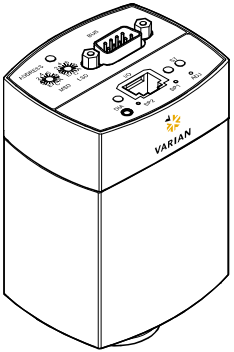
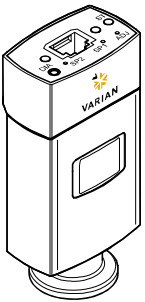
VARIAN

vacuum technologies

Pirani Capacitance Diaphragm Gauge

PCG-750
PCG-752



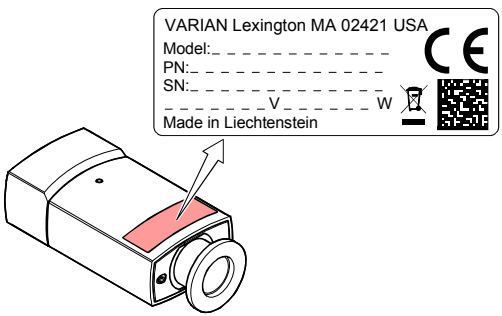


CE

Instruction Manual
Incl. EC Declaration of Conformity

Product Identification

In all communications with VARIAN, 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:

PCG-750 (W filament)	
PCG750KF16	DN 16 ISO-KF, w/o display, mbar
PCG750KF16SD1	DN 16 ISO-KF, with two switching functions and display, mbar
PCG750KF16SD2	DN 16 ISO-KF, with two switching functions and display, Torr
PCG750KF16SD3	DN 16 ISO-KF, with two switching functions and display, Pa
PCG750KF16P	DN 16 ISO-KF, Profibus, with two switching functions, w/o display, mbar

PCG-752 (Ni filament)	
PCG752KF16	DN 16 ISO-KF, mbar
PCG752KF16SD1	DN 16 ISO-KF, with two switching functions and display, mbar
PCG752KF16SD2	DN 16 ISO-KF, with two switching functions and display, Torr
PCG752KF16SD3	DN 16 ISO-KF, with two switching functions and display, Pa
PCG752KF16P	DN 16 ISO-KF, Profibus, with two switching functions, w/o display, mbar

The part number (PN) can be taken from the product nameplate.

If not indicated otherwise in the legends, the illustrations in this document correspond to gauges with part number PCG752KF16SD1. They apply to gauges with other part numbers connections by analogy.

We reserve the right to make technical changes without prior notice.

All dimensions in mm.

Intended Use

The Pirani Capacitance Diaphragm Gauge PCG-75x has been designed for vacuum measurement of gases in the pressure range of 5×10^{-5} … 1500 mbar.

It must not be used for measuring flammable or combustible gases in mixtures containing oxidants (e.g. atmospheric oxygen) within the explosion range.

The gauge is intended for operation in connection with a VARIAN AGC-100 Vacuum Gauge Controller, a VARIAN Turbo AG Rack Controller, or with another suitable controller.

Functional Principle

The PCG gauge is a combination gauge consisting of a Pirani sensor and a diaphragm capacitive sensor. Both sensors are constantly active.

At low pressures, only the signal of the Pirani sensor is used for pressure measurement; at high pressures, only the signal of the diaphragm capacitive sensor. To determine the output signal in the intermediate range, both signals are used proportionally to the pressure.

Patents

EP 0689669 B1, 0689670 B1, 0658755 B1

US Patente 5608168, 4031997, 5583297

Scope of Delivery

1× gauge
1× pin for adjusting settings via buttons
1× Operating Manual

Contents

For cross-references within this document, the symbol (→ 🗎 XY) is used, for cross-references to further documents, listed under "Further Information", 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.

  Consider possible reactions (e.g. explosion) of the process media due to the heat generated by the product.
- 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

VARIAN 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.

Gauge failures due to contamination or wear and tear, as well as expendable parts (seals, filament), are not covered by the warranty.

2 Technical Data

For further technical data for gauges with Profibus interface → 🕮 [3].

