Mastercool® Inc.

"World Class Quality"

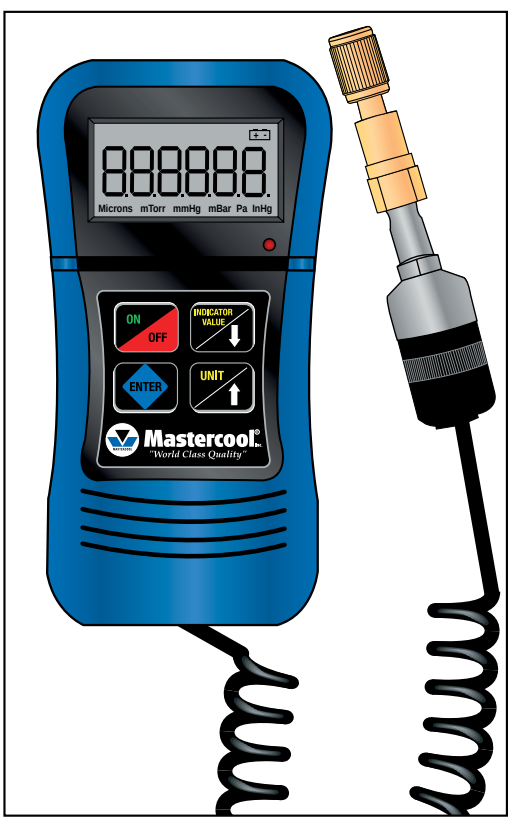
OPERATING INSTRUCTIONS

DIGITAL VACUUM GAUGE

MODEL#–98061

Instruction Manual
DIGITAL VACUUM GAUGE - 98061

Mastercool's Hand-Held Vacuum Gauge (98061) is built with a high quality thermocouple sensor and microcomputer. This unit has measurement capability ranging from atmosphere to 1 micron.



SPECIAL FEATURES

- Automatic Warm-up
- Low Battery Indicator
- Programmable Vacuum Level Light
- Replaceable Sensor
- Sensor or Cable Disconnect Indicator (displays 888888 with Red LED)
- Protective Rubber Boot for Durability
- Heavy Duty Hook folds back into unit for compact storage
- AC/DC Connector capability
- Auto-Off after 10 minutes w/ disabling capability

SPECIFICATIONS

- Response Time: 250 mSec.
- Sensor Cable: Spiral cable extended to 6.5 ft (2.6 m)
- Sensor: Thermocouple sensor
- Connection Fitting: 1/4" flare female adapter
- Operating Temperature: 32 to 120°F (0 to 45°C)
- Power: 9V DC battery (AC/DC Adapter Optional)
- Battery Life: 36 hours
- Low Battery Indicator: Special ICON on LCD
- Vacuum Units: Micron, Torr, mTorr, mmHg, mBar, Pa
- Range: 20,000 to 1 micron
- Accuracy Range*: ATM - 1000 Microns : ±10% of reading
  1000 - 100 Microns : ±7% of reading
  100 – 1 Micron : ±5% of reading

* Unit accuracy was established using a calibrated instrument with NIST traceability.

REPLACEABLE PARTS

98061-SENSOR	Sensor Assembly
98061-002	Cable and Socket Assembly
99332	1/8" NPT x 1/4" F-FL Swivel Adapter
98210-A-BAT	9V DC Battery
99334-110	110V AC/DC Adapter (optional)
99334-220	220V AC/DC Adapter (optional)
99333	1/4 FL-M x 1/4 FL-M x 1/4 FL-F Tee (optional)

BATTERY INSTALLATION

Remove the screw and battery compartment cover. Make sure to place the battery into the compartment with the correct polarity.
Replace battery cover and screw.


BATTERY COMPARTMENT

BASIC SET-UP

The microcontroller will keep these set-ups in its memory until a new setting is required.

- Press the **ON/OFF** button to turn the unit ON. The unit will warm-up by displaying 777777, 999999, 888888, ... 0000000. --------ATM will be displayed when the unit is ready.

AUTO-OFF SET-UP:

The unit is set to power off after 10 minutes. The operator can disable this function by pressing the **ENTER** button to select DISABL (disable) or ENABLE (enable). This setting will remain in the memory each time the unit is turned on.

UNIT SELECTION:

Press the **UNIT** button to select the desired unit. This UNIT will remain in the memory each time the unit is turned on.

