O P E R A T I N G M A N U A L

tina14e1

PEG100

Part Number
351-000
351-002

Penning Gauge

INFICON

General Remarks

We reserve the right to alter the design or any data given in these Operating Instructions.
The illustrations are not binding.

Contents **Page**

1 Description

1.1 General

The PEG100 Penning Gauge is supplied ready for operation. Even so, we recommend to read these Operating Instructions with care so as to ensure optimum operating conditions right from the start.

These Operating Instructions contain important information on the functions, installation, start-up, operation and troubleshooting of the PEG100.

Important remarks concerning operational safety and protection are emphazised as follows:

Warning

Indicates procedures that must be strictly observed to prevent hazards to persons.

Caution

Indicates procedures that must strictly be observed to prevent damage to, or destruction.

Note
Indicates special technical requirements that the user must comply with.

The references to diagrams, e.g. (4/1), consist of the Fig. No. and the item No. in that order.

Unpack the PEG100 immediately after delivery, even if it is to be installed at a later date.

Examine the packaging for any external damage. Completely remove all packaging materials.

Note
Retain the shipping container and the packaging materials in the event of complaints about damage.

Check that the PEG100 is complete (see Section 1.4).

Carefully examine the PEG100 visually.

If any damage is discovered, report it immediately to the forwarding agent and insurer. If the damaged part has to be replaced, please get in touch with the orders department.

1.1.1 Purpose

The PEG100 Penning Gauge is a compact active pressure converter housing a measurement system as well as the corresponding operating electronics. It has been developed specifically for integration into vacuum systems and offers a measurement range from $1 \cdot 10^{-9}$ to $1 \cdot 10^{-2}$ mbar.

The PEG100 is connected directly to the vacuum system through its DN 25 KF or DN 40 CF flange.

The electrical connection is provided through a screened 8-way FCC 68 connector.

Moreover, the technical data as published in Section 1.2 must be observed.

1.2 Technical Data

1.2.1 General Data

Measurement range	$1 \cdot 10^{-9}$ to $1 \cdot 10^{-2}$ mbar/Torr
Measurement uncertainty in the range from $1 \cdot 10^{-8}$ to $1 \cdot 10^{-4}$ mbar:	
Deviation from the characteristic	± 30 % of the displayed value
Average temperature coefficient of the output span	< 0.5 % / K of the displayed value
Reproducibility	< 4 % of the displayed value
Measurement principle	Cold cathode ionization according to Penning
Supply voltage	14.5 to 36 V DC, typ. 24 V DC Ripple ≤ 2 V_{pp}
Power consumption	< 2 W
Protection	IP 40
Electromagnetic compatibility (EMI)	CE mark interference tolerance to EN 50082-2, Tab. 1, 2, 3 interference emission levels to EN 50081-1 and FCC Rules Part 15, Class B
Flammability	UL 94 - V2

Status displays
Operation (POWER) orange LED
Ready to measure (ignited) READY green LED

1.2.2 Measurement System

Measurement system detachable

Vacuum connection DN 25 KF or DN 40 CF

Degassing temperature see Section 2.3.3

Dead volume 21 cm^3 approx.

Materials in contact with the medium
stainless steel, CrNi,
Al_2O_3 ceramics, NiFe, Ni, Ti

Overpressure tolerance ≤ 10 bar abs.
(The limits for the flange connections must be observed)

Operating voltage 1.6 kV (current limited to < 0.5 mA)

Ignition voltage 2.8 kV (current limited to < 0.5 mA)

1.2.3 Signal Output

Signal output 0 to 10.6 V

Permissible load resistance $R_a \geq 10\ k\Omega$

Measurement signal 0.66 V to 10 V;
logarithmic, 1.333 V per decade

Status signal (not ignited) 0.4 V

1.2.4 Control Inputs

Input resistance R_E : 10 kΩ approx.

High voltage cut-in with negative logic at Pin 7:
High voltage ON at U < 2.5 V
High voltage OFF at U > 4 V
or
High voltage cut-in with positive logic at Pin 8:
High voltage ON at U > 12 V
High voltage OFF at U < 7 V

(for this also refer to Fig. 3 and Section 2.2.2).

1.2.5 Status Output

Ready to measure High level (13.5-35 V, max. 50 mA)
Error (not ignited, HV off) 0V
For this refer also to Section 2.2.4.

1.2.6 Mechanical Data

Dimensions (WxHxD)	80 x 126 x 73 mm
Weight	500 g approx.

1.2.7 Ambient Conditions

Storage temperature range	-20 °C to +70 °C
Climatic rating KWF to DIN 400 40	
Operating temperature range	10 °C to 50 °C
Max. rel. humidity of the ambient air (on 30 days per year, non-condensing)	70 %[1] or 95 %[2]

[1] usable measurement range 10^{-2} to 10^{-7} mbar
[2] usable measurement range 10^{-2} to 10^{-9} mbar

1.3 Technical Description

Based on a supply voltage of 24 V the PEG100 Penning Gauge generates the internal supply voltages required for operation of the integrated measurement system. The PEG100 supplies a logarithmic representation of the vacuum pressure by way of a voltage signal which ranges from 0.66 V to 10 V. Moreover, the high tension generated in the PEG100 can be switched on and off by applying an external control voltage or by connecting an external switch.

