



## Performance Tool W1714 Digital Multimeter Owner's Manual

[Home](#) » [Performance Tool](#) » Performance Tool W1714 Digital Multimeter Owner's Manual 

### Contents

- [1 Performance Tool W1714 Digital Multimeter](#)
- [2 GENERAL SPECIFICATIONS](#)
- [3 TECHNICAL SPECIFICATIONS](#)
  - [3.1 OPERATING INSTRUCTIONS](#)
  - [3.2 BATTERY AND FUSE REPLACEMENT](#)
  - [3.3 ACCESSORIES](#)
  - [3.4 1 YEAR LIMITED WARRANTY](#)
- [4 Documents / Resources](#)
- [5 Related Posts](#)



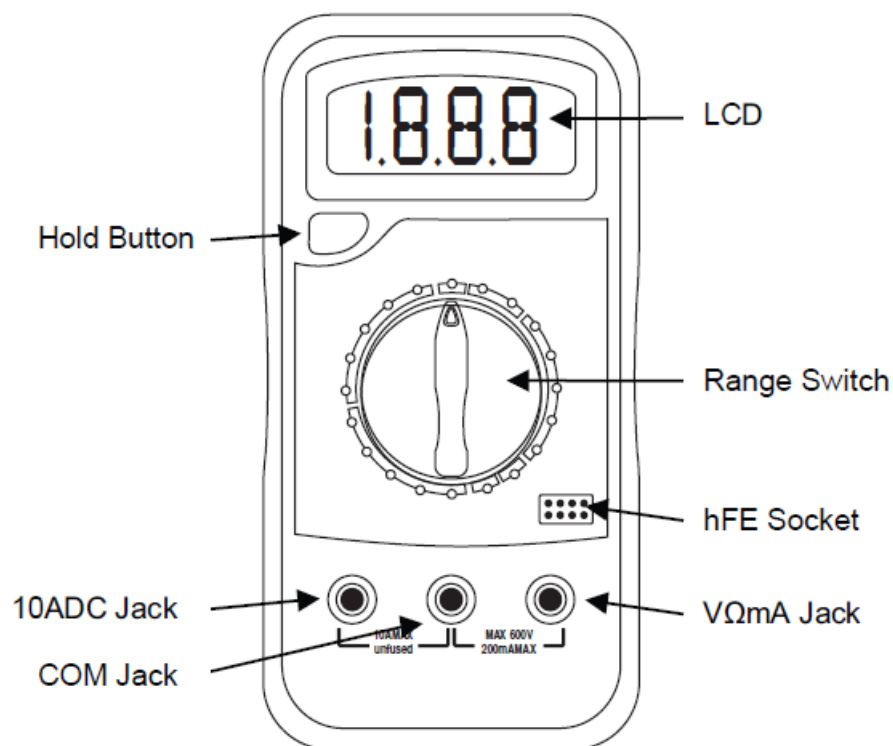
**Performance Tool W1714 Digital Multimeter**



On occasion, after printing of our literature is completed, our manufacturers may make changes and/or modifications to merchandise which will not be reflected in this manual. Although we strive to maintain complete and accurate information, it is possible in some instances, that the product may differ slightly from printed specifications. Illustrations are intended for reference only. Actual merchandise may vary. Wilmar is not responsible for typographical errors.

## GENERAL SPECIFICATIONS

- **Max display:** LCD 3 ½ digits (1999 count) 0.6" high
- **Polarity:** Automatic, indicated minus, assumed plus.
- **Measure method:** double integral A/D switch implement
- **Sampling speed:** 2 times per second
- **Over-load indication:** "1" is displayed
- **Operating Environment:** 0°C~40°C, at <80%RH
- **Storage Environment:** -10°C~50°C, at <85%RH
- **Power:** 9V NEDA 1604 or 6F22
- **Low battery indication:** " "
- **Static electricity:** about 4mA
- **Product Size:** 5.3 x 2.6 x 1.3 in. (135 x 67 x 33mm)
- **Product net weight:** 5.1 oz. (145g) including battery



## TECHNICAL SPECIFICATIONS

Accuracies are guaranteed for 1 year, 23°C±5°C, less than 80%RH

### DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200mV	100uV	±(0.5% of rdg + 3D)
2V	1mV	±(0.8% of rdg + 5D)
20V	10mV	
200V	100mV	
600V	1V	±(1.0% of rdg + 5D)

OVERLOAD PROTECTION: 220V rms AC for 200mV range and 600V DC or 600V rms for all ranges.

### AC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200V	100mV	±(2.0% of rdg +10D)
600V	1V	

- **RESPONSE**: Average responding, calibrated in rms of a sine wave.
- **FREQUENCY RANGE**: 45Hz ~ 450Hz
- **OVERLOAD PROTECTION**: 600V DC or 600V rms for all ranges.

## DC ELECTRIC CURRENT

RANGE	RESOLUTION	ACCURACY
200uA	100nA	$\pm(1.8\% \text{ of rdg} + 2D)$
2mA	1uA	
20mA	10uA	
200mA	100uA	$\pm(2.0\% \text{ of rdg} + 2D)$
10A	10mA	$\pm(2.0\% \text{ of rdg} + 10D)$

OVERLOAD PROTECTION: 500mA/250V fuse (10A range unfused). MEASURING VOLTAGE DROP: 200mV

## RESISTANCE

RANGE	RESOLUTION	ACCURACY
200 $\Omega$	0.1 $\Omega$	$\pm(1.0\% \text{ of rdg} + 10D)$
2K $\Omega$	1 $\Omega$	$\pm(1.0\% \text{ of rdg} + 4D)$
20K $\Omega$	10 $\Omega$	
200K $\Omega$	100 $\Omega$	
2M $\Omega$	1K $\Omega$	

- **MAXIMUM OPEN CIRCUIT VOLTAGE:** 3V.
- **OVERLOAD PROTECTION:** 15 seconds maximum 220Vrms.