VACUUM LEVEL TARGET SETTING:

Press the **INDICATOR VALUE** button once and then press **UNIT/↑** or **INDICATOR VALUE/↓** to select the desired target value. Press **ENTER** to confirm the setting. This setting will remain in the memory each time the unit is turned on.

OPERATIONS

- Press the **ON/OFF** button to turn the unit on. The unit will warm-up by displaying 777777, 999999, 888888, ... 0000000. --------ATM will be displayed when the unit is ready.

- Once warm-up is complete, connect the vacuum gauge to the system and start the vacuum pump. The vacuum countdown will start from atmospheric pressure (ATM) ------. Depending on the size of the system it may take some time for the numeric vacuum reading to appear on the LCD. The numbers descend from 20,000 Microns or corresponding units. Once the target level is reached and passed the indicator light will come on. If the vacuum gauge is set at ENABLE, the gauge will power off after 10 minutes. Simply press the **ON/OFF** button and allow 30 seconds for warm-up and true vacuum reading to appear.
- Press the **ON/OFF** button to turn the unit off.

IMPORTANT NOTE REGARDING VACUUM LEAK TEST:

When checking a system for leaks under high vacuum (less than 1000 microns), connect the vacuum gauge directly to the system. If additional connections are required use copper tubing (do not use rubber hoses) and high vacuum shut-off valves. Standard hoses and manifold gauge set shut-off valves may have a small amount of leakage under high vacuum.

When initiating a high vacuum test, the vacuum gauge reading may "drift" higher until the system has equalized. After this short stabilization period (5 minutes) the vacuum reading should hold steady. An upward "drift" of the vacuum gauge reading may indicate a leaking system.

WARNING!! Never stop the vacuum pump unless the vacuum gauge is disconnected from the system. Failure to do so may create a higher pressure in the system that can cause oil to enter the sensor chamber.

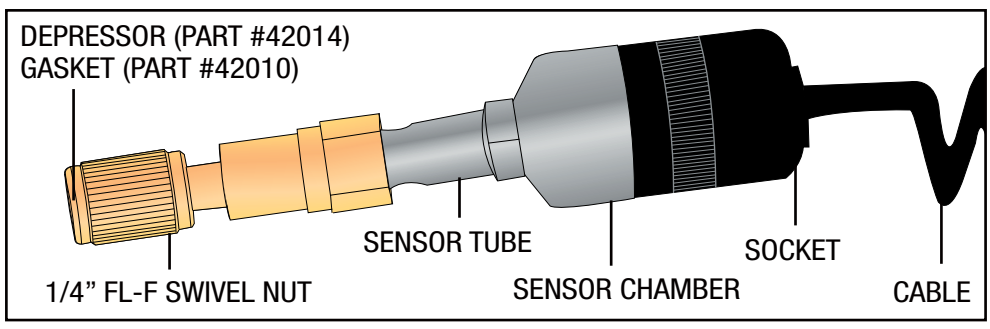
SENSOR FIELD CALIBRATION

1. Turn unit **ON** with sensor at ATM.
2. Hold **UNIT** key until CAL is displayed.
3. Within 1 second, press **ENTER**. ALL CAL will be displayed.
4. Press **ENTER** and wait until END CAL is displayed.
5. Turn unit **OFF.** Sensor is calibrated.

CLEANING THE SENSOR

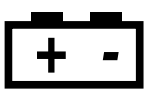
Observe the gasket after each vacuum. If oil is present, it is possible that there is a presence of oil in the sensor chamber. Follow these instructions:

1. Disconnect the sensor chamber from the socket.
2. Remove the gasket & depressor from the assembly to clean.
3. Clean the gasket. Rinse the sensor chamber with acetone. Repeat until the oil is completely removed. Allow 2 – 4 hours for all of the parts to dry and evaporate.
4. Reassemble all of the parts and check the unit.



TROUBLESHOOTING

Low Battery Indicator:



A special icon will appear in the upper right hand corner of the LCD when the battery must be replaced.

No Display:

Check the battery and polarity.

888888:

888888 is a sign of an interrupted connection between the sensor assembly/cable or damaged sensor filament. Check for loose connections. If 888888 is still showing please contact the factory for assistance.

WARNINGS

Wear Safety Glasses. Wear Gloves.
Keep in a dry place.
Do not allow moisture to enter the unit.