When the gas discharge in the measurement system is ignited, the operating voltage is raised to 2.8 kV. After successful ignition, this voltage then drops to 1.6 kV thereby increasing the useful service life of the measurement system.

A status output indicates the two possible conditions of the measurement system:
1. not ignited (including high tension OFF) and
2. ignited (and pressure > $3 \cdot 10^{-9}$ mbar).

A much improved ignition characteristic in the high vacuum range has been obtained through the special design for the electrodes in the measurement system.

1.4 Equipment

1.4.1 Supplied Equipment

PEG100, DN 25 KF	Part No. 351-000
PEG100, DN 40 CF	Part No. 351-002
Replacement cathode plate of titanium	--
Replacement ceramics disc	--
3.5 mm jack plug	--
Operating Instructions	tina14e1

1.4.2 Accessories

	Part No.
Replacement kit	351-490
consisting of:	
Cathode plate of titanium (5 pcs.)	
Ceramics disc (5 pcs)	
Gauge	

2 Operation

2.1 Installation

The PEG100 Penning Gauges should preferably be mounted flange down. Inclined installation is possible but the horizontal orientation must not be exceeded.

Flange up installation is not permissible because under such circumstances condensate may collect in the PEG100. This will either adversely affect the measurements, or the sensor itself may possibly be damaged.

The PEG100 is equipped with a DN 25 KF or a DN 40 CF connection flange which is used to connect the PEG100 to the mating connection flange on a vacuum system with the aid of a centering ring and a clamping ring.

The cathode plate (5/5) also acts as a baffle.

For the dimensional drawing, see Fig. 1.

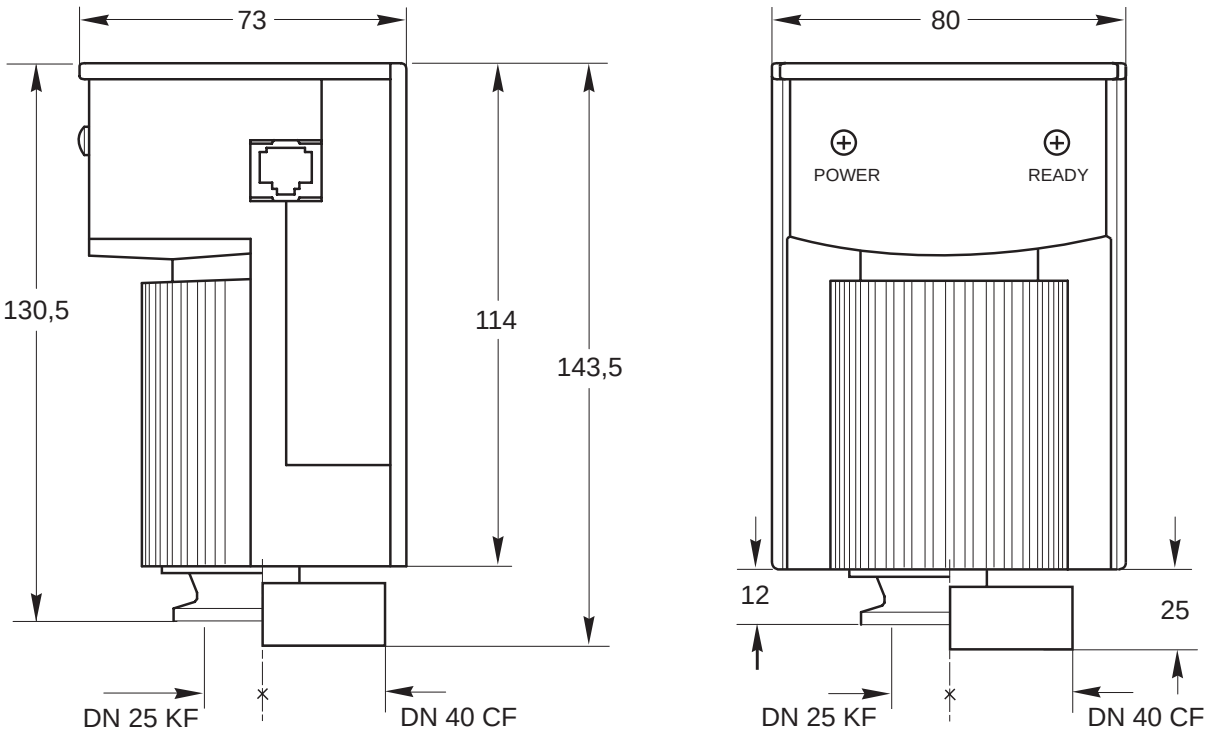


Fig. 1 Dimensional drawing for PEG100

2.2 Electrical Connection

The supply voltage and the high voltage switching signal as well as the measurement voltage signal are carried through the 8-way FCC 68 socket.

The pinout is given in Fig. 2.

Pin	Signal	Designation on the rear
Pin 1	Supply voltage 14.5 V to 36 V DC	+ 24 V DC
Pin 2	0 V supply; used as the ground reference for the supply and control signal voltages.	COMMON
Pin 3	Pressure dependant logarithmic signal output	SIGN 0 - 10 V
Pin 4	„PEG100“ identification code (100 kΩ)	IDENT
Pin 5	Signal ground (use only for the pressure signal)	SIGN COM
Pin 6	Status (ready to measure)	STATUS
Pin 7	High tension „ON / OFF“ (control input); Low active	HV ON (L)
Pin 8	High tension „ON / OFF“ (control input); High active	HV ON (H)

Note
Signal ground (Pin 5) and power supply ground (Pin 2) are internally linked. For this also refer to the block diagram of Fig. 3.