Measurement range	5×10^{-5} … 1500 mbar
Measurement principle	
10 [1] mbar … 1500 mbar	diaphragm capacitive sensor
1 … 10 [1] mbar	crossover range
5×10^{-5} … 1 mbar	thermal conductance acc. to Pirani
Accuracy (N_2)	
5×10^{-4} … 1×10^{-3} mbar	±50% of reading
1×10^{-3} … 100 mbar	±15% of reading
100 … 950 mbar	±5% of reading
950 … 1050 mbar	±2.5% of reading
Repeatability (N_2)	
1×10^{-3} … 1100 mbar	±2% of reading

Output signal (measurement signal)	
Voltage range	0 … +10.23 V
Measurement range	+0.61 … +10.23 V
Error signal	0 V (default)
Voltage vs. pressure	1.286 V/decade, logarithmic

Output impedance	2 × 4.7 Ω, short circuit-proof
Load impedance	>10 kΩ
Response time	<30 ms

[1] Crossover range for air, O_2, CO and N_2 10 mbar, 100 mbar in heavy gases.

Gauge identification	71.5 kΩ
HV adjustment	at $<10^{-5}$ mbar
ATM adjustment	at >100 mbar
Switching functions	SP1, SP2
Setting range (N_2)	5.0×10^{-5} … 1500 mbar
Hysteresis [2]	10% of threshold
Switching characteristics [2]	Low Trip Point
Type	1 floating contact (n.o.) per switching function
Contact rating	<30 VAC/DC, ≤1 A resistive
closed	LED lit solid
open	LED off
Switching time	<30 ms
Diagnostic port	Jack connector 2.5 mm, 3-pin

Supply

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 (SELV). The connection to the gauge has to be fused. [3]

[2] The hysteresis and the switching characteristics can be programmed via the serial interface or the diagnostic port.

[3] VARIAN controllers fulfill this requirement.

Supply voltage at the gauge	+15 … +30 VDC
Ripple	≤1 V_{pp}
Power consumption	
without fieldbus	≤2.5 W
with fieldbus	≤3 W
Fuse to be connected [3)]	1 AT
Electrical connection	FCC 68
Sensor cable	shielded 0.14 mm^2/conductor
Cable length	≤100 m
RS232C operation	≤30 m
Grounding concept	→ "Power Connection"
Vacuum connection to signal common	connected via 10 kΩ, 10 nF
RS232C	
Transmission rate	57600 baud (default)
Data format	binary 8 data bits one stop bit no parity bit no handshake → "Power Connection"

For further information on the RS232C interface → 🕮 [2].

Profibus interface	
Specification, data format, communication protocol	→ 🕮 [5]
Interface, physical	RS485
Data rate	≤12 Mbaud (→ 🕮 [3])
Node address	
Local (Adjustable via hexadecimal <ADDRESS>, <MSD>, <LSD> switches)	00 … $7D_{hex}$ (0 … 125_{dec})
Default setting	$0.1C_{hex}$
Via Profibus (hexadecimal <ADDRESS> switches set to >$7D_{hex}$ (>125_{dec})	00 … $7D_{hex}$ (0 … 125_{dec})
Profibus connection	D-Sub, 9-pin, female
Cable	shielded, special Profibus cable, → 🗎 22, → 🕮 [6]
Cable length, system wiring	according to Profibus specifications, → 🕮 [5], [6]
For further information on the Profibus interface → 🕮 [3]	

Materials exposed to vacuum	
Vacuum connection	stainless steel 1.4435
Filament	
PCG-750	W
PCG-752	Ni
Feedthrough	glass
Orifice	stainless steel
Diaphragm	ceramic
Further materials	Ni, NiFe, stainless steel 1.4301, SnAg

Internal volume	4.7 cm^3

Permissible pressure (absolute)	≤5 bar
Bursting pressure (absolute)	10 bar

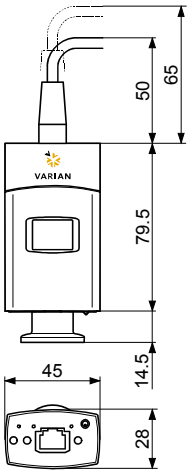
Permissible temperatures	
Operation	+10 °C … +50 °C
Vacuum connection [4)]	≤80 °C
Filament	<160 °C
Storage	–20 °C … +65 °C
Relative humidity	
Year's mean	≤65% (no condensation)
During 60 days	≤85% (no condensation)
Mounting orientation	any
Use	indoors only, altitude up to 2000 m NN
Degree of protection	IP 40

Weight	
w/o fieldbus interface	115 g …130 g
with fieldbus interface	230 g … 250 g

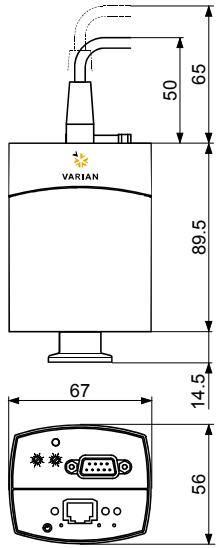
[4)] For horizontal mounting orientation only. During bakeout, measurement range, accuracy, and repeatability may deviate from specifications.

