

S.M.Services (UK) Ltd

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BATTERY MASTER PLUS



Specifications

Size. 175mm x 129mm x 58mm.
Construction. Boxed.
Connections. Via 2.5mm Jack Connector Tip Positive. (Centre Positive)
Supply Voltage. 24v DC or 16v AC.
Supply Current. 500mA DC or 750mA AC Max.
Supply Unit. S.M. Services Mains Power Pack.

Charger Section

Output. Single Output, Short Circuit and Reverse Polarity Protected.
Output Voltage. Automatic Voltage Selection 1 to 10 Cells.
Output Current. 5 to 400mA Adjustable, Constant Current When Set.
Indicator. LED Indicator On When Charging.

Cycler Section

Pack Size. 1 To 10 Cell Packs, User Selected.
Discharge Rate. 300mA Pre-set.
Indicator. LED On When Discharging.

Meter Section

Display. Four Digit LED. Maximum Count 9999

Description.

The Battery Master is a micro computer controlled single output nicad charger, cycler and digital capacity meter combined into a single unit.

The charging section is a constant current type with the charging current capable of being pre-set between 5 and 400mA, 1 to 10 cells can be charged. The charge section will automatically switch off after 14 hours.

The cycler section can discharge 1 to 10 cell packs, the pack size is pre-set by the user, the discharge rate is pre-set to 300mA. The digital display will indicate the actual mA hr's discharged during the cycle down, maximum 9999ma Hr's.

Operation.

1. Set required charge rate.
2. Set pack size.
3. Connect battery.
4. Switch on power pack.
5. Press cycler set button.

The battery will now be discharged down to the nominal fully discharged state and then charged for fourteen hours at the pre-set charge current. The discharged battery capacity will be displayed continuously until the set button is pressed again. To check total battery capacity, cycle a fully charged battery. Note. If an un-timed and no cycle charge is required proceed as detailed but omit step 5.

Standard Wiring Connections

<u>Lead Function</u>	<u>Futaba</u>	<u>JR</u>	<u>Sanwa</u> (Moulding Numbers)
+ = Positive	Red	Red	3
- = Negative	Black	Brown	2
IP= Signal	White	Orange	1

Refer to your equipment manual for wiring colour codes if they are not listed above.

Note 1. Most JR TX charging jacks are wired tip negative, check before charging.

Note 2. Some transmitters are fitted with a blocking diode, this prevents reverse charging the battery but also prevents cycling. If this occurs the TX battery will need to be removed to perform cycling and capacity checks.

Note 3. For best results a new or un-cycled battery may require three or more charge/discharge cycles before the capacity reading is stable.

Note 4. The normal trickle charge rate is 10% of the battery capacity ie. 1000 mA Hr battery should be charged at 100mA for 14 hours.

Make up leads to suit the battery connectors that you currently use, using the 2.5 mm plugs supplied as follows.

1. Remove cover from the 2.5mm plug, (note. The centre or small contact is positive, outer contact with strain relief tabs is negative).
2. Mount the plug barrel in the vice very gently taking care not to distort the barrel.
3. Pre tin both contacts on the plug and allow to cool, (note the plug contacts are insulated with plastic, when tinning the contacts 3 seconds is the longest that the iron should be applied, allow the contact to cool before tinning the second contact).
4. Take a fly lead and strip 2 mm of insulation from both wires and pre tin.
5. Slide the plug cover over the fly lead, cut 6 mm of 2.4mm diameter heat shrink tubing and slide over the positive lead.
6. Solder both positive and negative leads to the plug and allow to cool.
7. Slide heat shrink over the positive contact and shrink down.
8. Using small pliers fold the strain relief tabs over the negative lead only.
9. Refit cover.

Note. Lead length is critical when cycling and capacity checking batteries, servo wire leads should not exceed 300 mm, lead lengths over 300 mm and up to 2 metres use 16/0.2 mm above 2 metres use 32/0.2 mm. When cycling through a switch harness to a receiver battery remember that you have an extra 400 mm of wire added to the overall lead length. Where possible direct connect to the battery.

Notes On Battery Cycling And Capacity Checking

1. All new batteries should be cycled several times before fitting in any model, this has the effect of balancing the individual cells within the pack and allows the overall pack capacity to reach nominal or above.
2. When performing capacity checks on battery packs observe rule 1 above, experience has shown that new packs can exhibit extremely low capacity during initial cycles. This effect appears to depend on the storage time since manufacture.
3. Battery capacity is dependent upon the discharge rate, the battery manufactures capacity testing rates vary between a one hour rate and a three hour rate, therefore S. M. Services have chosen a rate of 300mA per hour as being a mid point in the range of batteries commonly used in models. This rate will give high apparent capacities for the larger sub C types and low capacities for AAA and smaller types.
4. If your requirement includes batteries in the very small capacity range please contact us for advice.
5. In normal regular use a capacity checking system is a comparative testing method where the change from the norm is the indication that a battery pack is failing.
6. Before finally discarding a battery pack because of low capacity, check for black lead corrosion, the effect is the same as a defective cell.

If you have any questions or problems with this module please contact us, we are here to help you.

YOUR GUARANTEE

S.M. Services (UK) Ltd guarantee all products for 1 year from date of purchase. During this time S.M. Services (UK) Ltd will repair or replace all defective products free of charge, except for units subject to fair wear and tear, or units that are subject to crash damage. To qualify for benefits under the guarantee you must have installed and used the product in accordance with S.M. Services (UK) Ltd instructions. Consequential losses and accidental damage to the product are not covered by the guarantee. S.M. Services (UK) Ltd cannot be responsible for results of using our products for any purposes other than those described in the relevant instructions.

RETURNS

Any returned products ordered in error or are not required will if returned unopened in original product packaging within 28 days from date of purchase be subject to a full refund less shipping charges and a 5% handling charge. All other returns will be subject to a full refund less shipping charges and a 20% handling charge.