Two examples of how to connect the PEG100 are given in Annex 2.

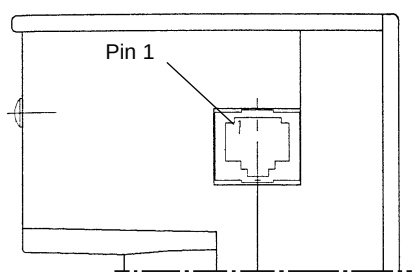


Fig. 2 Connection socket

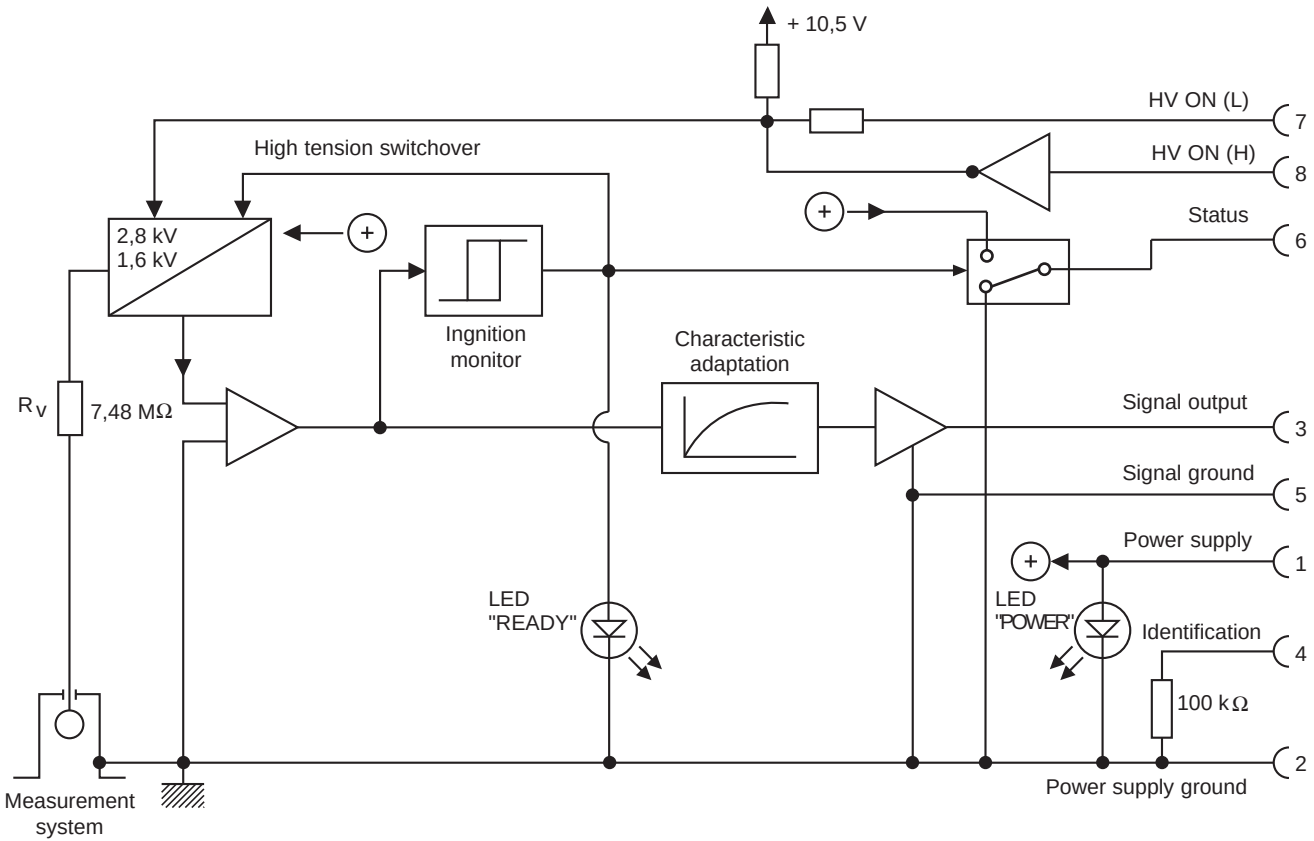


Fig. 3 Block diagram PEG100

2.2.1 Power Supply

Warning

The PEG100 may only be connected to supply units or measuring instruments which meet the requirements of mains isolated extra-low voltages (PELV) and VDE 0100.

The PEG100 is capable of operating off supply voltages ranging from 14.5 V to 36 V. A supply voltage of 24 V DC is recommended.

The power supply must be connected to Pin 1 (+) and Pin 2 (power supply ground).

2.2.2 Switching on the High Tension

The high voltage may be switched on either through Pin 7 using negative logic or Pin 8 using positive logic.

In each case Pin 2 must be used as the reference potential.

Pin 7 switches the high voltage on when
- contact is established with Pin 2 or
- a voltage of less than 2.5 V is present with reference to Pin 2.