Dimensions [mm]

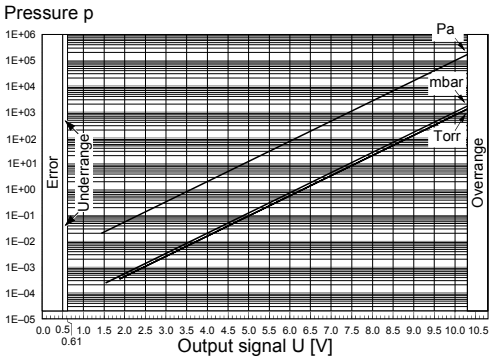
PCG-750



PCG-752



2.1 Output Signal vs. Pressure



$p = 10^{0.778(U-c)}$ ⇔ $U = c + 1.286 \log_{10} p$

valid in the range 5×10^{-5} mbar <p< 1500 mbar

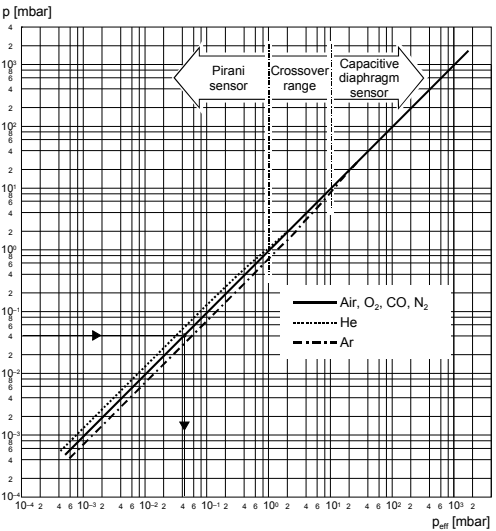
U	p	c
[V]	[mbar]	6.143
[V]	[µbar]	2.287
[V]	[Torr]	6.304
[V]	[mTorr]	2.448

U	p	c
[V]	[micron]	2.448
[V]	[Pa]	3.572
[V]	[kPa]	7.429

where p pressure
U output signal
c constant (pressure unit dependent)

2.2 Gas Type Dependence

Indicated pressure (gauge calibrated for air)



Calibration factors

valid for Pirani pressure range below 1 mbar

$$p_{eff} = C \times \text{indicated pressure}$$

Gas type	Calibration factor C	Gas type	Calibration factor C
He	0.8	H_2	0.5
Ne	1.4	air, O_2, CO, N_2	1.0
Ar	1.7	CO_2	0.9
Kr	2.4	water vapor	0.5
Xe	3.0	Freon 12	0.7

3 Installation

WARNING

WARNING: fragile components

The ceramic sensor may be damaged by impacts.

Do not drop the product and prevent shocks and impacts.

3.1 Vacuum Connection

DANGER

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

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

DANGER: protective ground

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

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

- For gauges with a KF flange, use a conductive metallic clamping ring.

Caution

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

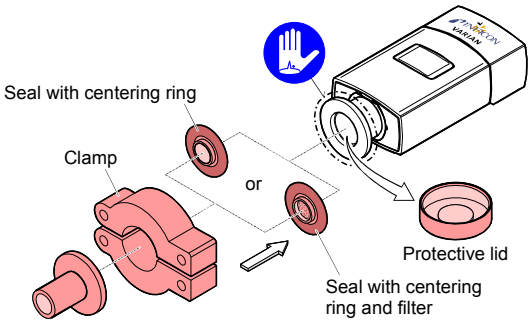
Caution: dirt sensitive area

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

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



Keep the protective lid.

3.2 Power Connection

Make sure the vacuum connection is properly made (→ 17).

