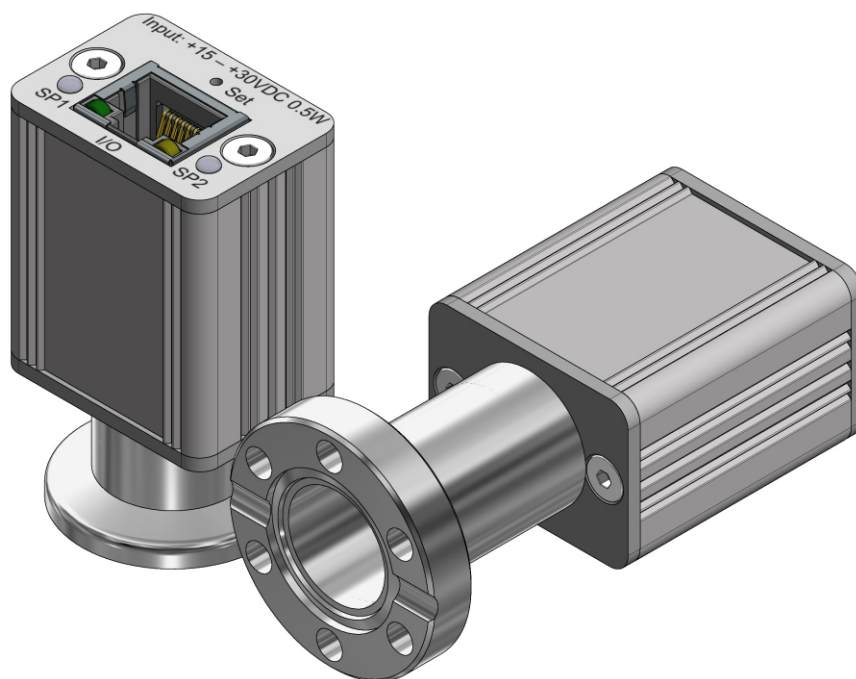


JEVAmet[®] PRM / PRM-S

Active Pirani vacuum gauge

Instruction Manual



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1. Legal Instructions

1.1 Validity

The document applies to the following products:

Part Number	Product	Version	Serial Number
100022	JEVAmet® PRM-16K	2.00 et seq.	200 et seq.
100023	JEVAmet® PRM-S-16K	2.00 et seq.	200 et seq.
100024	JEVAmet® PRM-16C	2.00 et seq.	200 et seq.
100025	JEVAmet® PRM-S-16C	2.00 et seq.	200 et seq.

Table 1 – Part numbers

When communicating with the JEVATEC GmbH, stating the information of article number and serial number is necessary. Please take this information from the name plate.

1.2 Scope of Delivery

Description	Number
JEVAmet® PRM / JEVAmet® PRM-S	1
Instruction Manual (DE and EN)	1

Table 2 – Scope of Delivery

1.3 Conforming Utilisation

The JEVAmet® PRM has been designed for vacuum measurement of gases in the pressure range of $5 \cdot 10^{-4}$ – 1000 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 vacuum gauge can be attached to a suitable display unit or be operated according to connection allocation with a user voltage supply.

Depending on the version, it has a flange connection DN16KF or DN16CF and can thus be attached to suitable. The JEVAmet® PRM-S additionally provides two switching functions.



NOTICE:

Based on the technical data please check first whether your measuring instrument is suited to your kind of application.



NOTICE:

Before using the device for the first time or after changing the place of use, ensure that there is sufficient temperature equalisation between the unit temperature and the ambient temperature.



NOTICE:

The protection provided by the device may be impaired if the device is used in the manner not specified by the manufacturer.

1.4 Nonconforming Utilisation

The ATMION® wide-range vacuum meter has been designed and constructed exclusively for the purpose specified in chapter 1.3 - Conforming Utilisation, page 6 and may only be used in this way.

The use for purposes not covered above is regarded as improper, in particular:

- the connection of unauthorized or inappropriate sensors and components
- the application of impermissible voltages.

Any use not in accordance with the conforming utilisation is considered inadmissible. Any resulting damage will void all liability and warranty claims. The risk for this is borne solely by the operator.

1.5 Responsibility and Warranty

We assume the warranty for the faultless function of the device for one year. All in material and manufacturing defects will be cleared free of charge within this period.

The JEVATEC GmbH will not assume any responsibility or warranty in case the operator or third persons

- do not observe the information given in this document.
- do not use the product as intended.
- modify the product in any way (conversions, repair work etc).
- operate the product with accessories not listed in the corresponding 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 (e.g., Pirani element) are not covered by the warranty.

Subject to technical alterations without prior notice. The figures are not binding.

1.6 Transport Damages

- Check the packaging for visible damages
- Send an advice of damage to the carrier and to the insurer in case of damage
- Retain the packaging material, because the reconsignment in the original packaging of the manufacturer is prerequisite for warranty claims
- Check the consignment for completeness
- Check the instrument for visible damages

2. Safety

2.1 General Information

The JEVAmet® PRM / PRM-S is delivered ready for operation. Even so, we recommend that you carefully read these Operating Instructions so as to ensure optimum operating conditions right from the start.

