switching functions can be adjusted to any pressure within the whole measurement range.

The current setpoint setting

- is output at the D-sub connector instead of the measurement signal and can be measured with a voltmeter after the <SP> button is pressed, or
- can be read/written via the RS232C interface.

If the pressure is lower than the setpoint, the corresponding LED is lit (<1> or <2>) and the corresponding relay is energized.



4.3.1 Adjusting the Setpoints

The setpoints can be adjusted via

- the buttons on the gauge,
- the RS232C interface (→ 🕮 [1]).

DANGER

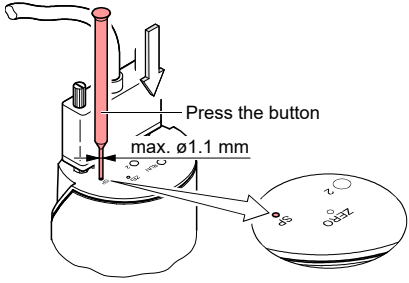
Malfunction

If processes are controlled via the signal output, keep in mind that by pushing the <SP> button the measurement signal is suppressed and the corresponding threshold value is output instead. This can cause malfunctions.

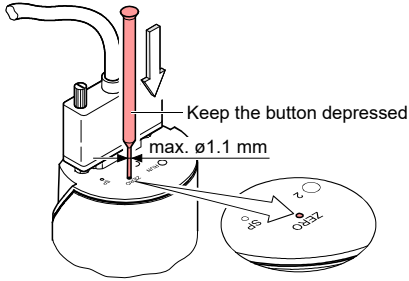
Push the <SP> button only if you are sure that no malfunction will cause.

Adjusting Setpoint <1>

❶ Push the <SP> button with a pin (max. ø1.1 mm). The gauge changes to the switching function mode and outputs the current lower threshold value at the measurement value output for about 10 s (LED <1> flashes).



❷ For changing the threshold value, push the <ZERO> button and keep it depressed. The threshold keeps changing from the current value (ramp) until the button is released or until the limit of the setting range is reached.



❸ Push the <ZERO> button again:

Fine adjustment within 0...3 s:	the zero adjustment value changes by one unit
Change of direction within 3...5 s:	the zero adjustment changes its direction (the flashing frequency of the <RUN> LED changes briefly)

☞ If the <ZERO> button is released for more than 5 s, the gauge returns the measurement mode.

☞ The upper threshold is automatically set 1% F.S. above the lower one (hysteresis).

Adjusting Setpoint <2>

Push the <SP> button twice (LED <2> flashes). The adjustment procedure is the same as for setpoint <1>.

4.4 Activating the Factory Setting (Factory Reset)

All user defined parameters (e.g. zero, filter) are restored to their default values.

Loading the default parameters:

1. Put the transmitter out of operation.
2. Keep the <ZERO> button depressed for at least 5 s while the transmitter is being put into operation (Power ON).

5 Deinstallation

WARNING

Fragile components

The ceramic sensor may be damaged by impacts.

Do not drop the product and prevent shocks and impacts.

DANGER

Contaminated parts

Contaminated parts can be detrimental to health and environment.

Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Caution

Vacuum component

Dirt and damages impair the function of the vacuum component.

When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

Caution

Dirt sensitive area

Touching the product or parts thereof with bare hands increases the desorption rate.

Always wear clean, lint-free gloves and use clean tools when working in this area.

1. Vent the vacuum system.
2. Put the transmitter out of operation.
3. Unfasten the lock screws and disconnect the sensor cable.
4. Remove the transmitter from the vacuum system and install the protective lid.

6 Maintenance, Repair

Under clean operating conditions, the product requires no maintenance.

Transmitter failures due to contamination are not covered by the warranty.
We recommend checking the zero at regular intervals (→ 22).

Leybold assumes no liability and the warranty becomes null and void if any repair work is carried out by the end-user or third parties.

7 Returning the Product

WARNING

Forwarding contaminated products

Contaminated products (e.g. radioactive, toxic, caustic or microbiological hazard) can be detrimental to health and environment.

Products returned to Leybold should preferably be free of harmful substances. Adhere to the forwarding regulations of all involved countries and forwarding companies and enclose a duly completed declaration of contamination *).

*) Form under www.leybold.com

Components contaminated by microbiological, explosive or radioactive products will not be accepted without written evidence of decontamination.