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 (SELV). The connection to the gauge has to be fused. [5)]

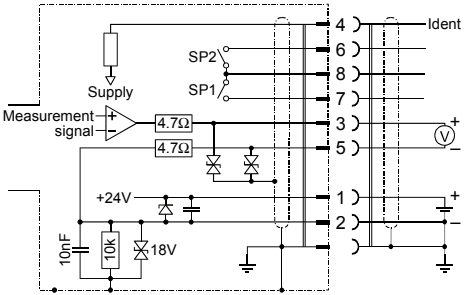
Ground loops, differences of potential, or EMC problems may affect the measurement signal. For optimum signal quality, please do observe the following notes:

- Connect the cable shield to ground on one side via the connector housing. 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).

[5)] INFICON controllers fulfill these requirements.

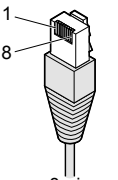
3.2.1 FCC 68 Connector

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



Electrical connection

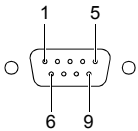
Pin 1	Supply
Pin 2	Supply common, GND
Pin 3	Measurement signal or threshold SP1, SP2
Pin 4	Gauge identification
Pin 5	Signal common
Pin 6, 8	Relay SP2 Common closing contact (com)
Pin 7, 8	Relay SP1 Common closing contact (com)



8-pin FCC-68 connector

3.2.2 Profibus Connector

If no Profibus cable is available, make one according to the following diagram. Connect the Profibus cable.

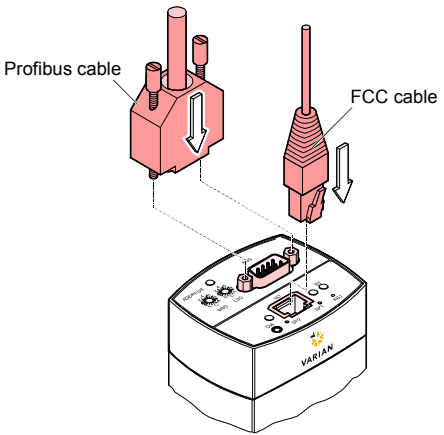


D-Sub, 9-pin, male, soldering side

Pin 1, 2	Do not connect	Pin 6	VP [2]
Pin 3	RxD/TxD-P	Pin 7, 9	Not connected
Pin 4	CNTR-P [1]	Pin 8	RxD/TxD-N
Pin 5	DGND [2]		

[1] Only to be connected if an *optical link* module is used.

[2] Only required as line termination for devices at both ends of bus cable (→ 🕮 [6]).



4 Operation

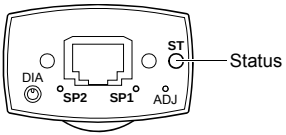
When the supply voltage is applied, the measurement signal is available at the connector (→ "Power Connection").

Allow a stabilization period of at least 10 minutes. It is advisable to operate the gauge continuously, irrespective of the pressure.

The gauge is factory calibrated. Due to long time operation or contamination, a zero drift could occur. Periodically check the zero and adjust it if necessary (adjusting the gauge → 38).

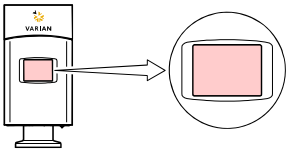
4.1 Status Indication and Displays

Status indication (LED)



LED	State	Meaning
<ST>	off	no supply voltage
	lit green	measurement mode
	lit red	error
<SP1>	lit green	Relay SP 1 closed
	off	Relay SP 1 open
<SP2>	lit green	Relay SP 2 closed
	off	Relay SP 2 open

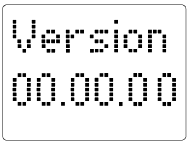
Display (LCD)



State	Meaning
off	no supply voltage
lit green	measurement / parameter mode
lit red	error

