User Manual

Digital Micron Vacuum Gauge (VGW-mini)

1. Introduction

VGW-mini is a small and portable professional instrument for vacuum measurement powered by a lithium battery. The 1/4 SAE fitting is convenient for vacuum measurement in the HVAC/R field. VGW-mini supports offline data recording, by connecting the meter, users can view data remotely and set vacuum alarms via APP.

1.1 Technical Parameters

Characteristic	Parameters
Measuring Range	1-19000microns
Vacuum Units	microns、mTorr、inHg、Pa、Torr、KPa、mbar、psia
Temperature Units	°C/°F
Resolution	1-400microns 1micron 400-3000microns 10microns 3000-10000microns 100microns 10000-19000microns 250microns
Accuracy	1-10000microns ±10% of Reading ±10microns 10000-19000microns ±20% of Reading
Battery	Rechargeable lithium batteries (1000mAh)
Operating Temperature	14~122°F/-10~50°C
Storage temperature	-4~140°F/-20~60°C
Interface	1/4 SAE Male Flare
Overload	27.5bar

1.2 Display Overview

Number	Element	Function
①	Icon[ ]	Displays the battery capacity > 75% > 50% > 25% > 5% < 5%
②	Icon[ ]	Display icon when Bluetooth connection
③	Icon[REC]	Display icon when recording is enabled
④	Temperature display	●Displays the currently measured temperature ●Measurement parameter: TH2O=evaporation temperature of water Tamb = ambient temperature ΔT = Tamb-TH2O ●Unit set (°C/°F)
⑤	Vacuum display	●Displays the currently measured vacuum ●Unit set(microns、mTorr、inHg、Pa、Torr、KPa、mbar、psia)

2. Operation Guide

1. Press the power button to turn on the device.

The instrument displays "- - - - -" when ambient pressure is applied to the connections. The display indicates the applied pressure value once the applied pressure is within the measuring range (1 to 19,000 microns).

2. Search for " **AI Tools** " in the APP Store/Google Play or scan the QR code on the back of the product to download the APP with your tablet or smartphone.

3. Open " **AI Tools** " and click "**Search nearby Device**". After the device name appears, click the product icon and enter the operation interface after the connection is successful.

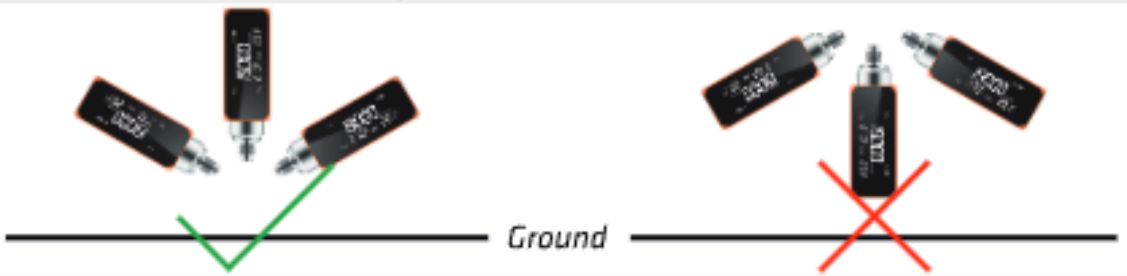
The Bluetooth icon on the product screen is always on when the product is successfully connected to the APP.