This manual contains important information for understanding, installing, commissioning, operating and troubleshooting the JEVAmet® PRM / PRM-S.

2.2 Signs and Symbols



DANGER or WARNING:

Information on the prevention of injury.



DANGER:

Information on the prevention of injury by electrical impact.



REFERENCE:

General lead on further information and articles respectively.

2.3 Basic Safety Regulations

- Adhere to the applicable regulations and take the necessary precautions for the process media used. Consider possible reactions between the materials and the process media. 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.



WARNING: Improper usage

Improper usage can damage the instrument. Use the instrument only in accordance to the manufacturer's instructions.



WARNING: Incorrect connection and operation data

Incorrect connection and operation data can damage the instrument. Comply with all prescribed connection and operation data.

3. Technical Product Description

3.1 Function

The JEVAm[®]et PRM has been designed for vacuum measurement of gases in the pressure range of $5 \cdot 10^{-4}$ – 1000 mbar. The vacuum gauge can be attached to a suitable display unit or be operated according to connection allocation with a user voltage supply.

It has a flange connection DN16KF or DN16CF and can thus be attached to suitable.

The JEVAm[®]et PRM-S additionally provides two switching functions.



NOTE: Field of Application

On the basis of the following information, please check whether the instrument is appropriate for your application.

3.2 Measurement Principle

The JEVAm[®]et PRM / PRM-S is a thermal conductivity vacuum gauge according to Pirani.

The measurement principle is based on the heat loss of a thin wire, heated by an electrical current, depending on pressure and gas type. Different processes contribute to the heat loss:

- Heat conductance of the gas
- Convection of the gas
- Heat radiation
- Heat conduction into the wire connection

Heat radiation and heat conduction are disturbance variables which limit the measuring range of the Pirani gauge towards low pressure. To keep these variables as small and constant as possible, a very thin wire is used as sensor and the operating temperature of the wire is kept constant. For this purpose, a Wheatstone bridge measures the resistance of the wire, and its resistance is kept constant by a control circuit. The power supplied to the wire is measured.

In the measurement range between $1 \cdot 10^{-3}$ and 100 mbar, the pressure dependency of the heat loss is predominated by the heat conduction through the gas. Above 100 mbar, convection of the gas is the most important process. Measured results are mainly falsified by dirt deposition on the Pirani wire and by an increase of the ambient temperature which both modify the heat loss of the Pirani wire. Shocks and vibrations lead to an increased heat emission of the Pirani wire and thus to the display of an apparently higher pressure.

3.3 Display and Control Units


The JEVAm[®]et PRM is compatible with vacuum controllers made by JEVATEC, VACOM, LEYBOLD, PFEIFFER VACUUM and INFICON (🔗📖 Chapter 4.4 Identification, page 10).

4. Technical Data

4.1 Vacuum Measurement

Measuring principle:	Thermal conductivity according to Pirani
Measuring range:	$5 \cdot 10^{-4} - 1000$ mbar
Display range:	$5 \cdot 10^{-5} - 1000$ mbar
Accuracy (N ₂):	
$5 \cdot 10^{-4} - 1 \cdot 10^{-3}$ mbar	± 50% of measuring value
$1 \cdot 10^{-3} - 100$ mbar	± 15% of measuring value
100 – 1000 mbar	± 50% of measuring value
Resolution:	
$1 \cdot 10^{-3} - 100$ mbar	± 1% of measuring value
Reproducibility (N ₂):	
$1 \cdot 10^{-3} - 100$ mbar	± 5% of measuring value

4.2 Sensor

Vacuum connection:	KF standard DN16KF or CF standard DN16CF
Overpressure stability:	1.5 bar abs. ( Mounting instruction at page 14)
Materials in vacuum:	W, Au, glass, stainless steel 1.4301

4.3 Power Requirements

Supply voltage:	+15 – +30 VDC (SELV-E according to EN 61010)
Ripple:	≤ 1 V _{pp}
Power consumption:	≤ 0.5 W
Connection:	8-pin RJ45
Measuring cable:	8-pin, shielded, 0,14 mm ² / wire
Cable length:	≤ 100 m



DANGER:

The vacuum 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-E according to EN 61010).

