

HOBIBICO®

Digital Voltmeter Mk III



Congratulations on your purchase of the Digital Voltmeter MkIII from Hobbico! A breed apart from other voltmeters, it offers the ability to test 4, 5 and 8 cell R/C radio batteries in a no-load or a simulated R/C load setting. A custom designed LCD shows voltage in clear ½ inch numerals, plus customized characters to easily determine the meter setting and condition of the battery under test.

SPECIAL FEATURES

- Custom LCD with large voltage readout and easy to read setting and status characters
- Tests 5 cell packs, in addition to 4 and 8 cell batteries
- Powered by a common 9V battery - easily accessible for replacement
- Built-in simulated R/C load of 250mA for each setting
- Switch load off and use as a true digital voltmeter
- Maximum DC voltage reading of 19.99V
- A 10 minute auto-off timer extends operational life of 9V battery
- Rubber grip for no-slip handling
- Color coded banana jacks, compatible with most common test leads

IMPORTANT PRECAUTIONS

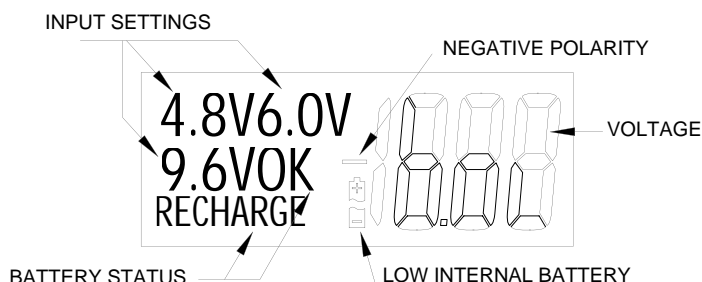
- Do not allow water, moisture or foreign objects into the meter.
- Do not attempt to read AC voltages with the meter.
- Do not attempt to read DC voltages in excess of 20 volts.
- Make sure not to accidentally touch leads together when connected to a DC voltage, to prevent short circuit situations which could severely damage the meter or item under test.

TEST LEADS

The Digital Voltmeter MkIII is equipped with two banana jacks to accept the most common test or charge leads for checking a battery. The red jack is for positive (+) connections, and black is for negative (-). Hobbico offers a full line of test leads (see below) which can be purchased through your local hobby retailer.

- HCAP0101Futaba J TX/RX Charge Leads (No 9VAP)
- HCAP0102Futaba J TX/RX Charge Leads (9VAP Only)
- HCAP0104Old Airtronics TX/RX Charge Leads
- HCAP0105JR TX/RX Charge Leads
- HCAP0106Hitec / Airtronics Z TX/RX Charge Leads
- HCAP0108Charge Leads W / Alligator Clip
- HCAP0109Voltmeter Test Probes
- HCAP0110Charge Leads 9V TX Plug & Futaba J RX

LCD READOUT



A custom LCD was designed specifically for the Digital Voltmeter MkIII to make testing of R/C batteries much easier. In addition to giving a direct display of the measured voltage, the LCD also displays

specific characters to indicate the exact input setting as determined by the user, actual battery status - taking the guesswork out of determining battery condition, low internal 9V battery power, and negative polarity.

INTERNAL BATTERY REPLACEMENT

The Digital Voltmeter MkIII uses a 9V alkaline battery for its own power (one included). If the meter does not function or the low internal battery character is displayed on the LCD, the 9V battery needs to be replaced. A battery door is designed into the meter's case for easy access to replace the battery, and is located on the rear of the voltmeter. Open the battery compartment by pressing the small tab on the bottom of the door. Make sure to detach the clip from the battery by pulling on the clip itself - DO NOT pull on the wire as it could cause the wire to break away from the clip.

INPUT SETTINGS

The DVM MkIII has three different input voltage settings to choose from, for use with the most common radio transmitter and receiver battery configurations. The "4.8V" setting is for 4 cell batteries. The "6.0V" setting is for 5 cell batteries, and the "9.6V" setting is for 8 cell batteries. These specific settings cannot be set when the load switch is in the center position (when the internal 250mA simulated load is not applied).

CONTROLS

The Digital Voltmeter MkIII includes two input controls: a small pushbutton on the left side of the case (next to the LCD), and a 3-position slide switch on the face of the meter.

The SLIDE SWITCH on the face is for setting the 250mA simulated R/C load. With the switch moved to the LEFT position, the load is set for testing receiver batteries (4.8V or 6.0V packs). Moving the switch to the RIGHT position sets the load for testing transmitter batteries (9.6V packs). Leaving the switch in the CENTER position totally removes all load from the test circuitry, allowing the DVM MkIII to function as a true digital voltmeter.

The small PUSHBUTTON located on the left side of the meter performs the following functions:

1. When the meter is off, a single push of the button will turn the meter ON.
2. Pressing and holding the button for 2 seconds will manually turn the meter OFF.
3. If the LOAD switch is set to test receiver batteries, each press of the pushbutton will alternate the meter between the 4 cell "4.8V" and 5 cell "6.0V" setting. Make sure the meter is in the voltage setting which exactly corresponds to the battery to be tested.
4. If the LOAD switch is set on any other position, the pushbutton switch only serves the function of turning the meter ON and OFF.

