

# 1. Meter Functions

The ATV-25 provides metering functions for DC Volts, AC Volts, Ohms, and Opens. These meters are located on the <Idle> screen.

ⓘ The <Idle> screen is displayed when the ATV-25 is first turned on. It can be displayed at any time by pressing the [CLR] key.

## 1.1 DC Voltmeter

The DC Voltmeter continuously measures the DC voltage TR, TG, and RG on the selected pair. The ATV-25 places a small ■ symbol in the upper left corner of the value box each time the reading is updated.

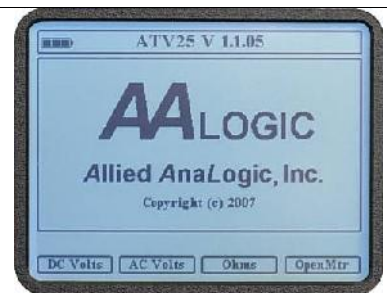
Refer **Error! Reference source not found. Error! Reference source not found.** for information on changing the selected pair.

### 1.1.1 DC Voltmeter Step-by-Step

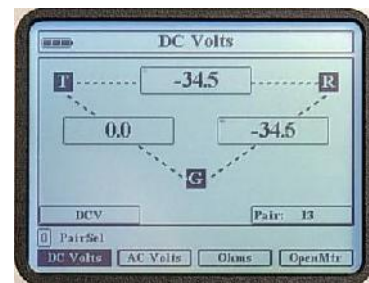
Press [CLR] if necessary to get to the <Idle> screen then press [F1] DC Volts.

The readings are continuous and will update as a new pair is selected or the PRO cord, if used, is moved to another pair.

☑ Tip to Ground and Ring to Ground measurements will be 0 VDC or incorrect if the ATV-25 ground cord is not connected or if the cable ground/cable sheath is faulty.



ATV-25 <Idle> Screen.



The DC Voltmeter. The readings indicate -34.5VDC TR, 0VDC TG, and -34.5VDC RG.

## 1.2 AC Voltmeter

The AC Voltmeter continuously measures the AC voltage TR, TG, and RG on the selected pair. The ATV-25 places a small ■ symbol in the upper left corner of the value box each time the reading is updated.

Refer **Error! Reference source not found. Error! Reference source not found.** for information on changing the selected pair.

The ATV-25 has two measurement modes for AC Volts. RMS is the default mode and measures larger AC voltages. The dBm mode increases the AC Voltmeter sensitivity and displays the measurements in dBm (decibels, milliwatt reference). The dBm mode is useful when measuring noise and other small voltages in real-time.

### 1.2.1 AC Voltmeter Step-by-Step

Press [CLR] if necessary to get to the <Idle> screen then press [F2] AC Volts.

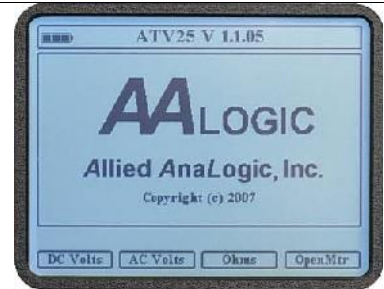
The readings are continuous and will update as a new pair is selected or the PRO cord is moved to another pair.

The [7] Mode key toggles the meter from RMS between dBm. The selected mode is displayed in the lower left corner of the information region of the screen.

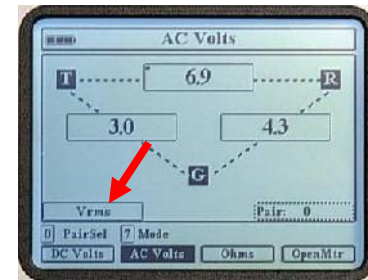
ⓘ Expect some varying readings when the ATV-25 AC Voltmeter is in dBm mode and no pair or the ground cord are connected. This is normal.

☑ All measurements may be affected if the ATV-25 ground cord is not connected or if the cable ground/sheath is defective.

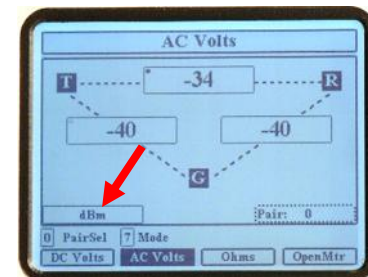
☑ dBm readings can be converted to dBm by adding 90 to the value. For example, -40dBm is equal to 50dBm.



ATV-25 <Idle> Screen.



The AC Voltmeter in RMS mode. The readings indicate 6.9Vrms TR, 3.0Vrms TG, and 4.3Vrms RG.



The AC Voltmeter in dBm mode. The readings indicate -34dBm TR, and -40dBm TG and RG.

### 1.3 Ohmmeter

The Ohmmeter continuously measures the resistance from TR, TG, and RG on the selected pair. The ATV-25 places a small ■ symbol in the upper left corner of the value box each time the reading is updated.

Refer **Error! Reference source not found. Error! Reference source not found.** for information on changing the selected pair.