4.4 Identification

Ident resistant:	27.0 kΩ
------------------	---------

The JEVAm[®]et PRM / PRM-S is identified as TTR sensor of following vacuum controllers:

- JEVATEC – JEVAm[®]et VCU
- VACOM – MVC-3
- LEYBOLD – DISPLAY ONE, DISPLAY TWO, DISPLAY THREE
- LEYBOLD – CENTER ONE, CENTER TWO, CENTER THREE
- LEYBOLD – GRAPHIX ONE, GRAPHIX TWO, GRAPHIX THREE
- PFEIFFER VACUUM – CenterOne, CenterTwo, CenterThree

- INFICON – VGC401, VGC402, VGC403
- INFICON – VGC501, VGC502, VGC503

4.5 Adjustment

Atmosphere: via button at $p = 1000 \text{ mbar}$
 Vacuum: via button at $p < 1 \cdot 10^{-5} \text{ mbar}$

4.6 Output Signal

Measuring signal: +0.61 – +10.00 VDC
 Failure signal: 0 – 0.5 VDC
 Load impedance: $\geq 10 \text{ k}\Omega$
 Response time: $< 100 \text{ ms}$
 Signal and pressure relation: 1.286 VDC / Decade, logarithmic

$$p = 10^{((U-c)/1.286)}$$

$$U = c + 1.286 \cdot \log_{10} p$$

$c = 6.143$ for $U[\text{V}]$ and $p[\text{mbar}]$

$c = 3.572$ for $U[\text{V}]$ and $p[\text{Pa}]$

$c = 6.304$ for $U[\text{V}]$ and $p[\text{Torr}]$

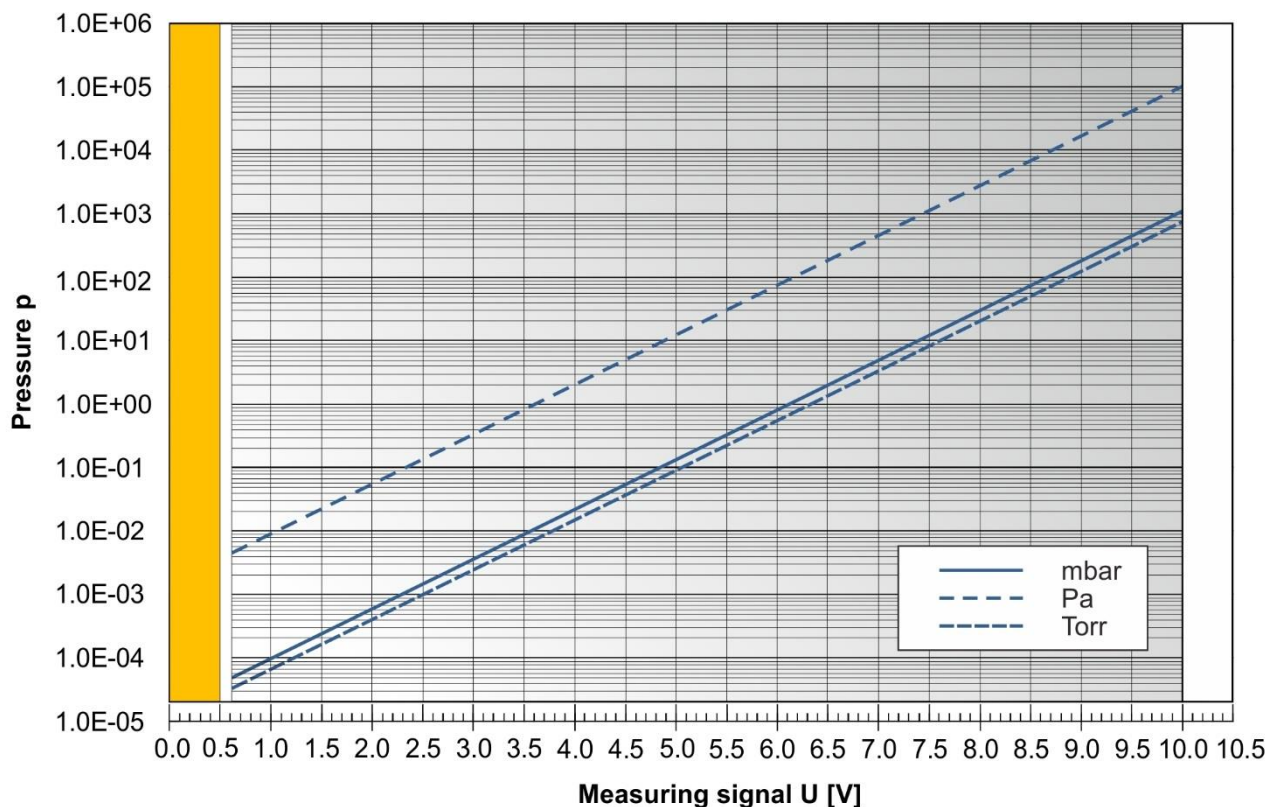


Figure 1 – Relationship between measuring signal and pressure

4.7 Switching Functions

Number of switching functions:	2
Response time:	100 ms min.
Adjustment range:	sensor dependend
Hysteresis:	$\geq 10\%$ of measuring value
Programming:	via button
Type of contact:	Normally open contact, potential-free
Load (resistive):	Switching current: 1 A max. Switching voltage: max. 30 V AC / 30 V DC
Service life:	Mechanical: 10^7 actuations Electrical: 10^4 actuations at maximum load
Connection:	8-pin RJ45

