

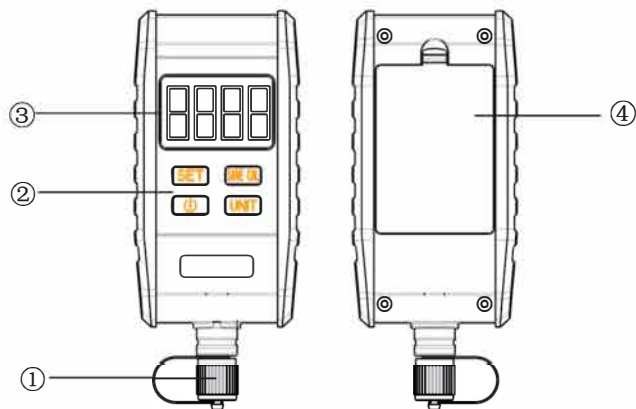
1. Description

HBS-J1 built with Pirani professional vacuum sensor can precisely measure the vacuum level. From the measurement, you can therefore gather information about humidity and the removal of foreign matter (oil, foreign gases, etc.), and thus know the best status to fill refrigerants. VMV-1 can be used for monitoring vacuum system, leaking detection and distinguish the pump in quality.

2. Safety Instruction

- 2.1 Operation should according to this instruction and within the scope of the specified parameters.
- 2.2 Replace the batteries with new ones when the power is low. Do not mix new batteries with old batteries, and different brands of batteries are forbidden. Remove all batteries if it remains unused for a long period.
- 2.3 Do not clean the instrument with corrosive detergents or solvents
- 2.4 Wear goggles and protective gloves.
- 2.5 Tighten copper cap and stored in a dry place.

3. Instrument overview



①	1/4" Flare
②	⏻ :Power on/Off/Backlight
	UNIT:Unit selection/Add value in Set Mode
	SET: Long press the button into Alarm Set Mode
③	SAVE/CAL: Save alarm value/Full scale calibration/ Zero Calibration in Set Mode
	Display(Vacuum degree, Units and Battery capacity)
④	Battery cover (3xAA batteries)

4. Technical Parameters

Maximum Overload Pressure	72 PSI/0.5Mpa
Range	0-10000 Pa. 0~100.00 mBar. 0~75.000 mmHg. 0-75000 Micron
Resolution	0.01(<10 Pa). 0.0001(<10 mBar) 0.0001(<10mmHg). 1(<30000 Microns)
Accuracy	2~100 Pa: +5% of reading(at 20°C)
Operating Temperature	0~50℃ (32~122F)
Battery Life	45 hours (3xAA batteries)
Unit	Pa. mBar. mmHg. Microns
Refresh Rate	0.5 second
Connections	1x1/4" Flare
Sensor	1x Pirani sensor
Auto Off Time	10 minutes
Backlight Time	20 seconds
Buzzer Alarm	90 db, shut down after 10 seconds
Weight	About 125g (without batteries)
Application	Atmospheric environment (It can not be measured in the presence of refrigerants and other gas environment)

5. Operations

- 5.1 Install three "AA" batteries.
- 5.2 Long press and hold the power button ⏻ for 3 seconds to turn LCD light on. The display shows "-----" when the unit is completely warm-up.
- 5.3 Connected to system directly or via connection accessories.
- 5.4 Start the vacuum pump, the display will show ultimate pressure from high to low. Once reached the target ultimate pressure, the vacuum meter buzzing alarms and the backlight will blink simultaneously for 10 seconds.
- 5.5 Press and hold power button ⏻ for 3 seconds to turn the power off.

6. Unit Selection

Press the UNIT button to select the unit of measurement.

7. Set the Alarms

- 7.1 Press and hold "SET" button for 3 seconds to enter into Set Mode.
- 7.2 Press "SET" button to select digit position. The digit position will blinking when it is selected.
- 7.3 Press "UNIT" button to modify the blinking value.
- 7.4 Press "SAVE/CAL" button to save the set value.

8. Vacuum leak alarm

The vacuum meter will buzzing alarm when the vacuum becomes poorer until to the setting value, and the backlight will blink simultaneously.

9. Backlight

Press power button to turn the backlight on when the instrument power on. The backlight will automatically turn off after 20 seconds.

10. Auto-off

The unit is set to automatically power off without any operation for 10 minutes.

11. Full Scale Calibration

If the unit completes warm-up and the display not shows "-----", press and hold button SAVE/CAL at atmospheric pressure for 3 seconds until the display shows "-----".

12. Zero Calibration

Connect vacuum meter to vacuum system, when the vacuum level of system reaches 0.1Pa. and then press and hold button "SAVE/CAL" for 3 seconds until the display shows "0.1Pa" to complete the zero calibration.

13. Sensor cleaning

During the procedure, it is possible that the sensor is polluted by foreign matter, and then you need to clean the sensor.

Follow these instructions:

- 13.1 Turn off the vacuum gauge, and remove all the batteries.
- 13.2 Shake out the foreign matter.
- 13.3 Using an eye dropper or a syringe, fill the sensor chamber with alcohol or isopropanol. Tighten the copper cap, and then rinse the sensor chamber for 3~4 times with alcohol or isopropanol.
- 13.4 Thoroughly dry the sensor by vacuumization or at least 2 hours of air dry.

14. Battery installation

Remove battery compartment cover, install three "AA" batteries and make sure it is in the correct polarity. Attention: Remove all batteries from the instrument if it remains unused for a long period.

15. Appendix

3xAA Batteries, Connection accessories, Tee fitting, Instructions.

16. Troubleshooting

Cannot Power On	Check the battery and the polarity
Inaccurate ultimate vacuum	Check the connection if it is tight. Zero Calibration /Clean the sensor
There is vacuum degree in start-up while inaccuracy of full scale	Please full scale calibration under atmospheric environment. If the degree of fullness caused by the refrigerant is not allowed, please hold for 24 hours and then calibrate the full scale.

Vacuum Gauge Operation Manual