Safety

Symbols Used

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.

WARNING
Information on preventing any kind of physical injury.

DANGER
Information on preventing extensive damage and environmental damage.

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

Installation
Vacuum Connection

Caution
Vacuum component
Dirt and damages in the vacuum component will damage the product. When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damage.

Caution
Dirt sensitive area
Touching the product or parts thereof with bare hands increases the detection rate. Always wear clean, lint-free gloves and use clean tools when working in this area.

FCC Connector

Technical Data

Measurement range (air, N₂)
5×10⁻¹⁰ ... 1×10⁻⁶ Pa

Accuracy
≥ ±30 % up to factor 2

Responsibility
≥ ±30 % up to factor 2

Output signal (measuring signal)
0 V ... +10.5 V

Measurement range
190 V ... 8.5 V

Voltage vs. pressure
(Logarithmic, 0.8 V / decade

Error signal
≤ 0.5 V (no supply)

Output influence
≤ 2×10⁻⁶

Minimum load
10 kΩ, short-circuit-proof

Supply voltage
p = 10⁻¹⁰ hPa

≤ 100 mV (100 mV screen)

Gage identification
7.15 kΩ resistance referred to supply common

Operation

When voltage is being supplied to the gauge, the measuring signal will only be output if pins 2 and 3 (FCC connector), or between pins 3 and 5 (≤ Technical Data) for the relationship between the measuring signal and the pressure.

The green lamp on the gage indicates the operating state:
• Supply present
• No supply voltage

Technical Data

Materials on the vacuum side
Neutral metal, stainless steel, or glass

Admissible temperatures
Storage
-40 °C ... +65 °C

Operation
of all types of long types
+ 5 °C ... + 55 °C

Balanced shunt types
250 °C 3) (without electronics long types
250 °C 1) in balanced area, see dimension drawing

Relative humidity
max. 80% up to +31 °C

Decreasing to 10% at +45 °C for indoor use only at altitude up to 2000 m

IP 40

Admissible working temperatures

Vacuum Connection

Electrical connection
Pin 1: Supply
Pin 2: Supply common
Pin 3: Signal output (measuring signal)
Pin 4: Identification
Pin 5: Signal common case connection connector case
Pin 7: E n n.

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FCC Connector

Technical Data

Output signal (electrical connection)
Pin 2: Supply common
Pin 4: Supply
Pin 5: Supply common
Pin 6: Supply common

FCC Connector

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Power Connection

Make sure that the gauge is correctly flatned (see above). If no sensor cable is available, make one accordingly to the diagram.

Hirschmann Connector

WARNING
Trouble the gage only at pressures ≥3×10⁻¹⁰ Pa in pressure reduced environment.

For use on a Pfeiffer gauge measurement unit with at least two gage connections, the cold cathode gage can be controlled, for example, by a Pirani gauge.

Gas Type Dependence

The measurement result is gas dependent. The display applies to dry air, N₂, O₂ and CO₂ (≤ technical data). For other gases, it has to be corrected (≤ technical data). This can be done by operating the gauge on the Pfeiffer Vacuum measurement unit (≤ Technical Data).

Ignition delay

When the cold cathode gage is switched on, an ignition delay occurs. The delay time increases at low pressures and for clean, degassed gages it is typically:

10⁻⁷ Pa ≈ 10⁻⁶ Pa ≈ 10⁻⁵ Pa ≈ 10⁻⁴ Pa ≈ 10⁻³ Pa

10⁻² Pa ≈ 10⁻¹ Pa ≈ 10⁻⁶ Pa

10⁻⁵ Pa ≈ 10⁻³ Pa

10⁻⁴ Pa ≈ 10⁻³ Pa

10⁻³ Pa ≈ 10⁻³ Pa

0.5 ms

The ignition is a static process. Already a small amount of depositions on the inner surfaces can have a strong influence on it.

Adjusting the Gauge

The gauge is factory calibrated and ready for use. It cannot be recalibrated.

Intended use

The above Compact Cold Cathode Gauges have been designed for vacuum measurement of gas pressures in range of 10⁻¹⁰ ... 10⁻³ Pa.

The gauge with Hirschmann connector can be operated in combination with a Pfeiffer Vacuum controller for compact gauges or with another appropriate controller. The gauge with FCC connector can be operated in connection with an appropriate controller.

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## Output Signal vs. Pressure

![Output Signal vs. Pressure Graph](image)

### Conversion Table

<table>
<thead>
<tr>
<th>Unit</th>
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<tbody>
<tr>
<td>bar</td>
<td>101.325</td>
</tr>
<tr>
<td>Pa</td>
<td>1</td>
</tr>
<tr>
<td>kPa</td>
<td>100</td>
</tr>
<tr>
<td>hPa</td>
<td>100</td>
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<tr>
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<tbody>
<tr>
<td>Ar</td>
<td>1.0</td>
</tr>
<tr>
<td>He</td>
<td>0.4</td>
</tr>
<tr>
<td>Ne</td>
<td>0.3</td>
</tr>
<tr>
<td>Kr</td>
<td>2.4</td>
</tr>
<tr>
<td>Xe</td>
<td>4.1</td>
</tr>
<tr>
<td>H2</td>
<td>5.9</td>
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### Maintenance, Troubleshooting

- **Output Signal vs. Pressure**
- **Conversion Table**
- **Gas Type Dependence**

### Returning the Product

- **Output Signal vs. Pressure**
- **Conversion Table**
- **Gas Type Dependence**

### Disposal

- **Output Signal vs. Pressure**
- **Conversion Table**
- **Gas Type Dependence**

### EU Declaration of Conformity

- **Output Signal vs. Pressure**
- **Conversion Table**
- **Gas Type Dependence**

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**Maintenance, Troubleshooting**

If the gauge is operated under high pressures or under dirty conditions, it must be regularly cleaned. Gauge failures due to contamination or wear and tear, as well as expendable parts (e.g. seals), are not covered by the warranty.

**Returning the Product**

- Indication range below $10^{-5}$ hPa
  - Gas Type Dependence
  - Conversion Table

**Disposal**

- **Output Signal vs. Pressure**
- **Conversion Table**
- **Gas Type Dependence**

**EU Declaration of Conformity**

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**Further Information**

- [1] www.pfeiffer-vacuum.com
- Operating Instructions: IKR 270
- BG 5008 8DE (German)
- BG 5008 8EN (English)
- BG 5008 8FR (French)