4.8 Environment

Use:	Only indoors (altitude 2000 m above sea level)
Mounting position:	any
Temperature:	Storage: $-20 - +65\text{ }^{\circ}\text{C}$ Operation: $+10 - +50\text{ }^{\circ}\text{C}$ Vacuum connection: $\leq 80\text{ }^{\circ}\text{C}$
Bakeout temperature:	80 $^{\circ}\text{C}$ max. at flange (DN16KF) 150 $^{\circ}\text{C}$ max. at flange (DN16CF)
Relative humidity:	max. 80 % (to 30 $^{\circ}\text{C}$) decreasing to max. 50 % (over 40 $^{\circ}\text{C}$)
Protection class:	IP40
Contamination class:	2

4.9 Dimensions and Weight

Dimensions:	Length: 56.0 mm (DN16KF) 72.0 mm (DN16CF)
	Width: 33.0 mm
	Height: 24.0 mm
Weight:	0.08 kg

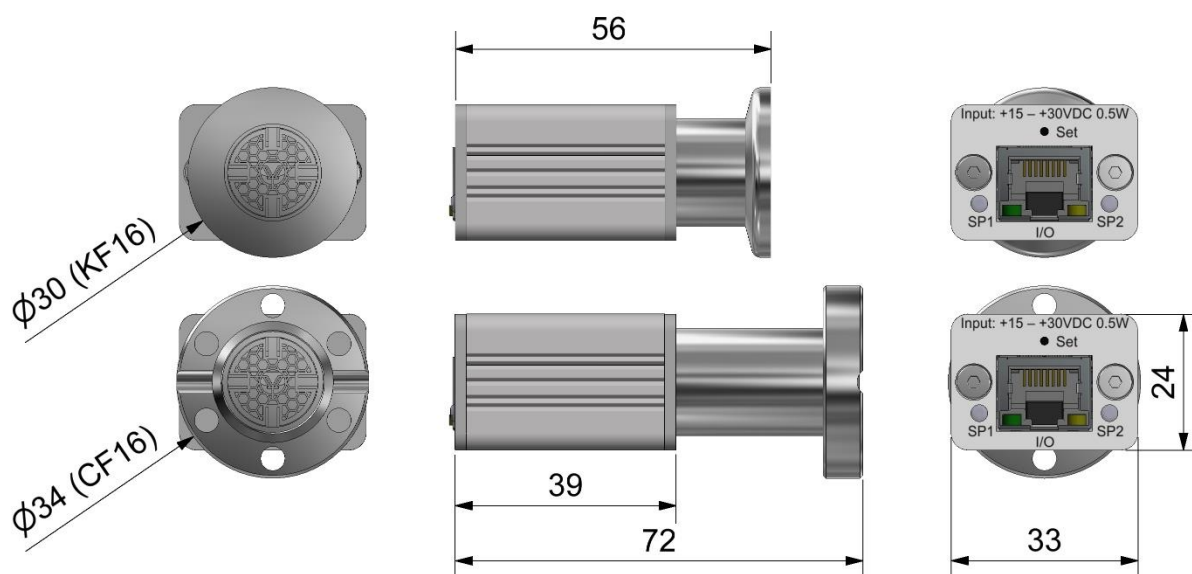


Figure 2 – Dimensions of JEVAmet® PRM / PRM-S (in mm)

4.10 Standards

Directives:

- Conformity with the EMC Directive 2014/30/EU
(EU EMC Directive, EU Office Journal, L 96/79 of 29-March-2014)
- Conformity with RoHS Directive 2011/65/EU
(EU RoHS Directive, EU Office Journal, L 174/88 of 1-July-2011)
In accordance with
 - Commission Delegated Directive (EU) 2015/863 of 31-March-2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances.
 - Commission Delegated Directive (EU) 2018/740 of 1-March-2018 amending, for the purposes of adapting to scientific and technical progress, Annex III to Directive 2011/65/EU of the European Parliament and of the Council as regards an exemption for lead as an alloying element in aluminum
 - Commission Delegated Directive (EU) 2018/741 of 1-March-2018 amending, for the purposes of adapting to scientific and technical progress, Annex III to Directive 2011/65/EU of the European Parliament and of the Council as regards an exemption for lead as an alloying element in copper
- Conformity with the WEEE Directive 2012/19/EU
(EU WEEE Directive, EU Official Journal L 197/38 of 24-July-2012)
- Conformity with the Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18-December-2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

International/national standards as well as specifications:

- DIN EN 61010-1:2020-03 (VDE 0411-1:2020-03)
Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements (IEC 61010-1:2010 + COR:2011 + A1:2016, modified + A1:2016/COR1:2019); German version EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019
- DIN EN 61326-1:2013-07 (VDE 0843-20-1:2013-07)
Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements (IEC 61326-1:2012); German version EN 61326-1:2013

5. Installation

5.1 Mechanical Installation

The installation of the JEVAmet® PRM / PRM-S is carried out directly on the vacuum system.

Basically, the JEVAmet® PRM / PRM-S is operational at any arbitrary mounting position. 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 transmitter has been installed, be sure to install it so that the button can be accessed with a pin.

