1. INTRODUCTION
This Digital Multimeter (VOT, model M7) is a compact precision, battery operated instrument with 3 1/2 digits LCD display.
Features:
- High accuracy: see each function for details;
- Icon display: shows what functions is at test
- Large LCD display: height 22mm
- Single 30 position rotary switch for FUNCTIONS and RANGE selection, allows fast and convenient operation.
- Color jacks with fully protection test leads.
- Lower overrange power Auto-Power Off
- Soft carrying case.

2. GENERAL SPECIFICATION
1) Display: 3 1/2 digits LCD with a maximum reading of 1999.
3) Over range indication: only "II" is displayed at the left side digit.
4) Automatic polarity indication.
5) The icon "%" is displayed when the battery voltage drops below the
operating voltage.
6) Full range over load protection.
7) Capacitance measurement Auto-Zeroing.
8) Auto Power Off: It will be automatically turned off after idling for 15
minutes. It needs to be turned off and back on again to continue
the operation.
9) Operating temperature: 0°C~40°C(104°F), 0~85% R.H.
Storage temperature: -10°C~50°C(122°F), 0~85% R.H.
10) Power: Single standard 9V battery IEC 6F22.NEDA 1604, JS 006P.
11) Dimensions: 176L*88W*38Hm.
12) Weight: approx. 310g (including battery).
13) Accessories: test leads (pair), spare fuse 0.5A (inside case), K-type
thermocouple, operation manual.

3. ELECTRICAL SPECIFICATIONS
Accuracy is given as ± (% of reading + number) for one year, at
23°C±5°C RH±75% 1) DCV

<table>
<thead>
<tr>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>500V</td>
<td>±0.5%+1</td>
</tr>
<tr>
<td>250V</td>
<td>±0.5%+2</td>
</tr>
<tr>
<td>20V</td>
<td>±0.5%+3</td>
</tr>
</tbody>
</table>

7) TEMPERATURE MEASUREMENT (With K-type thermocouple)

<table>
<thead>
<tr>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40°C</td>
<td>±0.8%+3</td>
</tr>
<tr>
<td>100°C</td>
<td>±0.8%+3</td>
</tr>
</tbody>
</table>

8) FREQUENCY MEASUREMENT

<table>
<thead>
<tr>
<th>Range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2kHz</td>
<td>±1.5%+10</td>
</tr>
</tbody>
</table>

4. PRECAUTIONS AND PREPARATIONS FOR MEASUREMENT
1) Be sure that battery is correctly placed in the battery compartment
and the cover is snapped in.
2) Input limit shown below:

<table>
<thead>
<tr>
<th>Function Range</th>
<th>Input terminals</th>
<th>Maximum input</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC 2~100V</td>
<td>V/DMM COM</td>
<td>200VDC</td>
</tr>
<tr>
<td>AC 2~700V</td>
<td>V/DMM COM</td>
<td>750VAC</td>
</tr>
<tr>
<td>DC 1000V</td>
<td>V/DMM COM</td>
<td>1000VDC</td>
</tr>
<tr>
<td>AC 7000V</td>
<td>V/DMM COM</td>
<td>7000VAC</td>
</tr>
<tr>
<td>DCA 50mA</td>
<td>V/DMM COM</td>
<td>50mA DC/AC</td>
</tr>
<tr>
<td>DCA 20mA</td>
<td>V/DMM COM</td>
<td>20mA DC/AC</td>
</tr>
<tr>
<td>DCA &amp; ACA 25mA</td>
<td>25mA COM</td>
<td>25mA DC/AC</td>
</tr>
<tr>
<td>ACA 200mA</td>
<td>A COM</td>
<td>200mA DC/AC</td>
</tr>
</tbody>
</table>

3) Inspect the test leads for damaged insulation or exposed metal.
Check test lead continuity. Damaged leads should be removed.
4) Select the proper function and range for your measurement.
5) Check the input terminal position for red test lead depends on
measurement ranges.
6) Both test leads should be disconnected from the circuit under test
when changing the test ranges.
7) To avoid electrical shock or damage to the meter, do not apply more
than 500V between any terminal and earth ground.
8) To avoid electrical shock, take caution when working on circuit above

5. METHOD OF MEASUREMENT
5.1 DCV & ACV MEASUREMENT
1) Set the Function range switch at the required position.
2) Connect black test lead to "COM" input and red test lead to the
"VOHM" input terminal.
3) Connect test leads to measuring points. The voltage is displayed.
4) Negative polarity of the red lead is indicated by a "-" sign.
Note:
   a) If the voltage to be measured is unknown before the test, set the
      Function range to the highest and work down ward.
   b) When only the "1" is displayed, over range is detected and the
      function range switch should be set to a higher range.
   c) Never try to measure the voltage above 1000V! Although the
      indication is possible to show, there is a danger of damaging
      the internal circuitry.

