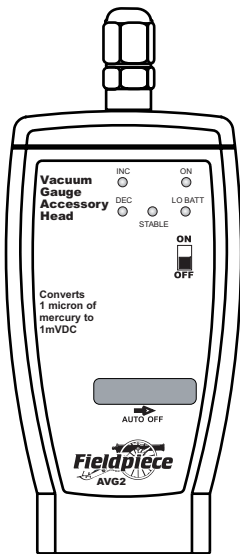


# Fieldpiece

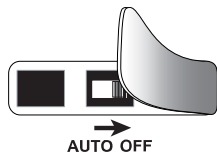
## Vacuum Gauge Accessory Head Model: AVG2



## OPERATOR'S MANUAL

### Specifications:

- Sensor:** Precision thermistor
- Fitting:** Standard 1/4" flared brass fitting (male)
- Conversion rate:** 1 mVDC/1 micron of mercury
- Range:** 50 to 2000 microns of mercury
- Resolution:** 1 micron of mercury
- Accuracy:** +/-10% or +/-10 microns, (50 to 1000 microns) @ 73°F ±9°F, <90%RH.
- Operating environment:** 32°F to 122°F @ <75%RH
- Storage environment:** -4°F to 140°F @ <80%RH with battery removed from accessory
- Pump down indication:** When pumping down from atmospheric pressure to 2000 microns, output of head goes from over 3VDC to 2VDC.
- Overload:** 500psi
- Battery:** 9V
- Battery life:** 35 to 40 hours typical (alkaline). Red LED indicates battery is below operating level.
- Auto-off:** To extend battery life, the AVG2 automatically turns off after 5 minutes when reading above 70,000 microns. The auto-off switch is located beneath the rubber covering. Use it to disable auto-off function.



### Description

The AVG2 vacuum gauge accessory head is a thermistor based digital multimeter accessory that enables most digital multimeters to digitally measure very low pressures associated with evacuating moisture from air conditioning and refrigeration systems. It measures pressures between 50 and 2000 microns of mercury.

By selecting the proper range on the DMM, you can verify that everything is properly connected and the pressure is going down from atmospheric pressure to 2000 microns.

The sensor has been designed to withstand pressures up to 500 PSI so that no damage to the AVG2 will occur if it is exposed to full system pressures.

### Applications

Measure the vacuum on a refrigeration system when evacuating refrigerant. The digital readout shows even small drops in pressure. While target vacuum pressures vary, the technician typically wants a vacuum between 300 and 400 microns for small systems and 700 for large systems.

### Precautions and troubleshooting

Before working on the system, make sure there are no leaks. A leak can make it impossible to pull the desired vacuum.

If there are no leaks, the vacuum gauge is properly connected and working, and the pump is working properly, it may just be a matter of time before the vacuum reaches the desired level. Moisture or gas pockets can cause the vacuum level to remain high until they are completely drawn out. With the DMM in the VDC position, you can see even small changes in pressure as the system pumps down.

If the vacuum gauge doesn't seem to work properly and you are sure you don't have leaks, check for contamination of the sensor.

To check the vacuum gauge and the pump, connect it directly to a refrigerant pump using a very short hose. If the pump is in good shape, you should be able to draw a vacuum down to 200 microns in a couple of minutes. If you are unable to draw the vacuum down to these levels, check for leaks and/or thoroughly clean the well of the sensor with isopropyl (rubbing) alcohol.

### How it works

Power is delivered to a thermistor which is exposed to the vacuum being tested. Molecules from the gas conduct heat from the thermistor. The fewer gas molecules there are, the less heat is taken away. The power to the resistor is adjusted to keep the temperature of the thermistor within a narrow range. The lower the power required by the resistor, the lower the pressure. The power delivered to the thermistor is measured and scaled to pressure. It is very important that the thermistor sensor be kept clean and free of oil to enable unimpeded flow of heat from the thermistor.

### LED Indicators

**INC:** When the pressure is increasing, the LED will blink at a rate relative to the rate of pressure increase.

**DEC:** When the pressure is decreasing, the LED will blink at a rate relative to the rate of pressure decrease.

**STABLE:** When the rate of change of pressure is zero, the LED will light.

**ON:** When the AVG2 is on, the LED will light.

**LO BAT:** When the batteries need replacement, the LED will light.

### Cleaning the sensor

Drip isopropyl (rubbing) alcohol into the opening of the sensor and pour it out, flushing any contaminants along with it. Leave the sensor opening uncovered long enough to completely evaporate any leftover alcohol. Do *not* use an object such as a cotton swab to clean the sensor; you may cause damage to the sensor.

### Warranty

The product is warranted to the original purchaser against defects in material or workmanship for a period of one (1) year from the date of purchase. During the warranty period, Fieldpiece Instruments will, at its option, replace or repair the defective unit.

This warranty does not apply to defects resulting from abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use of the instrument. Any implied warranty arising out of the sale of Fieldpiece's products including but not limited to implied warranties of merchantability, and fitness for purpose, are limited to the above. Fieldpiece shall not be liable for incidental or consequential damages.



### WARNING

When connecting hoses to the AVG2 vacuum gauge head, **HAND TIGHTEN ONLY!** DO NOT USE WRENCHES OF ANY KIND. Use only hoses with knurled fittings.

### How to use

1. Connect AVG2 vacuum gauge head to VOLTS/OHMS and COM jacks on meter and select mVDC. Slide onto "Stick" meter, EHD11 Electronic Handle or DL2 Data Logger. You can also connect to meters with a mVDC scale and industry standard jacks by using ADLS2 test leads or AHDL1 Adapter Handle.
2. Hand tighten your service hose from the refrigeration/AC system service port to the AVG2.
3. Your meter will readout pressure in microns of mercury. Disable auto-off for long evacuations or for data logging with the DL2.
4. To view the pressure dropping from atmospheric pressure to 2000 microns, set DMM to VDC range. Once reading is below 2.0, change range to mVDC to display pressure in microns.

### Service

Any defective AVG2 should be returned to Fieldpiece Instruments for warranty service along with proof of purchase. Call Fieldpiece for a return material authorization (RMA). For out of warranty service, send the AVG2 along with a check or money order for \$50.00 to Fieldpiece. Your AVG2 will be repaired or replaced at Fieldpiece's option.



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