It is recommended to choose a mounting location with unimpeded airflow. During bakeout of the vacuum chamber for achieving very low pressures, the JEVAmet® PRM / PRM-S should be mounted in a way so that the convection heat of the heated vacuum chamber does not significantly heat up the instrument. As a matter of principle, the ambient temperature must not exceed the specified temperature of +50 °C.

The most common cause for the failure of vacuum gauges is the contamination of the sensor. Contamination can occur by reactions of process gases with sensor parts, by accumulation of process material on sensor parts or by charged particles which have entered from a process in the vacuum system. Possible consequences of a contamination of the sensor are noisy or erroneous measured pressure values or even a total failure of the sensor. Instrument failures which are caused by contamination are not covered under the warranty.

A suspended mounting position (vacuum flange upside) is to be avoided especially for vacuum applications which are subject to condensation or other precipitates. Protect the sensor from contaminations, especially in vacuum applications with sources of material (vaporization etc.) or when there is danger of oil contamination.

If necessary, the vacuum gauge can be protected by choosing a noncritical mounting position and/or by application of a baffle, elbow pipe, gate valve etc.



NOTE:

During the installation of the vacuum gauge always proceed with the required carefulness.



WARNING: 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 of clamps which are suited to overpressure.



WARNING: Disconnection

Set up and install the vacuum gauge in such a way that a disconnection of the voltage supply is possible at any time.

**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.

**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.

- Remove the protective lid. Keep the protective lid for servicing.
 - Connect the vacuum gauge to the vacuum system.
- Please note the previous specified mounting instructions and warnings.

5.2 Electrical Installation

5.2.1 Rear of the Gauge

Figure 3, page 16 shows the rear of the JEVAmet® PRM-S.

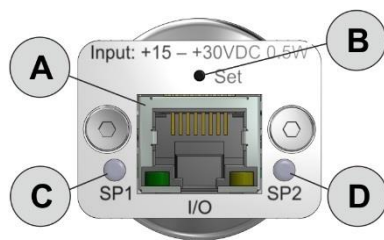


Figure 3 – Rear of the gauge

- A Connector I/O for power supply, signal output and relay output with green LED for indicating of operating states and yellow LED for indicating of alarms
- B Button for adjustment and setpoint programming
- C Status LED for setpoint 1 (JEVAmet® PRM-S only)
- D Status LED for setpoint 2 (JEVAmet® PRM-S only)

5.2.2 Power Supply, Signal Output, Relay Output (I/O)

The connector I/O for power supply, signal output and relay output (🔑📖 Figure 4, page 16) combines all connections necessary for the operation of the vacuum gauge.

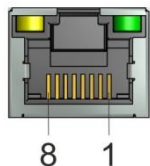


Figure 4 – Connection for power supply, signal output and relay output

1	+15 – +30 VDC	5	Signal ground
2	Ground	6	SP2 NO
3	Signal output	7	SP1 NO
4	Ident resistant	8	SP1 and SP2 COM

Connecting:

- Connect your controller or the connections of your system to the connector I/O of the JEVAmet® PRM / PRM-S by means of an appropriate shielded cable.



ATTENTION: Grounded Protective Low Voltage

The voltage supply has to meet the requirements of a grounded protective low voltage (SELV-E) according to EN 61010.



DANGER: Dangerous to Touch Voltage

Voltages over 60 VDC or 30 VAC are dangerous to touch. You are allowed to switch with the relay contacts (🔑📖 Figure 4, page 16, PIN 6, 7 and 8) only voltages of 30 VDC or 30 VAC, max. 1 A. This voltage has to meet the requirements of a grounded protective low voltage (SELV-E according to EN 61010).

6. Operation

6.1 Readiness for Operation

Establish the readiness for operation of the vacuum gauge as follows:

- Connect your controller or the appropriate connections of the system via a shielded cable to the connection I/O (🔌📖 Figure 3, A, page 16) at rear of the JEVAmet® PRM / PRM-S.
 - The green LED is glowing permanently.
 - A measuring signal is output.

**NOTICE: Stabilization period**

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

**NOTICE: Zero drift**

The vacuum 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.

To terminate the readiness for operation, disconnect the instrument from the voltage supply.

6.2 Measuring Mode

The JEVAmet® PRM / PRM-S is in measuring mode after switching on the controller or applying the operating voltage. A measuring signal (🔌📖 Chapter 4.6 Output Signal, page 11) is output via the connection I/O (🔌📖 Figure 4, page 16).

6.3 Indication of Operating States and Error Messages

A green LED for displaying the operating states and a yellow LED for displaying error messages are integrated in the connection I/O (🔌📖 Figure 4, page 16).



LED green 	LED yellow 	Description
Off	Off	Power Off
Permanently on	Off	Power On
Flashing long (500 ms)	Off	Adjustment ATM or VAC active
Off	Flashing 6 x short (250 ms), break	Adjustment failure
Off	Flashing long (500 ms)	Sensor failure

Table 3 – Operating states and error messages

6.4 Gas Type Dependency

The pressure measurement depends on the gas composition. The measurement signal of the JEVAmet® PRM / PRM-S is calibrated for nitrogen (N₂).

