



**RMBC64-24D HAWK  
3 STAGE BATTERY CHARGER  
OPERATORS MANUAL**

**2012**



# **RMBC64-24D ELECTRONIC BATTERY CHARGER**

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## **RMBC64-24D ELECTRONIC BATTERY CHARGER**

### **Introduction**

### **Handling Requirements**

Maximum stacking height.	2 x Units on top of each other.
Minimum clearance for ventilation.	25mm each side and 50mm at rear.
Power requirements.	110 >240 volts AC @ 6.5 Amps.
Weight.	16.5Kgs.
Dimensions.	200 x 380 x 570mm (H x W x D)

### **Installation.**

Remove front cover by un-clipping side clips.

Check that the power switch is in the **OFF** position.

Lower back flap by twisting anti-clockwise “Zuse” fasteners to expose mains input socket and ventilation fans.

Ensure both charger and mains is switched **OFF** before connecting power lead to charger socket. Ensure both charger socket and power lead are clean and dry before connecting.

Connect power lead (RMBCPL) by pushing plug into socket via locating pins.

Connect charger lead (RMBCL24) plug to the 41 pin Amphenol socket located on the front of the charger panel and charger lead socket to the HAWK battery charge input plug.

The charger is ready for use.

## **RMBC64-24D ELECTRONIC BATTERY CHARGER**

### **Specifications**

Power input (full charge single HAWK).	240 volts AC @ 3.5 Amps.
Power input (full charge two HAWKS)	240 volts AC @ 6,5 Amps
Power input (trickle single HAWK)	240 volts AC @ 0.5 Amps
Power input (trickle two HAWKS)	240 volts AC @ 1 Amp.
Charge time (flat to full)	5.5 hours.
Maximum time charger on trickle.	48 hours
Weight.	16.5Kgs.
Dimensions.	200 x 380 x 570mm (H x W x D)
Battery charge state.	Any level from flat to full.
* Time between full charge operation.	1 hour.
* Time between full charge operation means that if the operator has fully charged the battery, it can be left on trickle charge after the full charge cycle has been completed for up to 48 hours.	

A time period of one hour must be left before the full charge procedure is commenced to allow the battery to cool down.

**Do not start full charge procedure again immediately the battery has been fully charged, as this could lead to the battery being permanently damaged.**

**NOT FOR OUTDOOR USE**

## **RMBC64-24D ELECTRONIC BATTERY CHARGER**

### **Overview.**

The RMBC64-24D has been designed for charging two HAWK batteries.

Designed to provide all the intelligence to safely, consistently and efficiently fast charge the HAWK battery.

### **Functional Description.**

At switch on from the mains the two top row banks of green LEDs will give two flashes to confirm that the charging circuits are operating correctly and that there is no malfunction with the charger.

The unit is fitted with a selectable buzzer and a flashing green LED per channel to inform the operator when the battery or batteries are fully charged and has reverted to trickle charge.

Two seconds after the flashes have finished, the charger is ready for use.

Once either of the red start buttons have been pressed the charging process for that bank begins.

Both the second, third, fourth and fifth row of red LEDs will be on, with the top row of green LEDs flashing. This indicates that all the charging circuits are operating correctly within the bank.

When the charge cycle is complete, the red LEDs within that bank will be off and the top row of green LEDs will all be constant, together with the red trickle charge LED flashing, and if the audio alert is switched on the buzzer will be sounding.

If the buzzer is switched in, it will sound when the last flashing green LED is constant informing the operator that the battery or batteries are fully charged and the charger has reverted to trickle charge.

The charger has an automatic heat sensing shut down system as well as negative delta peak sensing to provide an added safeguard.

The primary charging system is change of temperature over change of time with a max timer cut out.

Validation checks confirm if the temperature range of the battery is either in or outside limits, or its end voltage (Edv) is too low, at which point the charger enters its pending stage until such time as these validation parameters come within limits.

## **RMBC64-24D ELECTRONIC BATTERY CHARGER**

### **Functional Description (part 2).**

After the validation phase, a sense resistor connected between battery negative and the charger zero volts, (Vss) provides the necessary signal to the servo control loop which regulates the charging current.

The charger unit consists of two banks of sixteen individual chargers, each delivering 0.3C at full charge (700mA) to each internal pack.

Should one or more of the charging cards fail, the unit will still be able to charge which gives the RMBC64-24D a large redundancy capability.

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The RMBC64-24D battery charger has been designed to charge two “HAWK” batteries together.