5.2 DCA & ACA MEASUREMENT
1) Connect the black test lead to the "COM" terminal and the red test
   lead to "A" terminal for a maximum of 0.5A.
2) Set the Function range switch at the required position.
3) Connect test leads to measuring points and read the display value.
   The polarity at the red test lead connection will be indicated at the
   same time as the display is on.
   Note:
   a) If the current range is unknown beforehand, set the function
      range switch to the highest range and work down ward.
   b) When only the "1" is displayed at the left side, it indicates an
      over range and the function range switch should be set to a higher
      range.
5.6 TRANSISTOR HFE TEST
1) Set the function range switch to the "HFE" position.
2) Make sure the transistor is "NPN" or "PNP" type.
3) Insert transistor legs correctly in E.B.C. connector.
4) Display reading is approx. transistor HFE value.

Note:
Test condition: Base current approx. 10µA, Vcb approx. 2.8V

6. BATTERY AND FUSE REPLACEMENT
1) Battery and fuse replacement should only be done after the test leads have been disconnected and power is turned off.
2) Loosen screws with suitable screwdriver and remove the battery compartment cover (back bottom).
3) The meter is powered by a single 9V battery (IEC 6F22, NEDA 1604, JIS 006P).
4) Snap the battery connector leads to the terminals of a new battery and reinsert the new battery into the case top. Organize the battery wire so that they will not be pinched between the case bottom and case top.
5) The meter is protected by fast action fuse, 0.5A/250V, dimensions is 0.5 x 20mm.
6) Replace the case bottom and reinstall the three screws. Never operate the meter unless the case bottom is fully closed.

WARRANTY
Warrants this instrument to be free from defects in material and workmanship for a period of one year. Any instrument found defective within one year from the delivery date can be returned to the dealer with transportation charges prepaid. We will replace it at no charge to the original purchaser. This warranty does not cover expendable items such as batteries or fuses. If the defect has been caused by a misuse or abnormal operation conditions, the repair cost will be billed to the buyer. Contact the North American dealer at www.trade777.com/VIOT.

3 1/2 VIOT MULTIMETER
FOR: 
M7

OPERATIONAL MANUAL

5.3 RESISTANCE MEASUREMENT
1) Connect black test lead to "COM" terminal and red test lead to the "V/OHM" input terminal.
2) Set the function range switch to the OHM range.
3) Connect the test leads across the resistance under measurement and read the display value.

Note:
- The polarity of the red test lead is "+".
- When the input is not connected, i.e. at open circuit, the figure "1" will be displayed for the over range condition.
- If the resistance value being measured exceeds the maximum value of the range selected, an over range indication "1" will be displayed at the left and function range switch should be set to a higher range.
- 200MΩ range has a 10 digits (1MD) constant, the figure will appear in short circuit status, and it should be subtracted from measurement result, for instance: when measuring 100MΩ, the 10 digits constant resistor, figure 100.0Ω will be shown in display and the last 10 digits should be subtracted.

5.4 CAPACITANCE MEASUREMENT
WARNING: The capacitor should be discharged before the testing. Never apply voltage to the "Cx" input socket, or serious damage may result.
1) Set the function range switch to the "Cx" position. Before connecting the capacitor, the display could be zeroed automatically slow.
2) Connect the test capacitor to the "Cx" input socket (not test leads) and read the display value.

5.5 FREQUENCY MEASUREMENT
1) Set the function range switch at the required "Hz" position.
2) Connect test leads to measuring points and read the display value.

5.6 TEMPERATURE MEASUREMENT
1) Set the function range switch at the "TEMP" position.
2) Note the polarity of the K Type plug of the thermocouple when inserting it in the TEMP port.
3) Leave or fasten the thermocouple sensor end (testing end) on or inside the subject being tested.
4) The value of the temperature is shown on the display in degrees C (°C).

Note:
- The testing temperature is displayed automatically when the thermocouple is inserted into the TEMP port.
- The surrounding temperature is shown when the circuit of the sensor is unplugged.
- The temperature limit is 482°F, 252°C is acceptable within a short period.
- Take caution not to damage the sensor tip at any time.

5.7 DIODE & CONTINUITY TEST
1) Set the function range switch at the "V-Ω-F" position.
2) Connect the black test lead to the "COM" terminal and red test lead to "V/OHM" input terminal. (Note: the polarity of the red test lead is "-").
3) This range with "AUDIBLE CONTINUITY TEST" function. Built-in buzzer sounds if the resistance between two probes is less than 30Ω.
4) Connect the test leads across the diode and read the display value.

Note:
- When the input is not connected, i.e. at open circuit, "1" will be displayed at the left on LCD.
- Test condition: Forward DC current approx.1mA, Reversed DC voltage approx. 28V.
- The meter displays the forward voltage drop and displays figure "1" for overload when the diode is reversed.