Pin 7 switches the high voltage off when
- there is no contact with Pin 2 (open input) or
- a voltage greater than 4 V is present with reference to Pin 2.

Pin 8 switches the high voltage on when
- contact is established with Pin 1 (supply voltage) or
- a voltage greater than 12 V is present with reference to Pin 2.

Pin 8 switches the high voltage off when
- there is no contact with Pin 1 (open input) or
- a voltage of less than 7 V is present with reference to Pin 2.

Operation of the PEG100 in the pressure range above 10^{-2} mbar will cause the accumulation of contaminations and will thus reduce service life. For this reason, the high tension should only be switched on or off when the pressure has dropped to the 10^{-2} to 10^{-3} mbar range.

The high tension may also be switched on or off directly by the output signal provided by a Pirani Standard Gauge (PSG) with switching point. Thus the PEG100 can be switched on or off automatically at a pressure of approximately $5 \cdot 10^{-3}$ mbar.

2.2.3 Measurement Signal Output

The PEG100 supplies a defined output signal ranging from 0.66 V to 10 V at Pin 3 with reference to Pin 5 which is signal ground. For this also refer to Table 1 in Annex

1. Table 1 has been included to clarify the relationship between the output voltage and the pressure.

Note
The measurement signal provided by the PEG100 depends on the type of gas. The values stated in Table 1 apply to nitrogen and air. For other gases, corresponding correction factors must be used which are available from INFICON upon request.

2.2.4 Status Output

When the gauge is ready to measure, this is indicated via the status output.

Status	Status signal at Pin 6 (with respect to Pin 2)
High voltage OFF	0 V
High voltage ON (not yet ignited)	0 V
High voltage ON at $p < 3 \cdot 10^{-9}$ mbar	0 V
High voltage ON at $p > 3 \cdot 10^{-9}$ mbar	High (13.5 - 32 V, depending on the supply voltage (50 mA max.)

Note
When the pressure drops below $3 \cdot 10^{-9}$ mbar, the status signal remains HIGH.

Caution

FET output: The max. voltage is 42 V DC. The max. load current is 100 mA DC.

Voltage output: Load current is 50 mA max.

When exceeding these maximum ratings the PEG100 itself and/or any connected equipment may be damaged.

When the PEG100 is ready to make measurements, the FET is conductive. For this also refer to Section 2.3.2.

2.2.5 Identification

For the purpose of identifying the connected type of gauge and the pressure range, the PEG100 is equipped with an identification resistor (R = 100 kΩ) between Pin 4 and Pin 2. This resistor may be sensed by connected operating or control units so that these can automatically adapt.

2.3 Start-up

Connect the PEG100 according to Section 2.1 and 2.2.

Warning

A high tension which is dangerous when touched is applied to the sensor in the PEG100.
You **must** always switch off the supply voltage for the PEG100 before starting any work on the PEG100 (even when removing the PEG100 from the connection flange) so as to avoid injury when inadvertently coming in to contact with the high tension.

2.3.1 Operation

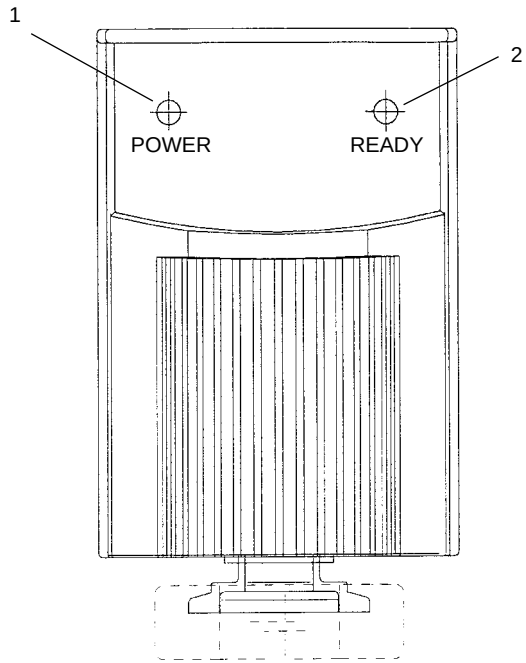
Apply the 24 V supply voltage to the PEG100.

The orange „POWER“ LED (4/1) comes on.

Switch the high tension on via the high tension switching input. See Section 2.2.2.

After successful ignition and at a pressure > $3 \cdot 10^{-9}$ mbar the additional green or READY LED (4/2) will come on.

Now the PEG100 is ready to make measurements.



Key to Fig. 4
1 „POWER“ LED (orange)
2 „READY“ LED (green)

Fig. 4 PEG100 - front view

No LED on.
- Supply voltage is missing.
  → Measurement signal: 0 V

Only the orange LED (4/1) is on.
- The supply voltage is present.
- The high tension has not been switched on.
  → Measurement signal: 0 V

The green LED (4/2) is on, the orange LED (4/1) is on.
- The supply voltage is present.
- The high tension has been switched on.
- The gas discharge has been started.
- The pressure is over $3 \cdot 10^{-9}$ mbar.
  → Measurement signal: > 0.66 V

2.3.2 Measurement System Status Indication

In the case of the Penning method of measurement one only may draw conclusions as to proper functioning while the PEG100 is in the measurement mode, i.e. when the gas discharge is running.