6.5 Switching Functions

The JEVAmet® PRM-S is provided with two independent switching functions.

The two switching functions can be set to any pressure within the measurement range of the vacuum gauge. A potential-free closing contact is provided for each switching function via the connection I/O (🔗📖 Figure 4, page 16).

If the pressure in the vacuum system is lower than the threshold for setpoint SP1 or SP2, the corresponding white LED is lit solid and the corresponding relay contact is closed.

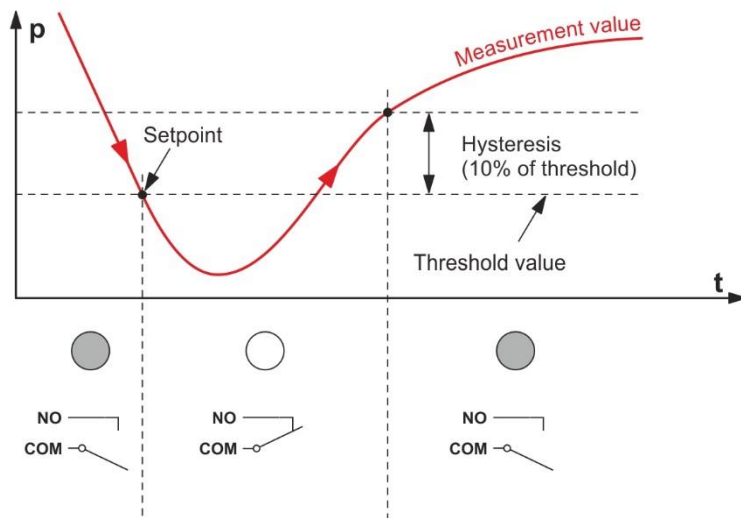


Figure 5 – Behaviour of a switching function in response to pressure changes

p	pressure
t	time
NO	operating contact (normally open)
COM	common

6.5.1 Adjusting the Threshold Values

The thresholds of the setpoints SP1 and SP2 can be adjusted via the button Set (🔗📖 Figure 3, B, page 16) at rear of the JEVAmet® PRM / PRM-S.




DANGER: Malfunction

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

Push the button Set only if you are sure that no malfunction will cause.

6.5.1.1 Indicating the Threshold Values

- The vacuum gauge is connected and is in the measuring mode.
- Push the button Set ( Figure 3, B, page 16) with a pin (ø1.1 mm max.) and keep it depressed for approximately 5 seconds.
 - You get into the setpoint modus.
 - The green LED of the connection I/O is flashing.
 - The white LED SP1 is flashing for 10 s. The threshold value SP1 is output at the signal output. The white LED SP2 is flashing for 10 s subsequently. The threshold value SP2 is output at the signal output.
- If you do not make settings during this time, the vacuum gauge will revert back to the measuring mode automatically.




NOTICE: Standard thresholds

The following threshold values are set at the factory:


Threshold SP1 = 1 mbar

Threshold SP2 = $1 \cdot 10^{-1}$ mbar

6.5.1.2 Adjusting the Threshold SP1

- Push the button Set ( Figure 3, B, page 16) with a pin (ø1.1 mm max.) and keep it depressed for approximately 5 seconds.
 - You get into the setpoint modus.
 - The green LED of the connection I/O is flashing.
 - The white LED SP1 is flashing.
- Push the button Set to adjust the threshold value SP1.
 - The white LED SP1 lights permanently.
 - The threshold value SP1 is output at the signal output.
 - You can adjust the threshold value SP1 now.
- Push the button Set for fine adjustment of threshold value towards the lower limit of the measuring range.
 - The threshold value changes by single steps.
- Push the button Set and keep it depressed for approximately 5 seconds for coarse adjustment of threshold value towards the lower limit of the measuring range.
 - The threshold value changes fluently.
- Push the button Set subsequently for direction change towards the upper limit of the measuring range.
- Push the button Set for fine adjustment of threshold value towards the upper limit of the measuring range.
 - The threshold value changes by single steps.
- Push the button Set and keep it depressed for approximately 5 seconds for coarse adjustment of threshold value towards the upper limit of the measuring range.
 - The threshold value changes fluently.
- Push the button Set subsequently for direction change towards the lower limit of the measuring range.
- ...
- If you do not make settings for more than 10 seconds, the vacuum gauge will revert back to the measuring mode automatically. All threshold values are saved.