### WARNING!

To avoid possible electric shock or personal injury, and to avoid possible damage to the Meter or to the equipment under test, adhere to the following rules:

- Before using the Meter inspect the case. Do not use the Meter if it is damaged or the case (or part of the case) is removed. Look for cracks or missing plastic. Pay attention to the insulation around the connectors.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity.
- Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal & grounding.
- The rotary switch should be placed in the right position & no any changeover of range shall be made during measurement is conducted to prevent damage of the Meter.
- When the Meter working at an effective voltage over 60V in DC or 30V rms in AC, special care should be taken for there is danger of electric shock.
- Use the proper terminals, function, & range for your measurements.
- Do not use or store the Meter in an environment of high temperature, humidity, explosive, inflammable & strong magnetic field. The performance of the Meter may deteriorate after dampened.

- When using the test leads, keep your fingers behind the finger guards.
- Disconnect circuit power & discharge all high-voltage capacitors before testing resistance, continuity, diodes or hFE.
- Replace the battery as soon as the battery indicator appears. With a low battery, the Meter might produce false readings that can lead to electric shock and personal injury.
- Remove the connection between the testing leads and the circuit being tested, & turn the Meter power off before opening the Meter case.
- When servicing the Meter, use only the same model number or identical electrical specifications replacement parts.
- The internal circuit of the Meter shall not be altered at will to avoid damage of the Meter & any accident.
- Soft cloth & mild detergent should be used to clean the surface of the Meter when servicing. No abrasive & solvent should be used to prevent the surface of the Meter from corrosion, damage & accident.
- The Meter is suitable for indoor use.
- Turn the Meter power off when it is not in use & take out the battery when not using for a long time. Constantly check the battery as it may leak when it has been using for some time, replace the battery as soon as leaking appears. A leaking battery will damage the Meter.

## **OPERATING INSTRUCTIONS**

### **DC & AC VOLTAGE MEASUREMENT**

1. Set RANGE switch to desired VOLTAGE position, if the voltage to be measured is not known beforehand, set switch to the highest range and reduce it until satisfactory reading is obtained.
2. Connect test leads to device or circuit being measured.
3. Turn on power of the device or circuit being measured voltage value will appear on Digital Display along with the voltage polarity.

### **DC CURRENT MEASUREMENT**

1. RANGE switch to desired DCA position.
2. Open the circuit to be measured, and connect test leads IN SERIES with the load in which current is to measure.
3. Read current value on Digital Display.
4. Additionally, "10A" function is designed for intermittent use only. Maximum contact time of the test leads with the circuit is 15 seconds, with a minimum intermission time of seconds between tests.

### **RESISTANCE MEASUREMENT**

1. RANGE switch to desired OHM position.
2. If the resistance being measured is connected to a circuit, turn off power and discharge all capacitors before measurement.
3. Connect test leads to circuit being measured.
4. Read resistance value on Digital Display.

### **DIODE MEASUREMENT**

1. RANGE switch to “+” position.
2. Connect the red test lead to the anode of the diode to be measured and black test lead to cathode.
3. The forward voltage drop in mV will be displayed. If the diode is reversed, figure “1” will be shown.

## **TRANSISTOR hFE MEASUREMENT**

1. RANGE switch to the hFE position.
2. Determine whether the transistor is PNP or NPN type and locate the Emitter, Base and Collector leads. Insert the leads into the proper holes of the hFE Socket on the front panel.
3. The meter will display the approximate hFE value at the condition of base current 10A and VCE2.8V.

## **BATTERY AND FUSE REPLACEMENT**

Fuse rarely need replacement and blow almost always as a result of operator error. If appears in display, it indicates that the battery should be replaced. To replace battery & Fuse (500mA/250V) remove the 3 screws in the bottom of the case, simply remove the old, & replace with a new one. Be careful to observe polarity.

## **ACCESSORIES**

Operator's instruction manual Set of test leads 9-volt battery

## **1 YEAR LIMITED WARRANTY**

PERFORMANCE TOOL® extends only the following warranties, and only to original retail purchasers. These warranties givespecific legal rights. Except where prohibited by local law, the law of the State of Washington governs all warranties and all exclusions and limitations of warranties and remedies. There may be other rights which vary from state to state. PERFORMANCE TOOL® warrants the product to be free from defects in materials and workmanship under normal use and service. A defective product may be returned for a free replacement within 90 days from the date of purchase, provided that product is returned to place of purchase immediately after discovery of defect. After 90 days and up to one year from date of purchase, PERFORMANCE TOOL® will replace at no charge any parts which our examination shall disclose to be defective and under warranty.

These warranties shall be valid only when a sales receipt showing the date of purchase accompanies the defective product or defective part(s) being returned. For part(s) after 90 days, please remit your request, postage prepaid to: PERFORMANCE TOOL, P.O. Box 88259 Tukwila, WA 98138 These warranties exclude blades, bits, punches, dies, bulbs, fuses, hoses, and other consumables which must be replaced under normal use and service. These warranties shall not apply to any product or part which is used for a purpose for which it is not designed, or which has been repaired or altered in any way so as to affect adversely its performance or reliability, nor shall these warranties apply to any product or part which has been subject to misuse, neglect, accident or wear and tear incident to normal use and service. PERFORMANCE TOOL® does not authorize any other person to make any warranty or to assume any liability in connection with its products. Except for warranties of title and the limited express warranties set forth above, PERFORMANCE TOOL® makes no express or implied warranties of any kind with respect to its products.

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Documents / Resources

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[Manuals+](#).