Trouble-free operation („READY“ LED (4/2) is on, status output HIGH) is marked by the presence of a pressure dependant signal starting at a pressure of about $3 \cdot 10^{-9}$ mbar up to the range limit of $1 \cdot 10^{-2}$ mbar. When the pressure drops < $3 \cdot 10^{-9}$ mbar this status is also maintained.

When the “READY” LED (4/2) is not on, status output 0 V:

Cause 1: When the high voltage was switcthed on the pressure was below $3 \cdot 10^{-9}$ mbar.

Cause 2: No ignition of the gas discharge, even if the power supply voltage is present, the high tension has been switched on and a pressure between about $3 \cdot 10^{-9}$ mbar and $1 \cdot 10^{-2}$ mbar.

2.3.3 Degassing

Caution

Before baking out the sensing cell you must detach the electronics assembly from the sensing cell. The electronics assembly may be damaged when exceeding a temperature of 70 °C.

Caution

Before baking out, you must make sure that an ultra sealing disc (PEG100, DN 25 KF) or a copper seal (PEG100, DN 40 CF) is used as the flange seal.

The PEG100 are equipped with all-metal sensing cells so that any outgassing caused by polymer seals is entirely avoided.

After having detached the electronics (refer to Section 3.3.1) from the sensing cell, the outgassing rate of the sensing cell may be reduced considerably by baking

out, so that the accuracy of the measurements in the range below $1 \cdot 10^{-6}$ mbar is improved.

Note
When using the PEG100 chiefly in the UHV range (< 10^{-8} mbar) it is recommended to remove the cathode plate. This helps to the reduce the surface area of the surfaces which may release gas.

How to proceed in order to detach the electronics assembly is described in Section 3.3 (cleaning of the sensor).

Permissible bake out temperatures:

Sensing cell of the PEG100, DN 25 KF: (with ultra sealing disc)	200 °C
Sensing cell of the PEG100, DN 40 CF:	350 °C

2.4 Troubleshooting

No LED is on.
Possible cause: Supply voltage is missing.

The „POWER“ LED (4/1) is on, the „READY“ LED (4/2) is not on.
Possible cause:

- High tension has not been activated.
- Pressure has dropped below $3 \cdot 10^{-9}$ mbar.
- The gas discharge has not ignited.
- Sensing cell not properly connected to the electronics assembly (e.g. after maintenance).
- Missing anode ring (e.g. after maintenance).

The measurement signal is always greater than 10 V even if the pressure is much lower than 10^{-2} mbar.

Possible cause:	Short circuit in the sensing cell.
Remedy:	Clean the sensing cell. For this refer to Section 3.3.

During pumpdown the measurement signal remains at some level although the pressure is dropping.

Possible cause:	Contamination within the sensing cell.
Remedy:	Replace the sensing cell.

3 Maintenance

3.1 Service at INFICON

Warning

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

Products returned to Inficon 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 (see Annex).

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.

3.2 The Electronics Assembly

The electronics assembly of the PEG100 does not require any maintenance.

3.3 Cleaning the Sensor

Warning

A high tension which is dangerous when touched is applied to the sensor in the PEG100.
You **must** always switch off the supply voltage for the PEG100 before starting any work on the PEG100 (even when removing the PEG100 from the connection flange) so as to avoid injury when inadvertently coming in to contact with the high tension.

3.3.1 Detaching the Electronics Assembly

In order to detach the electronics assembly and the magnet assembly (5/1) you must loosen the two cross head screws which can be accessed through two holes in the rear of the PEG100 by turning these by about 1.5 turns.

Then the electronics assembly and the magnet assembly (5/1) may be pulled off from the sensor housing.

Caution The magnet assembly (5/1) may drop down during the pulling off process.

3.3.2 Disassembly of the Sensor

The sensor consists of the housing, the anode ring (5/4) with ignition aid (5/2) and the cathode plate (5/5). See Fig. 7.

How to disassemble:

1) Use a pair of tweezers to pull the cathode plate (5/5) out of the sensor.
2) Use a pair of pliers to pull the anode ring out from the housing; for this move the pliers to and fro a little.
3) Detach the ceramics disc (5/3) from the current feed-through.

3.3.3 Cleaning the Individual Parts

Caution Do not damage the sealing surfaces of the vacuum flange!

In the case of severe contamination, the inside of the housing may be cleaned with steel wool or similar and then subjected to further cleaning with alcohol. Finally blow clean with **oil-free** pressurized air or nitrogen. Any possibly present flakes will be removed by blowing these out of the housing.

If possible, the cathode plate (5/5) should be replaced by a new cathode plate. The same should be done for the anode ring (5/4) with the ignition aid (5/2) and the cera-

Key to Fig. 5
1 Magnet assembly
2 Ignition aid
3 Ceramics disc
4 Anode ring
5 Cathode plate
6 Sensor housing with flange

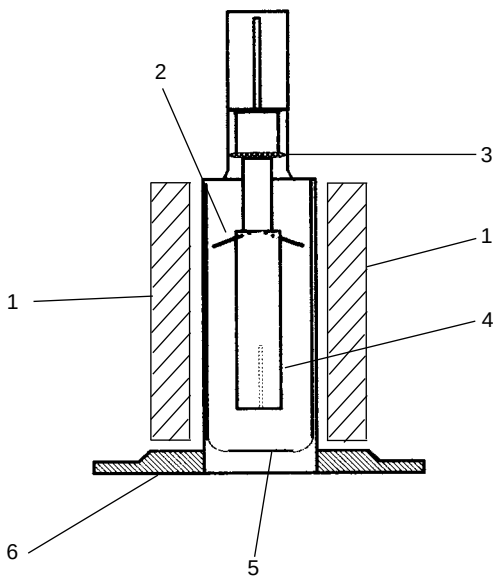


Fig. 5 Sensor

mics protection disc (5/3) which protects the current feed-through against contamination.