6.5.1.3 Adjusting the Threshold SP2

- Push the button Set ( Figure 3, B, page 16) with a pin (ø1.1 mm max.) and keep it depressed for approximately 5 seconds.
 - You get into the setpoint modus.
 - The green LED of the connection I/O is flashing.
 - The white LED SP1 is flashing for 10 s. The white LED SP2 is flashing for 10 s subsequently.
 - Push the button Set to adjust the threshold value SP2.
 - The white LED SP1 lights permanently.
 - The threshold value SP2 is output at the signal output.
 - You can adjust the threshold value SP2 now.
 - Push the button Set for fine adjustment of threshold value towards the lower limit of the measuring range.
 - The threshold value changes by single steps.
 - Push the button Set and keep it depressed for approximately 5 seconds for coarse adjustment of threshold value towards the lower limit of the measuring range.
 - The threshold value changes fluently.
 - Push the button Set subsequently for direction change towards the upper limit of the measuring range.
 - Push the button Set for fine adjustment of threshold value towards the upper limit of the measuring range.
 - The threshold value changes by single steps.
 - Push the button Set and keep it depressed for approximately 5 seconds for coarse adjustment of threshold value towards the upper limit of the measuring range.
 - The threshold value changes fluently.
 - Push the button Set subsequently for direction change towards the lower limit of the measuring range.
- ...
- If you do not make settings for more than 10 seconds, the vacuum gauge will revert back to the measuring mode automatically. All threshold values are saved.

7. Maintenance and Servicing

7.1 Maintenance

7.1.1 General Maintenance Advices

For external cleaning, please use a dry cotton cloth. Do not use any aggressive or abrasive detergents.





7.1.2 Regular Inspections

- Visual inspection of the device for damaged or deformed housings and connectors as well as damaged cable insulation

7.2 Adjusting the Gauge

The JEVAmet® PRM / PRM-S 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 transmitter under the same constant ambient conditions and in the same mounting orientation as normally.

Proceed as follows for adjustment:

- If you are using a seal with centering ring and filter, check that they are clean or replace them if necessary.
- Put the vacuum gauge into operation and operate it at atmospheric pressure for at least 10 minutes.
- Push the button Set (  Figure 3, B, page 16) with a pin (max. $\varnothing 1.1$ mm) for ATM adjustment.
 - The vacuum gauge is adjusted to 1000 mbar.
 - The green LED flashes during the adjustment procedure.
- Evacuate the vacuum system to a pressure $< 1 \cdot 10^{-5}$ mbar and wait at least 2 minutes.
- Push the button Set (  Figure 3, B, page 16) with a pin (max. $\varnothing 1.1$ mm) for HV adjustment.
 - The vacuum gauge is adjusted to $5 \cdot 10^{-5}$ mbar.
 - The green LED flashes during the adjustment procedure.

7.3 Troubleshooting

7.3.1 Trouble Indication and Help in Case of Malfunctions

**CAUTION:**

Dirt and damages impair the function of the vacuum gauge.
When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

**CAUTION:**

JEVATEC cannot assume any responsibility or warranty if the operator or third persons do repair work on the JEVAmet® PRM / PRM-S.

**CAUTION:**

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

Error	Fault Cause	Remedy
Green and yellow LED don't light up	no power supply	Check the power supply
Measuring signal permanently >10 VDC, although the pressure <1·10 ⁻³ mbar	Pirani element defect	Replace the sensor (🔧📖 Chapter 7.3.3 Sensor Replacement, page 23)
Measuring signal incorrect at atmosphere pressure	Incorrect adjustment at atmospheric pressure	Adjusting the gauge (🔧📖 Chapter 7.2 Adjusting the Gauge, page 21)
Measuring signal incorrect at the lower limit of measuring range	Incorrect adjustment at vacuum	Adjusting the gauge (🔧📖 Chapter 7.2 Adjusting the Gauge, page 21)

Table 4 – Trouble indication and help in case of malfunctions

Please also observe the status indicating and warning symbols in chapter 6.3, page 17.

7.3.2 Repair

The JEVAmet® PRM / PRM-S is not intended for customer repair. Defective products must be sent to JEVATEC.



NOTICE:

JEVATEC will not assume any responsibility or warranty in case the operator or third persons repair the JEVAmet® PRM / PRM-S.



ATTENTION: Shipping of contaminated products

Contaminated products (e.g., radioactive, toxic, corrosive or micro-biological) can cause damage to health and the environment. Submitted products should be free of pollutants wherever possible. Observe the shipping regulations of the countries and transport companies involved. Enclose the carefully filled out contamination declaration with the shipment.



NOTICE: Declaration of contamination form

You will find the form as a copy template in Appendix 1 of these operating instructions or as a free download on the Internet.

7.3.3 Sensor Replacement

The sensor JEVAmet® PRM / PRM-S is replaceable at the factory in case of contamination or defect. Send back the gauge under the conditions, mentioned in chapter 7.3.2 Repair, page 23 to the JEVATEC GmbH.

Please also note the indication of operating states and error messages listed in chapter 6.3, page 17.

8. Storage and Waste Disposal

8.1 Packaging

Please keep the original packaging. You will need this packaging in case of storing the JEVAmet® PRM / PRM-S or shipping to JEVATEC.

8.2 Storage

The JEVAmet® PRM / PRM-S must only be stored in dry rooms. During storage, the following ambient conditions need to be maintained:

- Ambient temperature: -20 – +65 °C
- Humidity of the air: As low as possible.
Preferably in a sealed plastic bag with desiccant.

8.3 Waste Disposal

Regarding waste disposal, the branch specific and local waste disposal and environment protection regulations for systems and electronics components are valid.

In case of return JEVATEC will execute the professional resource separation and disposal.