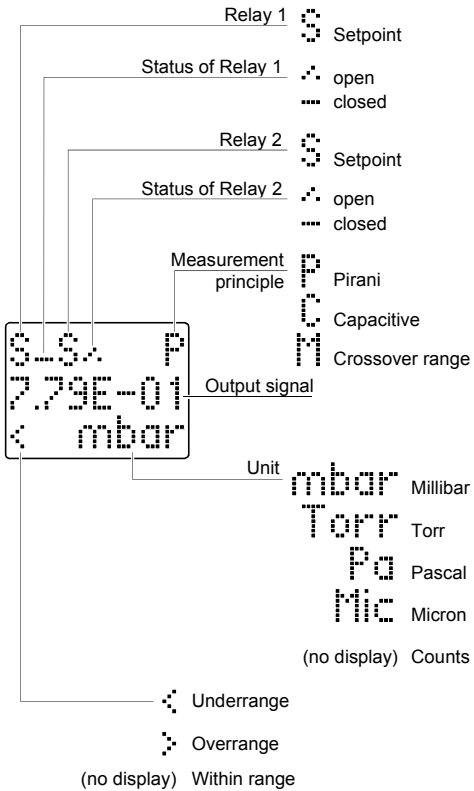
The display can be rotated by 180 ° via the serial interface.

Put the gauge into operation

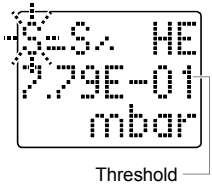


When the supply voltage is applied the software version is briefly displayed.

Measurement mode



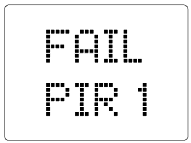
Parameter mode



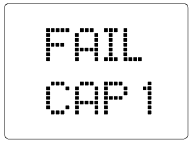
Switching functions <S>

When the <SP1> or <SP2> button is pushed, the corresponding threshold is displayed and the corresponding relay flashes.

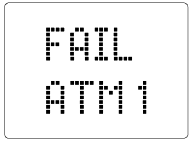
Error display (trouble shooting → 41)



Pirani sensor error

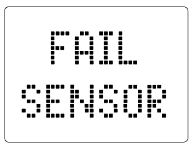


Diaphragm sensor error



Atmosphere pressure sensor error

EEPROM error



Sensor error

4.2 Gas Type Dependence

Pressure range	Measurement principle	Gas type dependence
10 [6] … 1500 mbar	diaphragm capacitive sensor	independent of gas type, no correction required
1 … 10 [6] mbar	diaphragm capacitive sensor and Pirani sensor	crossover range
5×10^{-5} … 1 mbar	Pirani sensor	proportional to pressure [7]

4.3 Switching Functions

The two switching functions can be set to any pressure within the measurement range of the gauge. A mechanical relay is provided for each switching function.

---

[6] Crossover range for air, O_2, CO and N_2 10 mbar, 100 mbar in heavy gases.

[7] The pressure reading applies to dry air, O_2, CO and N_2. For other gases, it has to be converted (calibration factors (→ 🗎 16).

The current threshold setting

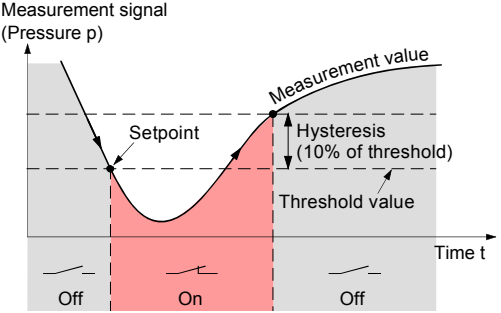
- can be read / written via the diagnostic port
- is output at the measurement signal output instead of the pressure signal, can be measured with a voltmeter, and is displayed on the LCD display after the <SP1> or <SP2> button is pressed
- can be read / written via the serial interface.

Switching characteristics and hysteresis

The switching characteristics and the hysteresis of each set point can be programmed (→ 31).

Low Trip Point (default)

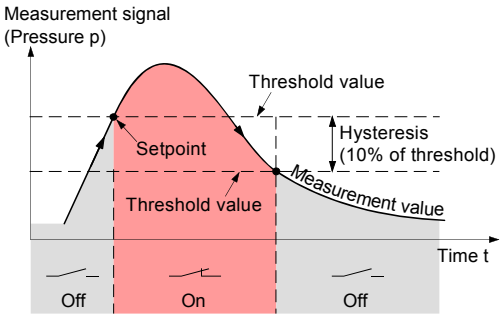
If the pressure in the vacuum system is lower than the setpoint, the corresponding LED (<SP1> or <SP2>) is lit solid and the corresponding relay is closed.



The setpoints SP1 and SP2 are factory set to the lower measurement range limit and therefore do not switch.