3.3.4 Assembly of the Sensor

The sensor is reassembled in the reverse order as for disassembly which is described in Section 3.3.2.

When inserting the anode ring (5/4) you must make sure that a clearance of 1 mm remains between the wings of the ignition aid (5/2) and the wall of the housing. Moreover, make sure that the anode ring is lying snug on the ceramics disc.

When inserting the cathode plate (5/5) into the housing the wings of the ignition aid (5/2) must not be bent. Therefore insert slowly and carefully.

3.3.5 Assembly of the Electronics Assembly

How to proceed:

1) Place the magnet assembly on the sensor.
2) Push the electronics assembly over the magnet assembly and the sensor, and turn slightly as required until the correct orientation between electronics assembly and sensor has been found. When the electronics assembly has been placed as required, the black magnet housing is fully surrounded by the housing of the PEG100.
3) Retighten the cross head screws at the rear of the PEG100.

4 Spare Parts List

	Part No.
Replacement kit consisting of: Cathode plate of titanium (5 pcs.) Ceramics disc (5 pcs) Gauge	351-490
Sensor (DN 25 KF) complete with magnet assy. (PR 25)	399-510

5 Disposal

Warning 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 Substance detrimental to the environment

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

Dispose of such substance 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.

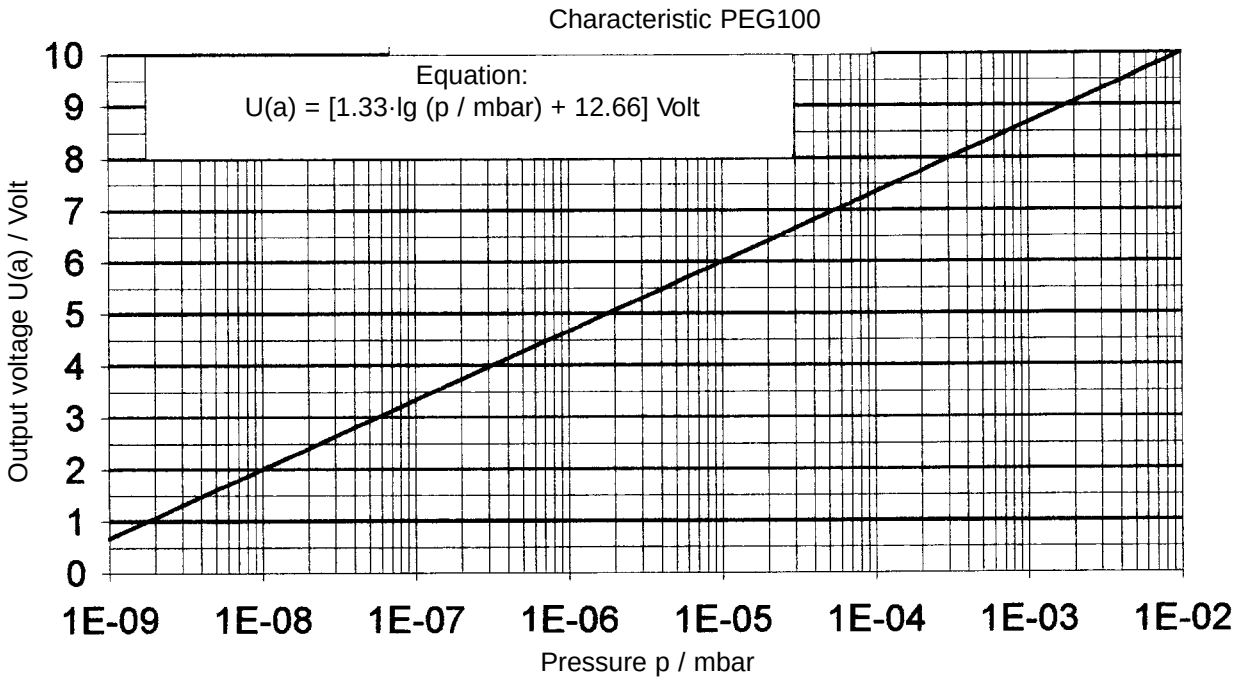
Other components