4. Connect the product system and start the test.

Precautions for Product Instructions

1. Before using the vacuum gauge, please check whether there is any oil stain on the joint.

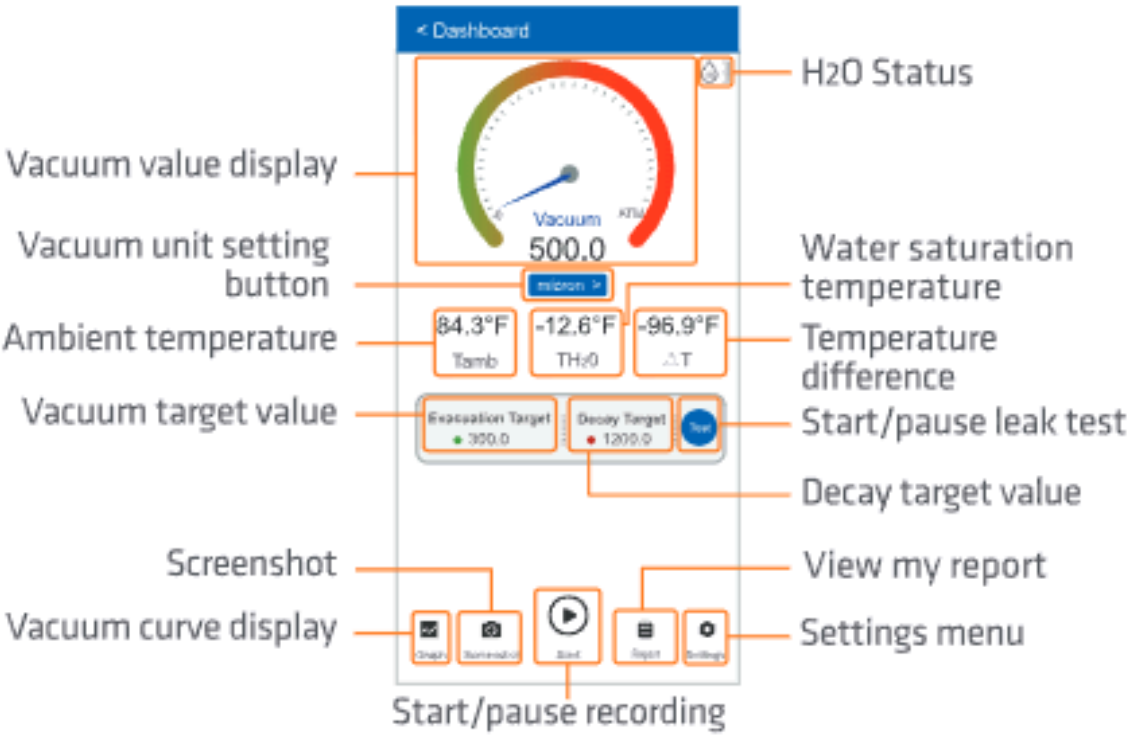
2. Please keep the connector of the product downward and vertical to connect to the system as much as possible.



3. The product should be connected to the system as far as possible away from the vacuum pump.

4. Before turning off the vacuum pump, close the valve to isolate the pump from the system.

2.1 APP Interface Overview



2.2 Unit Setting

Set the unit according to your usage habits.

Click '**microns**' to set vacuum units.

Click '**Settings**' -> '**Temperature Unit**' to set the temperature unit.

2.3 H_2O Status

	H_2O in liquid state
	H_2O in vapor state

The meter judges the physical state of the water by comparing the ambient temperature and the water saturation temperature corresponding to the vacuum in the system. When the water saturation temperature is less than the ambient temperature ($TH_2O<Tamb$), the water is gaseous (evaporated into water vapor), and the moisture in the pipeline can be more effectively removed.

Suggestion: *If the H_2O state still remain liquid after it reaches the "Evacuation Target", please adjust the "Evacuation Target" and continue pumping until it vaporized.*

2.4 Set Evacuation Target

After setting the Evacuation Target,an alarm notice will be prompted when the vacuum value reaches the set evacuation target.

2.5 Set Decay Target Value for Leak Test

Setting the Decay target and conducting a leak test can help you judge the sealing condition of the system!
If you have checked the sealing condition of the system recently (depending on the specific situation), please ignore this step!
Set the appropriate Decay target value according to the actual working conditions, click the Test button to enter the test time, and click confirm to start the leak test.