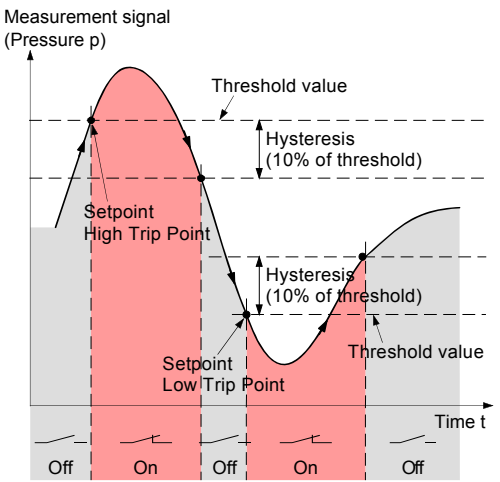
High Trip Point

If the pressure in the vacuum system is higher than the setpoint, the corresponding LED (<SP1> or <SP2>) is lit solid and the corresponding relay is closed.



High & Low Trip Point

Both a High Trip Point and a Low Trip Point are assigned to each setpoint. If the pressure in the vacuum system is higher than the defined High Trip Point threshold, the corresponding LED (<SP1> or <SP2>) is lit and the corresponding relay is closed. If the pressure in the vacuum system is lower than the defined Low Trip Point threshold, the corresponding LED (<SP1> or <SP2>) is lit and the corresponding relay is closed.



The setpoints can only be programmed via

- the diagnostic port (→ 🕮 [4])
- the serial interface (→ 🕮 [2], [3]).

4.3.1 Adjusting the Setpoints SP1, SP2

The switching characteristics and the hysteresis can only be programmed via

- the diagnostic port (→ 🕮 [4])
- the serial interface (→ 🕮 [2], [3]).

The thresholds of the setpoints can be adjusted via

- the buttons on the gauge
- the diagnostic port (→ 🕮 [4])
- the serial interface (→ 🕮 [2], [3]).

If both a High Trip Point and a Low Trip Point are assigned to a setpoint, Low Trip Point only can be adjusted via the corresponding button on the gauge.

DANGER

DANGER: malfunction

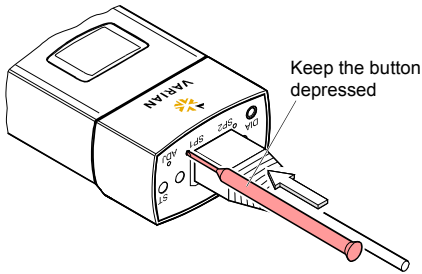
If processes are controlled via the signal output, keep in mind that by pushing an <SP> button the measurement signal is suppressed and the corresponding threshold value is output instead. This can cause malfunctions.

Push the <SP> button only if you are sure that no damages can arise from a malfunction.

Adjusting setpoint SP1 with button on the gauge

1. Push the <SP1> button with a pin (max. ø1.1 mm). The gauge changes to the switching function mode and outputs the current threshold value at the measurement value output or on the LCD display for about 5 s and the corresponding <S> on the display blinks.

The threshold setting is increased towards the upper limit until the button is released or the limit is reached. If the button is briefly released and pushed again, the threshold setting starts changing in the reverse direction.



The factory setting of the upper threshold is 10% above the Low Trip Point and 10% below the High Trip Point (hysteresis).

If after programming of the hysteresis the corresponding button <SP1> or <SP2> is pushed, the factory setting of the corresponding hysteresis (10%) is reactivated.

❷ Release the button. The gauge resumes operation after 5 s and at the current pressure value is available at the measurement signal output.

Programming setpoint SP1

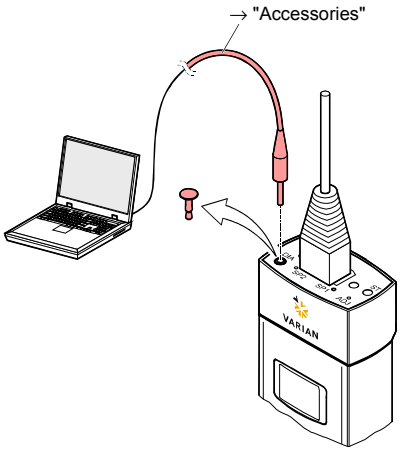
Programmable parameters: (→ 🕮 [2], [3])	Low Trip Point Low Trip Enable Low Trip Point Hysteresis High Trip Point High Trip Enable High Trip Point Hysteresis Setpoint Mode

Adjusting setpoint SP2

The adjustment procedure is the same as for setpoint SP1.