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

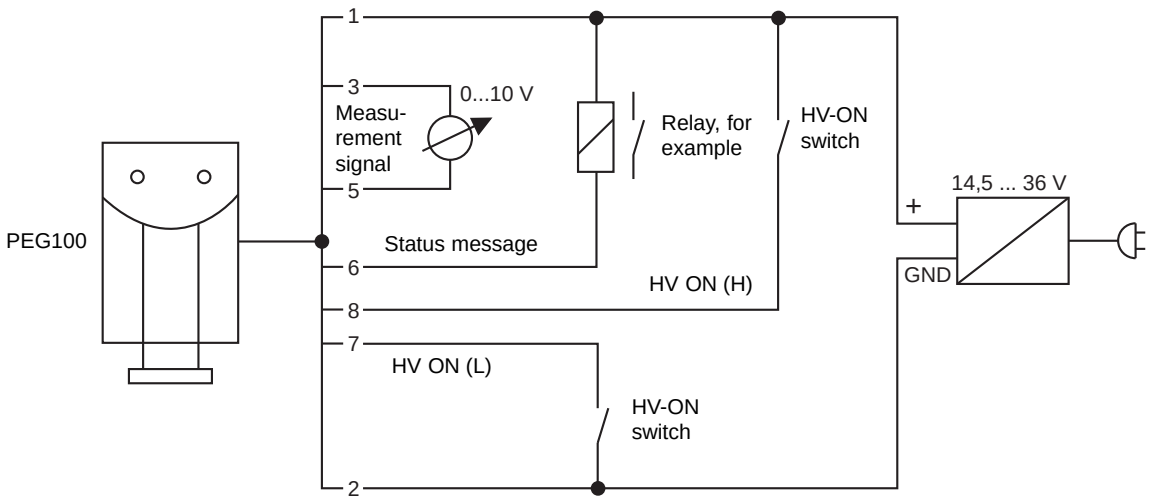
Annex 1

Table 1 Relationship between output voltage and pressure (U = 0.4 V; “not ignited”)

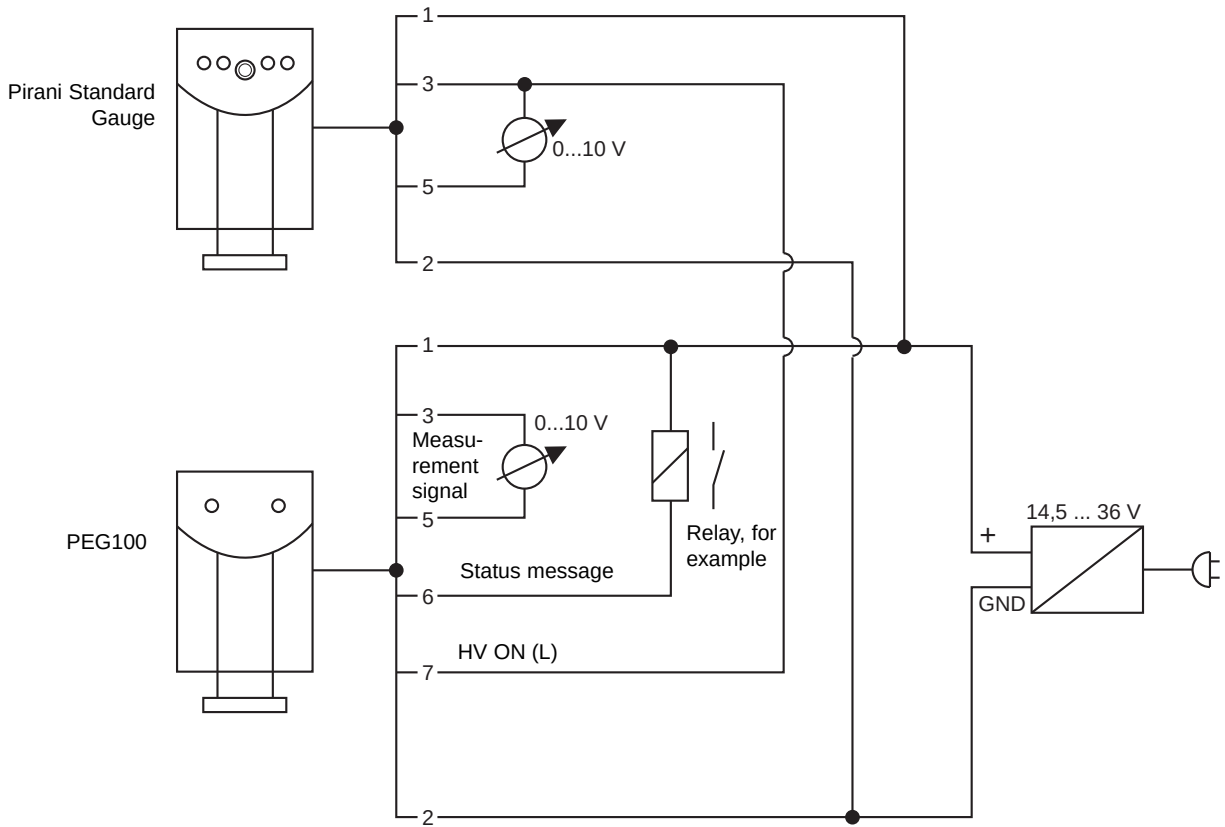
U (Out) [V]	Pressure [mbar]	U (Out) [V]	Pressure [mbar]	U (Out) [V]	Pressure [mbar]	U (Out) [V]	Pressure [mbar]
0.667	1.00E-09	3.2	7.94E-08	5.6	5.01E-06	8	3.16E-04
0.8	1.26E-09	3.3	9.44E-08	5.7	5.96E-06	8.1	3.76E-04
1	1.78E-09	3.4	1.12E-07	5.8	7.08E-06	8.2	4.47E-04
1.1	2.11E-09	3.5	1.33E-07	5.9	8.41E-06	8.3	5.31E-04
1.2	2.51E-09	3.6	1.59E-07	6	1.00E-05	8.4	6.31E-04
1.3	2.99E-09	3.7	1.88E-07	6.1	1.19E-05	8.5	7.50E-04
1.4	3.55E-09	3.8	2.24E-07	6.2	1.41E-05	8.6	8.91E-04
1.5	4.22E-09	3.9	2.66E-07	6.3	1.68E-05	8.7	1.06E-03
1.6	5.01E-09	4	3.16E-07	6.4	2.00E-05	8.8	1.26E-03
1.7	5.96E-09	4.1	3.76E-07	6.5	2.37E-05	8.9	1.50E-03
1.8	7.08E-09	4.2	4.47E-07	6.6	2.82E-05	9	1.78E-03
1.9	8.41E-09	4.3	5.31E-07	6.7	3.35E-05	9.1	2.11E-03
2	1.00E-08	4.4	6.31E-07	6.8	3.98E-05	9.2	2.51E-03
2.1	1.19E-08	4.5	7.50E-07	6.9	4.73E-05	9.3	2.99E-03
2.2	1.41E-08	4.6	8.91E-07	7	5.62E-05	9.4	3.55E-03
2.3	1.68E-08	4.7	1.06E-06	7.1	6.68E-05	9.5	4.22E-03
2.4	2.00E-08	4.8	1.26E-06	7.2	7.94E-05	9.6	5.01E-03
2.5	2.37E-08	4.9	1.50E-06	7.3	9.44E-05	9.7	5.96E-03
2.6	2.82E-08	5	1.78E-06	7.4	1.12E-04	9.8	7.08E-03
2.7	3.35E-08	5.1	2.11E-06	7.5	1.33E-04	9.9	8.41E-03
2.8	3.98E-08	5.2	2.51E-06	7.6	1.59E-04	10	1.00E-02
2.9	4.73E-08	5.3	2.99E-06	7.7	1.88E-04		
3	5.62E-08	5.4	3.55E-06	7.8	2.24E-04		
3.1	6.68E-08	5.5	4.22E-06	7.9	2.66E-04		