TESTING A BATTERY PACK UNDER LOAD

1. Select a test lead that exactly matches the transmitter's charge jack or the connector on the battery pack itself.
2. ALWAYS plug the test lead into the banana jacks on the meter first. Failure to do so could result in a short circuit condition causing permanent damage to the battery and the lead. Connect the red plug into the red jack for positive (+) polarity. Connect the black plug into the black jack for negative (-) polarity.
3. Push the button on the left side of the meter to turn the power ON.
4. For 8 cell (9.6V) transmitter batteries:
 - a. Move the load slide switch to the RIGHT "Tx" position.
 - b. Connect the opposite end of the charge lead to the transmitter's charge jack or the battery's own connector.
NOTE: The transmitter's power switch must be in the OFF position. Some transmitters may have a diode in the charge circuit which will prevent a battery voltage from being measured through the charge jack. In such an instance, the meter will have to be connected directly to the battery when removed from the Tx. Or, consult your radio manufacturer about having the diode removed from your charge circuit.
 - c. Make sure the meter is in the proper setting, confirmed by "9.6V" being displayed on the LCD.
 - d. Observe the measured voltage on the LCD.
 - e. If the battery's voltage equals or exceeds 9.6 volts, the LCD will display "OK" indicating the battery has adequate charge.
 - f. If the battery's voltage is less than 9.6 volts, the LCD will display the "RECHARGE" character. This indicates the battery is NOT in an adequate condition for use. Do NOT attempt to use the transmitter if such a reading exists, as total radio failure could occur, resulting in a loss of control of the model.

NOTE: Due to slight tolerance variations in the meter's circuitry, the OK/RECHARGE trip point can vary approximately 3% from the 9.60V level. This is normal, and should have virtually no consequence when evaluating battery condition.

5. For 4 and 5 cell receiver batteries (4.8V and 6.0V):
 - a. Move the load slide switch to the LEFT "Rx" position.
 - b. Connect the opposite end of the charge lead to the receiver battery's connector. **NOTE:** If checking the battery through the model's switch harness, make sure the switch is in the OFF position.
 - c. Make sure the meter is in the "4.8V" setting for 4 cell batteries, or the "6.0V" setting for 5 cell batteries. The proper setting is achieved simply by pressing the pushbutton on the side of the meter, and is confirmed by the appropriate character being displayed on the LCD.
 - d. Observe the measured voltage on the LCD.
 - e. If the battery's voltage equals or exceeds the input setting, the LCD will display "OK" indicating the battery has adequate charge.
 - f. If the battery's voltage is less than the input setting, the LCD will display the "RECHARGE" character. This indicates the battery is NOT in an adequate condition for use. Do NOT attempt to use the battery if such a reading exists, as total radio failure could occur, resulting in a loss of control of the model.

NOTE: The OK/RECHARGE trip point can vary approximately 3% from each the 4.8V and 6.0V levels respectively. This is normal, and should have virtually no consequence when evaluating battery condition.

6. If the negative polarity indication "-Err" appears on the display, it means the device under test is connected to the meter backwards. Make sure the banana plugs are in the proper jacks on the meter, and the proper connection is made on the device under test.

TESTING DC VOLTAGES WITHOUT INTERNAL LOAD

The Digital Voltmeter MkIII can function as a true no-load voltmeter measuring DC voltages up to 19.99 volts maximum. In the no-load setting, the input setting and battery status indicators will not display. Since no load is being applied to the battery in this setting, it is not the best method for determining the battery's ability to function properly in a true modeling application. It is best to determine a battery's ability to function properly in application when testing it under load.

1. Place the load slide switch in the center position.
2. Select the proper test lead or probes for the particular application, noting proper polarities.
3. Observe voltage readings on the LCD.

AUTO – OFF TIMER

If the meter is accidentally left ON, a built-in timer will automatically turn the meter OFF in approximately 10 minutes. This is to help keep the internal 9V battery from accidentally becoming drained.

SPECIFICATIONS

Supply voltage:	9V DC
Input test settings under load:	4.80 volts DC (4 cell battery) 6.00 volts DC (5 cell battery) 9.60 volts DC (8 cell battery)
Optional load current:	250mA each setting
Max. voltage measurement:	19.99V DC
Case size:	4.5 x 2.75 x 1.0" (113 x 67 x 27mm)
Weight:	4.7 oz. (136g)
Part number:	HCAP0356

WARRANTY

1 YEAR LIMITED WARRANTY

HOBBICO warrants this product to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. During that period, we will repair or replace, at our option, any product that does not meet these standards. You will be required to provide proof of purchase (receipt or invoice).

If, during the 1 year warranty period, your **HOBBICO** product shows defects caused by abuse, misuse, or accident, it will be repaired or replaced at our option, at a service charge not greater than 50% of the current retail list price. Be sure to include your daytime phone number in case we need to contact you about your repair.

Under no circumstances will the purchaser be entitled to consequential or incidental damages as a result of using this product.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

If you attempt to disassemble or repair this unit yourself it may void the warranty.

For service to your **HOBBICO** product, either in or out of warranty, send it post paid and insured to:

Hobby Services
1610 Interstate Drive
Champaign, IL 61822
(217) 398-0007
Internet: www.hobbico.com
e-mail: hobbyservices@hobbico.com