4.4 Diagnostic Port (RS232C Interface)

The diagnostic port <DIA> permits to output the pressure reading and all status information and to enter all settings at the same time (→ 🕮 [4]).



4.5 Profibus Operation

Caution

Caution: data transmission errors

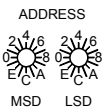
The attempt to operate the gauge with the RS232C interface causes data transmission errors.

This gauge must not be operated with the RS232C interface.

For operating the gauge via Profibus, prior installation of the device specific GSD file is required on the bus master side. This file can be downloaded via internet.

Node Address Setting

For unambiguous identification of the gauge in a Profibus environment, a node address is required. The node address setting is made on the gauge.



The node address (0 … 125_{dec}) is set in hexadecimal form (00 … $7D_{hex}$) via the <ADDRESS>, <MSD>, and <LSD> switches. The node address is polled by the firmware when the gauge is switched on. If the setting deviates from the stored value, the new value is taken over into the NVRAM. If a value >$7D_{hex}$ (>125_{dec}) is entered, the node address setting currently stored in the device remains valid but it can now be defined via Profibus ("Set slave Address", → 🕮 [3]).

Default address setting is $5C_{hex}$.

5 Deinstallation

WARNING

WARNING: fragile components

The ceramic sensor may be damaged by impacts.

Do not drop the product and prevent shocks and impacts.

DANGER

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

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.

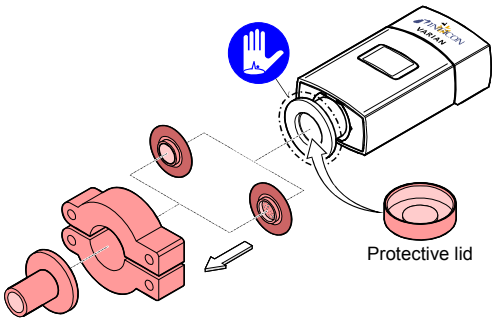
Caution

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 gauge out of operation.
3. Untighten the fastening screw(s) and disconnect the sensor cable.
4. Remove gauge from the vacuum system and install the protective lid.



6 Maintenance, Repair

Gauge failures due to contamination or wear and tear, as well as expendable parts (seals, filament), are not covered by the warranty.

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

6.1 Adjusting the Gauge

The gauge is factory calibrated. Due to long time operation or contamination, a zero drift could occur. Periodically check the zero and adjust it if necessary.

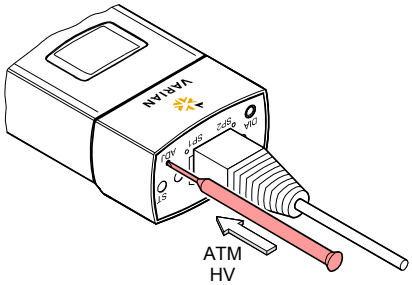
For adjusting the zero, operate the gauge under the same constant ambient conditions and in the same mounting orientation as normally.

The gauge is adjusted to default values. However, it can also be adjusted to other pressure values, if the exact pressure value is known (reference measurement).

1. If you are using a seal with centering ring and filter, check that they are clean or replace them if necessary (→ "Deinstallation").

2. Put the gauge into operation and operate it at atmospheric pressure for at least 10 minutes.

❸ Press the <ADJ> button with a pin (max. ø1.1 mm) and the ATM adjustment is carried out: The gauge is adjusted to 1000 mbar by default. By pressing the button >5 s the pressure value is increased towards 1200 mbar (or, by pressing it again, decreased towards 500 mbar) until the button is released or the limit is reached.



❹ Evacuate the vacuum system to p << 10^{-5} mbar and wait at least 2 minutes.

❺ Press the <ADJ> button with a pin and the HV adjustment is carried out: The gauge is adjusted to 5×10^{-5} mbar (default).

✓ If the pressure value 4.99×10^{-5} mbar is output at the measurement value output or on the LCD display, the adjustment has been successful. Otherwise, repeat the adjustment procedure.