Characteristic PEG100
Equation:
U(a) = [1.33·lg (p / mbar) + 12.66] Volt
Output voltage U(a) / Volt
10
9
8
7
6
5
4
3
2
1
0
1E-09
1E-08
1E-07
1E-06
1E-05
1E-04
1E-03
1E-02
Pressure p / mbar

Annex 2



Example for connecting the PEG100: Switching the high tension via an external switch or contact



Example for connecting the PEG100: Switching the high tension automatically through a Pirani Standard Gauge with switching point

CE

EEC Declaration of Conformity

as defined by the Directive relating to machinery 98/37/EG, Appendix IIb.

We -INFICON - herewith declare that the products defined below meet the basic requirements regarding safety and health of the relevant EEC directives by design, type and the versions which are brought in to circulation by us.

We also declare that the equipment mentioned below complies with the provisions of the Directive relating to electrical equipment designed for use within certain voltage limits 73/23/ EEC and the Directive relating to electromagnetic compatibility 89/336/EEC.

Product:

Penning Gauge PEG100

Part Number

351-000, 351-002

Standards

Harmonized and international / national standards and specifications:

- EN 61010 - 1 - 1993
- EN 50081 - 1 - 1992
- EN 50082 - 2 - 1995
- VDE 0411 Part 1 / 03.94
- VDE 0839 Part 81 - 1/03.93
- VDE 0839 Part 82 - 2/02.96

Balzers, April 4,.2001

Hannes Fischer, Product Manager

Balzers, April 4,.2001

Dr. Georg Sele, Technical Support Manager; Quality Representative

Declaration of Contamination

The service, repair, and/or disposal of vacuum equipment and components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.
This declaration may only be completed (in block letters) and signed by authorized and qualified staff.

1 Description of product

Type _____
Article Number _____
Serial Number _____

2 Reason for return

_____
_____
_____

3 Operating fluid(s) used (Must be drained before shipping.)

_____
_____

4 Process related contamination of product:

toxic	no ❑ 1)	yes ❑
caustic	no ❑ 1)	yes ❑
biological hazard	no ❑	yes ❑ 2)
explosive	no ❑	yes ❑ 2)
radioactive	no ❑	yes ❑ 2)
other harmful substances	no ❑ 1)	yes ❑

The product is free of any substances which are damaging to health yes ❑

1) or not containing any amount of hazardous residues that exceed the permissible exposure limits

2) Products thus contaminated will not be accepted without written evidence of decontamination!

5 Harmful substances, gases and/or by-products

Please list all substances, gases, and by-products which the product may have come into contact with:

Trade/product name	Chemical name (or symbol)	Precautions associated with substance	Action if human contact

6 Legally binding declaration:

I/we hereby declare that the information on this form is complete and accurate and that I/we will assume any further costs that may arise. The contaminated product will be dispatched in accordance with the applicable regulations.

Organization/company _____
Address _____ Post code, place _____
Phone _____ Fax _____
Email _____
Name _____

Date and legally binding signature _____ Company stamp

This form can be downloaded from our website.

Copies:
Original for addressee - 1 copy for accompanying documents - 1 copy for file of sender

INFICON The Instrumental Difference

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