The ATV-25 ohmmeter is a unique, dual-function meter. The display will indicate resistance in ohms or DC Voltage if present. Each of the measurements (TR, TG, and RG) is independent and will indicate Ohms or DC Volts when the voltage is  $\pm 2\text{VDC}$ .

Real-time ohms to distance conversions are provided for standard wire gauges of 19, 22, 24, and 26. The length is estimated based on the ohms measurement and not compensated for temperature. Further testing may be required for precise fault location, especially for buried faults.

#### 1.3.1 Ohmmeter Step-by-Step

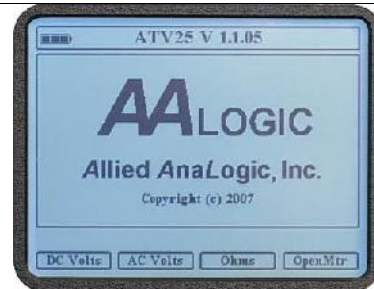
Press [CLR] if necessary to get to the <Idle> screen then press [F3] Ohms – The readings are continuous and will update as a new pair is selected or the PRO cord, if used, is moved to another pair.

Readings are in Ohms, Kilohms, or Megohms. The ■ is the symbol for Ohms.

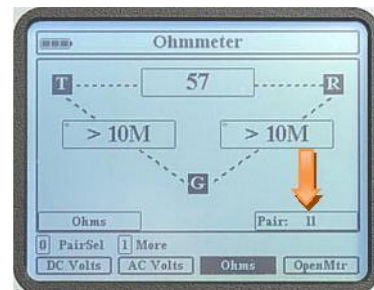
Reading	Value
586	586
5.86 k	5,860
5.86 M	5,860,000

Tip to Ground and Ring to Ground measurements are affected if the ATV-25 ground cord is not connected or if the cable ground/sheath is faulty.

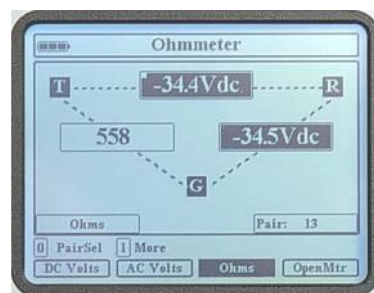
DC Voltage measurements are indicated with a black background. This highlights the values and alerts the user to non-resistive results.



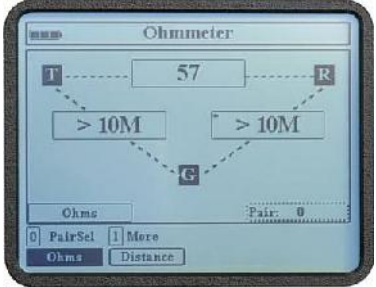
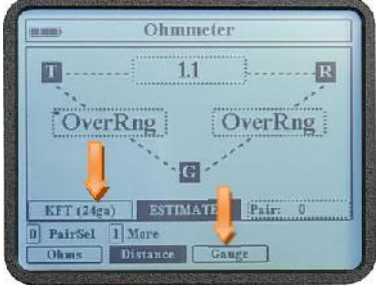

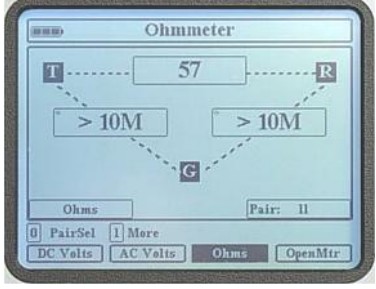
ATV-25 <Idle> Screen.



Ohmmeter indicating a 57 ohm short on pair 11.



These readings indicate -35.4VDC TR, 558  $\Omega$  TG, and -34.5VDC RG on pair 13.

<p>Press <b>[1] More</b> – The meter toggles to the distance conversion screen. The readings are continuous and will update if the resistance changes or a pair is changed.</p>	 <p>The Ohmmeter <b>[1] More</b> screen. The reading indicates a 57 ohm short.</p>
<p>Press <b>[F2] Distance</b> – The readings are converted to distance for the selected wire gauge. All values are converted to distance. <b>OverRng</b> is displayed for any readings that exceed the maximum distance for conversion.</p> <p>The default wire gauge is 24ga. The gauge is changed by pressing <b>[F3] Gauge</b>. The <b>[F1] Ohms</b> key can be pressed to toggle back to the Ohms readings.</p> <p>Distance readings are in KFT, or thousands of feet. A reading of 1.1 = 1,100 feet</p> <p>Note the display indicates the distance is an estimated value.</p>	 <p>The ohmmeter is converting a 57 ohm short measurement to distance. The indicated distance is 1.1KFT (1,100 feet) at 24ga.</p>
<p>Press <b>[F3] Gauge</b> three times – The gauge is now changed to 26ga wire. The gauge is changed for each press of the <b>[F3] Gauge</b> key.</p>	 <p>The 57 ohm short reading is now 0.7KFT (700 feet) at 26ga.</p>
<p>Press <b>[1] More</b> – The meter toggles back to the main Ohmmeter screen.</p> <p>Press any jump key or function key to select a new feature.</p>	

## 1.4 Open Meter

The Open Meter continuously measures the capacitive distance for TR, TG, and RG on the selected pair. The maximum Open Meter distance is approximately 125,000 feet. The ATV-25 places a small ■ symbol in the upper left corner of the value box each time the reading is updated.

