

## MIN-MAX VOLTMETER INSTALLATION INSTRUCTIONS

The AV121R-912 Averaging Min Max Recording Voltmeter is designed to directly replace socket mount thermal Voltmeters. The stable, accurate, digitally calibrated (no mechanical adjustments) circuitry requires no calibration under normal usage, and provides high resolution data to accurately monitor a system. When used in a simple front panel only mode, the Minimum, Maximum, and number of Outages since last reset can be displayed. When used with the **FREE DEMICOMM™** interface software, your portable computer can download one minute resolution timestamped data, including 13 months of timestamped Minimums, Maximums, and the beginning and ending of the last 120 Outages. For more information see the DEMICOMM™ Interface Software User's Guide.

### 1. Mechanical Requirements

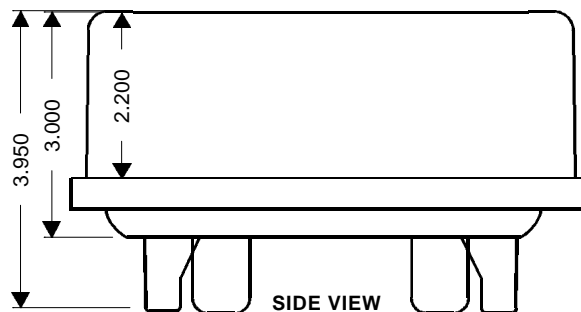
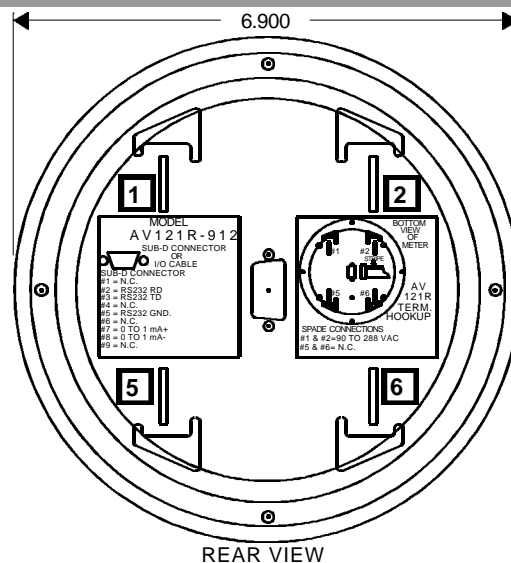
a. The meter is designed to fit into a standard meter socket.

### 2. Wiring Requirements

a. The meter is powered from the Voltage source it monitors (< 2 VA). The Voltage source should be connected to the top two terminals labeled 1 and 2. The neutral can be connected to either terminal 1 or 2 if monitoring 120 to neutral. The wide input range of 90 to 290 Vac allows the meter to be used on single phase 120 or 240 Vac sources. The bottom two terminals, 5 and 6, are not connected internally. Backup power for the Real Time Clock is stored on a very large valued capacitor inside the meter. The Clock will run for several weeks from a fully charged capacitor. Up to 8 hours of normal operation is required to fully charge the capacitor. A 1 hour charge will keep the correct time for a day. RS-232 communications is standard on all AV121R meters. The meter has a small stainless steel cover on the rear which protects the communications/SCADA output connector. A 12 inch interface cable is provided with each meter. See the DEMICOMM™ Software Interface Users Guide for installation instructions.

### 3. Setup And Operating Procedures For Front Panel Operation

If a computer is not available for setting up the



meter, the following set up options should be specified when ordering the meters:

(1) Specify if the 0 to 1 mA output (if ordered) should be proportional to the "AVERAGE" or "INSTANTANEOUS".

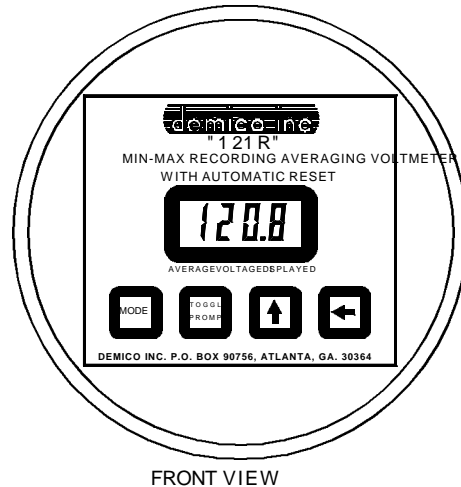
(2) Specify if the "Reset" should be Automatic at the end of each month, or Front Panel. The default from the factory is Front Panel Reset only.