2.6 Data Record

① Online Record

APP Online Recording requires the APP to maintain a connection with the device. The recorded data is stored in the phone's memory and does not occupy the storage space of the device. Click the Start button on the APP to start recording.

② Offline record

when you need to leave during the recording process, you may turn on the offline recording in the settings, and the device LCD displays the "REC".

*Note: The REC icon flashes when the internal storage space of the device is insufficient.*When the REC icon is flashing, you need to clear the data in the APP settings for continuous recording.

2.7 Temperature Offline Display Mode

The device can only display two temperature values when used offline.

Through the APP setting, user may switch between TH_2O (saturation temperature) + Tamb (ambient temperature), ΔT (temperature difference) + Tamb (ambient temperature) two display combinations.

Try to avoid using the product close to the heating sources so as not to affect the accuracy of the ambient temperature measurement.

3. Precautions

1. Try to avoid using the product in contact with oil, so as not to affect the accuracy of vacuum measurement.
2. This product adopts oil-proof treatment makes a slow response time. Pay special attention to it when the measuring the vacuum degree with below 5pa, it is necessary to read the actual vacuum value after the data is stable (it is stable when the vacuum value does not change within 2 minutes) or follow the instructions for replacing the oil-proof film. Remove the oil-proof film before performing vacuum measurement.
3. When the product is not used for a long time, it needs to be fully charged and charged once every three months.

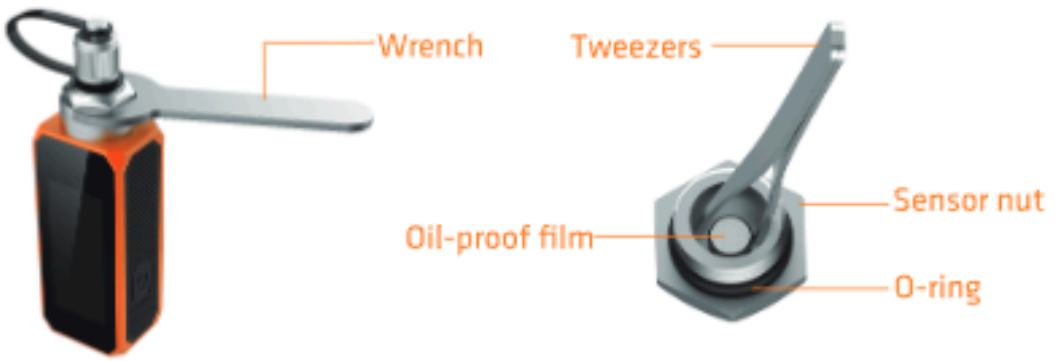
4. Product Maintenance

The Oil-proof film is used in the vacuum chamber to filter impurities and reduce sensor pollution.In order to maintain the best measurement accuracy, normal use needs to be checked every three months (adjust the inspection period according to the frequency of use). If the Oil-proof film is seriously polluted, it needs to be replaced.

4.1 Instructions for replacing the oil-proof film

Follow the steps below:

1. Turn the gauge off.
2. Unscrew the sensor nut with a wrench, and remove the oil-proof film with tweezers.
3. If there is contamination, please replace the oil-proof film.
4. Check whether the O-ring is in good condition. Replace if damaged Lubricate the O-ring with vacuum oil before replacing.
5. Put the oil-proof film into the hole of the sensor nut, press hard with a flat object, do not use sharp objects to avoid damaging the oil-proof film, and tighten the nut with a wrench after installation and fastening.



4.2 Sensor Cleaning Instructions

If the vacuum sensor inside the cavity is contaminated, follow the methods below to clean it :

1. Inject Inject acetone or alcohol (>70%) into the vacuum cavity with a dropper ora syringe. Tighten the nut and gently shake the gauge.
2. Loosen the nut and drain the fluid from the cavity, repeat such operation 3 to 4 times.
3. Evacuate it or place it for 3 hours until the sensor gets dry.

APP QR Code

AI Tools

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