Products that are not clearly declared as "free of harmful substances" are decontaminated at the expense of the customer.

Products not accompanied by a duly completed declaration of contamination are returned to the sender at his own expense.

8 Disposal

DANGER

Contaminated parts

Contaminated parts can be detrimental to health and environment.

Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

WARNING

Substances detrimental to the environment

Products or parts thereof (mechanical and electric components, operating fluids etc.) can be detrimental to the environment.

Dispose of such substances in accordance with the relevant local regulations.

Separating the components

After disassembling the product, separate its components according to the following criteria:

- Contaminated components

  Contaminated components (radioactive, toxic, caustic or biological hazard etc.) must be decontaminated in accordance with the relevant national regulations, separated according to their materials, and disposed of.

- Other components

  Such components must be separated according to their materials and recycled.

9 Literature

📖 [1] www.leybold.com
Interface Manual
Interface RS232C
17200961_001_00 (German)
17200961_002_00 (English)
Leybold GmbH, D–50968 Köln, Deutschland

ETL Certification

ETL LISTED

The product CTR 100

- conforms to the UL Standard UL 61010-1
- is certified to the CSA Standard CSA C22.2 # 61010-1

EU Declaration of Conformity

Leybold

EU Declaration of Conformity

CE

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Leybold GmbH
Bonner Strasse 498
D-50968 Köln
Germany

Documentation Officer
T: +49(0) 221 347 0
documentation@leybold.com

- *Vacuum Gauge*
- *CERAVAC Transmitters*
- *CTR 100 / CTR 101 Family*

Is in conformity with the relevant Union harmonisation legislation:

2014/30/EU	Electromagnetic compatibility (EMC) directive Class B Emissions, Industrial Immunity
2011/65/EU	Restriction of certain hazardous substances (RoHS) directive as amended by Delegated Directive (EU) 2015/863

Based on the requirements of relevant harmonised standards and technical documentation:

EN 61010-1:2010 +A1:2019	Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
EN 61000-6-2:2005	Electromagnetic Compatibility (EMC) - Part 6-2: Generic Industrial Immunity Standard
EN 61000-6-3:2007 +A1:2011	Electromagnetic Compatibility (EMC) - Part 6-3: Generic Residential Emission Standard
EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

This declaration, based on the requirements of the listed Directives and EN ISO/IEC 17050-1, covers all product serial numbers from this date on: *2022-06-15*

You must retain the signed legal declaration for future reference
This declaration becomes invalid if modifications are made to the product without prior agreement.

Ian Keech – VP Engineering, Scientific Vacuum Division
Burgess Hill

Axel Guddas – General Manager
Product Company Cologne

UKCA Declaration of Conformity

Leybold

UK CA

Declaration of Conformity

Leybold GmbH
Bonner Strasse 498
D-50968 Köln
Germany

Documentation Officer
Innovation Drive
Burgess Hill
West Sussex
RH15 9TW
documentation@leybold.com

This declaration of conformity is issued under the sole responsibility of the manufacturer.

- *Vacuum Gauge*
- *CERAVAC Transmitters*
- *CTR 100 / CTR 101 Family*

The object of the declaration described above is in conformity with relevant statutory requirements:

Supply of Machinery (Safety) Regulations 2008
The objectives of the Electrical Equipment (Safety) Regulations 2016 are governed by Annex 1 1.5.1 of this regulation.

Electrical Equipment (Safety) Regulations 2016

Electromagnetic Compatibility Regulations 2016
Class B Emissions, Industrial Immunity

Batteries and Accumulators (Placing on the Market) Regulations 2008

Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Relevant designated standards or technical specifications are as follows:

EN 61010-1:2010 +A1:2019	Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
EN 61000-6-2:2005	Electromagnetic Compatibility (EMC) - Part 6-2: Generic Industrial Immunity Standard
EN 61000-6-3:2007 +A1:2011	Electromagnetic Compatibility (EMC) - Part 6-3: Generic Residential Emission Standard
EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

This declaration, based on the requirements of the listed Statutory Instruments and EN ISO/IEC 17050-1, covers all product serial numbers from this date on: *2022-06-15*

You must retain the signed legal declaration for future reference
This declaration becomes invalid if modifications are made to the product without prior agreement.

Signed for and on behalf of Leybold GmbH

Ian Keech – VP Engineering, Scientific Vacuum Division Burgess Hill

Axel Guddas – General Manager Product Company Cologne

Notes

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