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The repair and / or servicing of articles of the vacuum engineering (vacuum measuring instruments, vacuum pumps and vacuum components) will be carried out only if a correctly completed declaration has been submitted. Non-completion will result in delay. The manufacturer can refuse to accept any equipment without a declaration. A separate declaration has to be completed for each single article. For diagnosis and shipping by JEVATEC costs will be incurred. **Please consider also the safety information on the back of this declaration!**

This declaration may be completed and signed only by authorized and qualified staff.

1. Description of the article: Equipment type: Code No.: Serial No.: Invoice No.: Delivery Date:	2. Reason of Return:
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3. Condition of the Article: Has the article been used? <input type="checkbox"/> yes <input type="checkbox"/> no What kind of oil / liquid was used? Is the equipment free from potentially harmful substances? <input type="checkbox"/> yes go to 5. <input type="checkbox"/> no go to 4.	4. Process related Contamination of Article: toxic <input type="checkbox"/> yes <input type="checkbox"/> no corrosive <input type="checkbox"/> yes <input type="checkbox"/> no microbiological*) <input type="checkbox"/> yes <input type="checkbox"/> no explosive*) <input type="checkbox"/> yes <input type="checkbox"/> no radioactive*) <input type="checkbox"/> yes <input type="checkbox"/> no other harmful substances <input type="checkbox"/> yes <input type="checkbox"/> no
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*) Articles which have been contaminated by biological, explosive or radioactive substances will not accepted without written evidence of decontamination!

All substances, gases and by-products which may have come into contact with the equipment:

Trade Name Product Name Manufacturer	Chemical Name (chemical formula)	Hazard Group	Measures when harmful substances are released	First Aid for accidents
.....
.....
.....
.....
.....

5. Legally Binding Declaration: I hereby declare that the information supplied on this form ist complete an accurate. The despatch of the contaminated articles will be accordance with the appropriate regulations covering, packaging, transportation and labeling of dangerous substances. Company: Street, No.: Phone: Zip Code, City: Fax: Name: E-mail: Date, Signature: Stamp:	
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JEVATEC Ideen in der Vakuumtechnik	Declaration of Contamination	FB6001
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**Safety information for returning contaminated vacuum engineering
(vacuum measuring instruments, vacuum pumps and vacuum components)**

General Information

According to German laws, every employer is held responsible for the health and safety of his employees. This also applies to service personnel performing maintenance and/ or repair of vacuum devices either at the premises of the user or the service company in charge. Any possible contamination of vacuum devices or components must be communicated by sending the following declaration of contamination together with the items to be repaired.

Declaration of Contamination

Any personnel repairing and/ or doing maintenance has to be informed about the condition of contaminated vacuum devices and components before the start of work. This is the purpose of the Declaration of Contamination. The declaration must be sent to the manufacturer or Service Company directly. A copy has to be attached to the dispatch papers outside (mailing bag) of the packaging. **Consignments without the declaration of contamination will not be processed and returned to the sender!**

Shipping

When shipping contaminated vacuum devices or components, all dispatch instructions laid down in the manual must be followed e.g.:

- If necessary: Shipping as „Dangerous Good“ with labeling as such
- Drain all service fluids
- Neutralize pumps by rinsing with gas
- Remove filter elements
- Seal all openings airtight
- Shrink-wrap appropriately
- Ship in appropriate containers for transport

Shipping

If you do not have any facilities to decontaminate the devices in compliance with regulations, we assist you in finding a suitable partner. Please contact us.



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EU Declaration of Conformity

We, the JEVATEC GmbH, hereby declare that the products specified and listed below which we have placed on the market, comply with the applicable EU Council Directives. This declaration becomes invalid if modifications are made to the product without agreement with us. Compliance with the EMC Directives requires that the components are installed within a system or machine in a manner adapted to the EMC requirements.

Product designation

Active Pirani Vacuum Gauge

Type designation

JEVAmet® PRM / PRM-S

The products comply with the following European Council Directives:

- 2014/30/EU EU Directive EMC, EU Office Journal, L 96/79 of 29-March-2014
- 2011/65/EU EU Directive RoHS, EU Office Journal, L 174/88 of 1-July-2011 in accordance with:
 - Commission Delegated Directive (EU) 2015/863 of 31-March-2015
 - Commission Delegated Directive (EU) 2018/740 of 1-March-2018
 - Commission Delegated Directive (EU) 2018/741 of 1-March-2018
- 2012/19/EU EU Directive WEEE, EU Office Journal L 197/38 of 24-July-2012

Applied harmonised, international/national standards and specifications:

- DIN EN 61010-1:2020-03 (VDE 0411-1:2020-03)
Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements (IEC 61010-1:2010 + COR:2011 + A1:2016, modified + A1:2016/COR1:2019); German version EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019
- DIN EN 61326-1:2013-07 (VDE 0843-20-1:2013-07)
Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements (IEC 61326-1:2012); German version EN 61326-1:2013

Jena 14-December 2021

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President
JEVATEC GmbH

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Ideen in der Vakuumtechnik

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