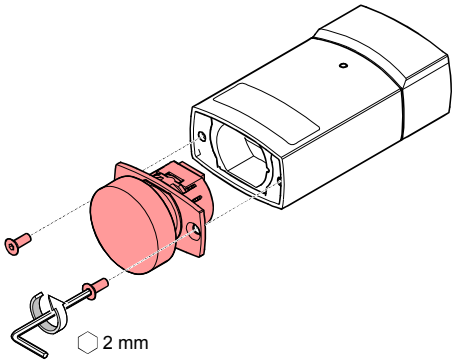
6.2 Replacing the Sensor

In case of severe contamination or a malfunction, the sensor can be replaced.

Precondition

Gauge deinstalled (→ 🗎 36).

❶ Unscrew the hexagon socket screws and remove the sensor without twisting it.



❷ Place the new sensor without twisting it and lock it with the screws.

6.3 Troubleshooting

In case of an error, it may be helpful to just turn off the mains supply and turn it on again after 5 s.

Problem	Possible cause	Correction
Output signal permanently ≈0V	Sensor cable defective or not correctly connected	Check the sensor cable
	No supply voltage	Turn on the power supply
	Error	Remedy the error
	Gauge in an undefined status	Turn the gauge off and on again after 5 s (reset)
FAIL PIR1	Pirani sensor defective	Replace the sensor (→ 🗎 40)
	Electronics unit not correctly mounted on sensor	Check the connections (electronics – sensor)
FAIL CAP1	Diaphragm sensor defective	Replace the sensor (→ 🗎 40)
	Electronics unit not mounted correctly on sensor	Check the connections (electronics – sensor)
FAIL ATM1	Atmospheric pressure sensor defective	Replace the gauge
FAIL EEPROM	EEPROM error	Turn the gauge off and on again after 5 s (reset)
		Replace the gauge
FAIL SENSOR	Electronics unit not compatible with the sensor	Replace the sensor (→ 🗎 40)
		Replace the gauge

7 Returning the Product

WARNING

WARNING: forwarding contaminated products

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

Products returned to VARIAN 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.

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

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

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 Spare Parts

When ordering spare parts, always indicate:

- all information on the product nameplate
- description and ordering number

Sensor for gauges with tungsten (W) filament			Ordering No.
PCG-750	PCG750KF16	DN 16 ISO-KF	PCG750KF17RS
	PCG750KF16SD1		
	PCG750KF16SD2		
	PCG750KF16SD3		
	PCG750KF16P		

Sensor for gauges with nickel (Ni) filament			Ordering No.
PCG-752	PCG752KF16	DN 16 ISO-KF	PCG752KF17RS
	PCG752KF16SD1		
	PCG752KF16SD2		
	PCG752KF16SD3		
	PCG752KF16P		

Further Information

[1] www.varianinc.com
Instruction Manual
AGC-100 Vacuum Gauge Controller
tqnb01e1
Varian Vacuum Technologies, Lexington, MA, 02421
USA

[2] www.varianinc.com
Communication Protocol
Serial Interface RS232C
PCG-75x, PVG-55x
tqra59e1
Varian Vacuum Technologies, Lexington, MA, 02421
USA

[3] www.varianinc.com
Communication Protocol
Profibus PCG-75x, PVG-55x
tqra56e1
Varian Vacuum Technologies, Lexington, MA, 02421
USA

[4] www.varianinc.com
Operating Manual
Diagnostics Software
tqna62e1
Varian Vacuum Technologies, Lexington, MA, 02421
USA

[5] IEC 61158 Type 3 elements: Industrial communication networks – Fieldbus specifications
IEC 61784: Industrial communication networks – Fieldbus profiles

[6] www.profibus.com
Profibus user organization

EC Declaration of Conformity

CE We, VARIAN, hereby declare that the equipment mentioned below complies with the provisions of the Directive relating to electromagnetic compatibility 2004/108/EC.

Products

Pirani Capacitance Diaphragm Gauge

PCG-750
PCG-752

Standards

Harmonized and international / national standards and specifications:

- EN 61000-6-2:2005 (EMC: generic immunity standard)
- EN 61000-6-3:2007 (EMC: generic emission standard)
- EN 61010-1:2001 (Safety requirements for electrical equipment for measurement, control and laboratory use)
- EN 61326-1:2006 (EMC requirements for electrical equipment for measurement, control and laboratory use)

Manufacturer / Signature

Varian Vacuum Technologies, 121 Hartwell Avenue, Lexington, MA, 02421 USA

19 May 2010

John Ehmann
General Manager

Notes

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