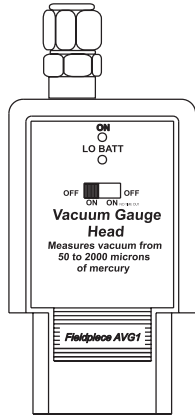


VACUUM GAUGE ACCESSORY HEAD Model AVG1

OPERATOR'S MANUAL



WARNING

When connecting hoses to the AVG1 vacuum gauge head, **HAND TIGHTEN ONLY! DO NOT USE WRENCHES OF ANY KIND.** Use only hoses with knurled fittings.

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.

Description

The AVG1 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.

Because the AVG1 connects to the end of a hose and not with an in-line "T", it is exposed to less refrigerant oil. If oil does contaminate the sensor, it is easy to drop a few drops of isopropyl (rubbing) alcohol directly into the mouth of the sensor to clean it out.

The sensor has been designed to withstand pressures up to 500 PSI so that no damage to the AVG1 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 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 levels. Moisture or gas pockets can cause the vacuum levels 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 to use

1. Connect AVG1 vacuum gauge head to VOLTS/OHMS and COM jacks on meter. Slide onto "stick" style meter or connect to most other meters using ADL2 test leads or AHDL1 adapter handle.

2. Connect AVG1 to refrigeration system. Tighten service hose on accessory head hand tight.

3. Slide switch to "ON" position. Read pressure in microns of mercury. To disable auto-off, use ON(NO TIME-OUT) position.

4. To determine pressure is 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..

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.

One Year Limited Warranty

This head is warranted to the original purchaser against defects in material and workmanship for a period of one year from the date of purchase. During the warranty period, Fieldpiece will replace or repair the defective unit, subject to verification of the defect. This warranty does not apply to defects resulting from contamination of sensors, abuse, neglect, accident, unauthorized repair, alteration, or unreasonable use.

ANY IMPLIED WARRANTIES ARISING OUT OF THE SALE OF A FIELDPIECE INSTRUMENT PRODUCT, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE ABOVE. FIELDPIECE SHALL NOT BE LIABLE FOR LOSS OF USE OF THE INSTRUMENT OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, OR ECONOMIC LOSS, OR FOR ANY CLAIM OR CLAIMS

Specifications:

Sensor: precision thermistor

Fitting: 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 (75°F): +/-10%, 200 to 700 microns of mercury; +/-25% <200 and > 700 microns. Calibrated for air.

Temperature coefficient: 2 microns/°F typical 100 to 1000 microns

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 alkaline

Battery life: 12 hours typical. Red LED indicates low battery.

Auto-off: to extend battery life, the AVG1 automatically turns off after 5 minutes at vacuums above approximately 2500 microns. The auto-off function is disabled if switch position is in ON (NO TIME OUT).

FOR SUCH DAMAGE, EXPENSES, OR ECONOMIC LOSS.

State laws vary. The above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Obtaining service

Call Fieldpiece for an RMA# and send freight prepaid to Fieldpiece.

For warranty service, include proof of purchase date. For out of warranty service, include a check or money order for \$60. We will send you a reconditioned and calibrated accessory head.



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