Each time the meter is powered up, a "PU" will appear on the display momentarily. If the source voltage is less than 90 Vac, then the "PU" will remain until the source Voltage is greater than 90 Vac. Then the present Average Voltage will appear. This is **Display Mode "0"**. The AV121R has 9 display modes which are used to display data and set up the meter. The meter will automatically return to Display Mode "0" from any other mode by stepping through the remaining modes starting 60 seconds after pressing the last front panel switch. The normal

operation of the meter continues to operate in the background while in any mode. Four Front Panel Pushbuttons control the modes and setup. Each display mode has a corresponding alphanumeric prompt, which can be displayed at any time by pressing the “**TOGGLE PROMPT**” pushbutton. Pressing “**TOGGLE PROMPT**” while in normal operation will display a “**0-A**” for **Display Mode “0”** and Average Voltage.

### Front Panel Setup Functions

1. Press “**MODE**” one time and the meter momentarily displays “**1-In**” for **Display Mode “1”** and Instantaneous Voltage. Then the value of the present Instantaneous Voltage appears.
2. Press “**MODE**” one time and the meter momentarily displays “**2-P**” for **Display Mode “2”** and Peak Voltage. Then the value of the Peak Voltage since the last reset appears. Press **↑** once and the meter will display “**L-P**” (Last Peak) momentarily and then the Peak Voltage value before the last reset will appear.
3. Press “**MODE**” again while in **Display Mode “2”** and the meter momentarily displays “**3-L**” for **Display Mode “3”** and Low Voltage. Then the Low Voltage value since the last reset appears. Press **↑** once and the meter will display “**L-L**” (Last Low) momentarily and the Low Voltage value before the last reset will appear.
4. Press “**MODE**” again while in **Display Mode “3”** and the meter momentarily displays “**4-Pu**” for **Display Mode “4”** and Power ups. Then the number of outages since the last reset appears. Press **↑** once and the meter will display “**L-Pu**” (Last Power up) momentarily and the number of power ups before the last reset will appear.
5. Press “**MODE**” again while in mode 4 and the left display reads “**5-rE**” for **Display Mode “5”** and rEset. If the meter is set up through the computer software for automatic reset only, the meter cannot be reset from the front panel. When front panel reset is enabled, press **←** to reset the meter. After the meter is reset, “**donE**” appears momentarily before returning to **Display Mode “0”**. The Reset mode has a second function that allows the “set up parameters” and the “reset” function to be locked so that they can be displayed but not inadvertently changed. To lock or unlock these parameters, press and hold **↑** and then press “**MODE**”. The display returns to **Display Mode “0”** immediately but with the Front Panel Lock enabled. This function can be reversed



- by repeating the operation.
6. Press “**MODE**” again while in **Display Mode “5”** and the meter momentarily displays “**6-Co**” for **Display Mode “6”** and Time Constant. Then the present Time Constant appears. At this time the Time Constant can be changed by pressing **←** to select the digit to change. The selection is made by pressing **←** and observing the decimal points move as the switch is pressed. The right digit is selected when the decimal is to the left of the digit, the two center digits are each selected when there is a decimal on each side of a digit and the left digit is selected when the decimal is to the right of the digit. When the digit you wish to change is selected, press **↑** until the desired number is present. Press “**MODE**” to store the new Time Constant and display the next mode.
  7. Press “**MODE**” again while in **Display Mode “6”** and the meter momentarily displays “**7-nu**” for **Display Mode “7”** and Meter Identification number which is assigned by the owner and can be used for identifying data downloaded through a computer or from manual front panel readings. Then the present Meter Number appears, and can be changed in the same manner as outlined in #6.
  8. Press “**MODE**” again while in **Display Mode “7”** and the meter momentarily displays “**8-CL**” for **Display Mode “8”** and CLock. Then the present 24 hour clock setting (hh:mm) appears, and can be changed in the same manner as outlined in #6.
  9. Press the mode switch again while in **Display Mode “8”** and the meter momentarily displays “**9-dA**” for **Display Mode “9”** and dAte. Then the present date (mmdd) appears, and can be changed in the same manner as outlined in #6. Pressing “**MODE**” again returns to **Display Mode**