Refer **Error! Reference source not found.** for information on changing the selected pair.

The ATV-25 Open Meter is a unique, three-function meter. The display indicates Open distance, Resistance, or DC Voltage if present. Each of the measurements; TR, TG, and RG; is independent and will indicate KFT (1,000s feet), Ohms (less than 500K ), or DC Volts ( ±2V) as appropriate.

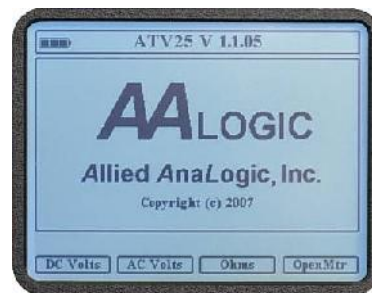
The Open Meter is a capacitance meter that displays the value in feet. The distance is based on a standard TR capacitance of .083µf per mile of cable. The TG and RG values are based on .124µf per mile of cable. The capacitive variance, TR for cable is typically 3% of the measured value.

Capacitance to ground measurements are sensitive to problems with sheath continuity (bonding) and grounding. Ground and bond problems should be suspected if Open meter readings are inconsistent or not stable (readings fluctuate).

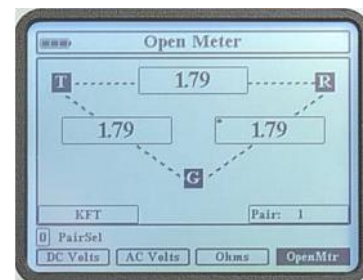
### 1.4.1 Open Meter Step-by-Step

Press [CLR] if necessary to get to the <Idle> screen then press [F4] **OpenMtr** – The readings are continuous and will update as a new pair is selected or the PRO cord is moved to another pair.

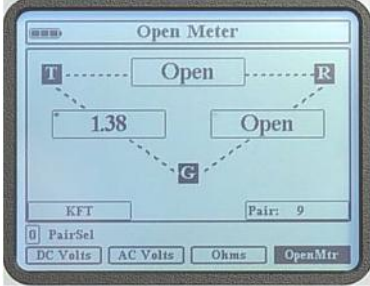
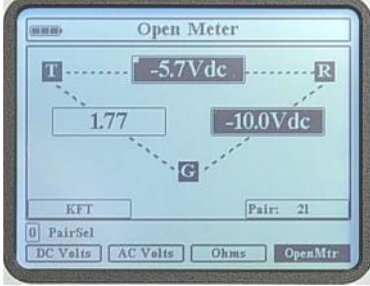
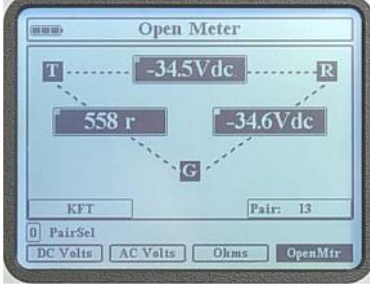
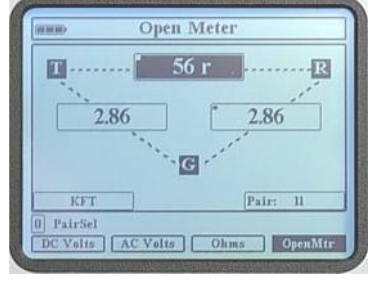
All measurements may be affected if the ATV-25 ground cord is not connected or if the cable ground/cable sheath is faulty.



ATV-25 <Idle> Screen.



The reading is a typical vacant cable pair the indicated length is 1.79KFT (1,790 feet). The pair is balanced as indicated by the matching TG and RG readings. The selected pair is pair 1.

	 <p>These readings indicate a Ring open condition on pair 9. The <b>Open</b> message indicates that the reading is less than the minimum value of approximately 30 feet.</p>
<p>The ATV-25 Open Meter is capable of displaying open distance, resistance, and DC voltage simultaneously. This is a time saver in that a complete picture of the pair status can be viewed without switching to various meters.</p> <p>Voltage is displayed if the measured voltage is <math>\pm 2\text{VDC}</math>.</p>	 <p>Open meter indicating capacitive distance TG and DC voltages TR and RG.</p>
<p>The Open Meter can be the first meter mode chosen when beginning to test a cable pair. The tri-mode feature permits the user to perform voltage, resistance, and capacitive measurements in a single meter mode.</p>	 <p>Line voltage is indicated TR and RG. A TG resistance of 558 .</p>
<p>Any non-capacitive measurements are indicated with a black background. This highlights the values and alerts the user to non-capacitive results.</p> <p>A shorted pair with 56 TR and open indications of 2,860 feet TG and RG.</p>	

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