

EXPANDED SCALE VOLTMETER

INSTRUCTIONS



Failure to identify a weak nickel-cadmium (NiCd) or nickel-metal hydride (NiMH) rechargeable battery is a leading cause for failure of R/C models. Charging a battery as directed in the instructions that are included with a radio system or an after-market charger, one may believe the pack has taken a full charge. However, if one cell within the pack has a defect which would result in lower than normal pack voltage and capacity, it could go undetected and cause the model to crash. The Expanded Scale Voltmeter can detect an under-charged battery or bad cells in a pack before it is too late.

OPERATION

The ESV is designed to measure the voltage of transmitter or receiver batteries while subjecting them to a realistic R/C hobby load. This provides the most useful indication of a battery's charge status.

Testing NiCd or NiMH receiver/flight batteries with a nominal rating of 4.8 volts:

1. Connect the battery to the ESV using the appropriate connector (not included, a full list of connectors shown on back). Connect the red positive (+) plug to the red jack on the left side of the meter. Connect the black negative (-) plug to the black jack in the center.
2. The numbers on the bottom side of the meter's scale should be used for evaluating receiver batteries. If the meter deflects to the 4.8V mark or less, operating the model will be risky and should be avoided until the battery is charged first.
3. For a fully charged battery, the needle should deflect into the green area of the meter. A reading into the red area indicates poor charge on the battery. Recharge the battery before use.

Testing NiCd or NiMH transmitter batteries with a nominal rating of 9.6 volts:

1. Connect the battery to the ESV using the appropriate connector. Connect the red positive (+) plug to the red jack on the right side of the meter. Connect the black negative (-) plug to the black jack in the center.
2. The numbers on the top side of the meter's scale should be used for evaluating transmitter batteries. If the meter deflects to the 9.5V mark or less, operating the model will be risky and should be avoided until the battery is charged first.
3. For a fully charged battery, the needle should deflect into the green area of the meter. A reading into the red area indicates poor charge on the battery. Recharge the battery before use.

CAUTION: Do NOT connect a Tx battery to the Rx jacks! This could result in damage to the ESV. Do NOT connect a Tx battery and Rx battery to the ESV at the same time. Only connect one battery to the ESV at a time. NEVER short the positive and negative jacks together when a battery is connected, as a dead-short could cause severe damage to the ESV and the battery pack.

CONNECTORS

It is necessary to use the proper test lead when connecting the ESV to your battery pack. Hobbico offers a full range of charge leads that include one for transmitters and one for receiver batteries, as follows:

HCAP0101	Futaba J Tx & Rx charge plugs
HCAP0102	Futaba J Tx & Rx charge plugs 9VAP only
HCAP0105	JR/Spektrum Tx & Rx charge plugs
HCAP0106	Hitec/Airtronics-Z Tx & Rx charge plugs
HCAP0108	Charge lead with alligator clips (2)
HCAP0110	Charge leads with 9V clips & Fut J

NOTE: Some transmitters have a diode built-in to protect the internal battery from accidental exposure to a charger with reverse polarity. This could prevent the ESV from taking proper readings through the transmitter's charge jack. It's best to disconnect the battery from the Tx, and directly connect the battery to the ESV so to obtain a proper reading. Contact your radio manufacturer for information on how to address this situation with your particular radio.

TWO YEAR LIMITED WARRANTY – U.S. and Canada Only

Hobbico warrants this product to be free from defects in materials and workmanship for a period of two (2) years from the date of purchase. During that period, Hobbico will, at its option, repair or replace without service charge any product deemed defective due to those causes. You will be required to provide proof of purchase (invoice or receipt). This warranty does not cover damage caused by abuse, misuse, alteration or accident. If there is damage stemming from these causes within the stated warranty period, Hobbico will, at its option, repair or replace it for a service charge not greater than 50% of its then current retail list price. Be sure to include your daytime telephone number in case we need to contact you about your repair. This warranty gives you specific rights. You may also have other rights, which vary from state to state.

For service on your Hobbico product, warranty or non-warranty, send it post-paid and insured to:

HOBBY SERVICES
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Champaign, Illinois 61822
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217-398-0007

*For warranty and service information if purchased outside the USA or Canada, see the additional warranty information insert (if applicable) or ask your retailer for more information.

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