Various combinations of battery charge can be selected which include:-

- A/ **Single battery on full charge.**
- B/ **Two batteries on full charge**
- C/ **One battery on full charge and second battery on trickle charge.**
- D/ **Single battery on trickle charge.**
- E/ **Two batteries on trickle charge.**

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**(1) Charge Indicators  
Green LED's**

### **(1) Charge Indicators**

The charge indicators (green LED's) inform the operator that the charger is A, operating correctly. B, charging the cells and C, the cells have completed a full charge cycle.

Each bank of four green LED's above the charger sockets represents that charging circuit.

When the power is first on, both the banks of charge indicator LED's will flash twice. This informs the operator that the charger circuits have been internally checked and they are operating correctly.

After the charge procedure has been initialized the charge indicators will start to flash and continue to flash until the battery is fully charged.

When the battery or batteries are fully charged, the green charge indicators will turn to a constant light, indicating that the battery or batteries are fully charged.

As the cells become fully charged, individual LED lamps within the bank will turn from flashing to constant. When all the green LED's are constant within the bank and only then will the battery or batteries be fully charged.



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(2) Status Indicators  
Red LED's

### (2) Battery Status Indicators

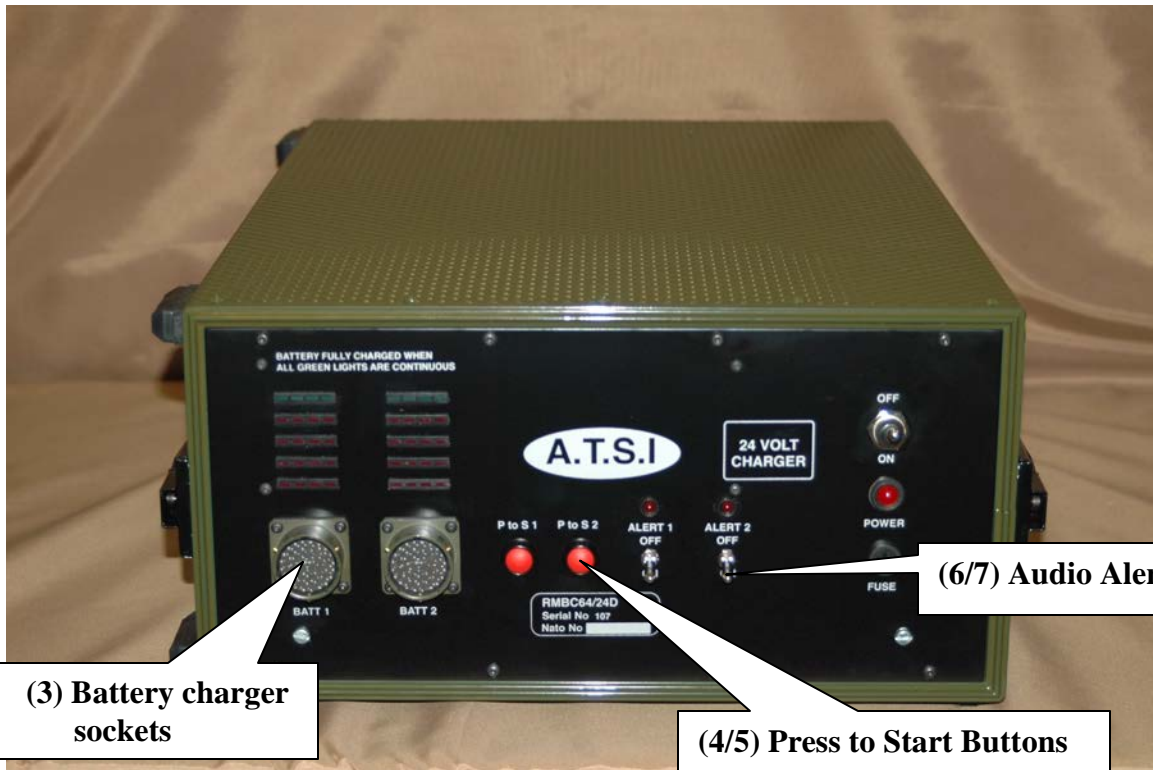
The battery status indicators (red LED's) inform the operator that all the individual sixteen 4Ah cell packs are being charged in that particular bank, representing either battery one or two.

After the start button linked to either one or two battery has been pressed, the complete bank of status indicators representing the selected battery will illuminate and remain constant for as long as it takes to charge the appropriate cells.

When the cells are fully charged the appropriate status indicators will extinguish within that bank and the charger will automatically place that cell or cells on trickle charge.

Note When all the red status LED lamps are extinguished within the selected bank and the green charge indicators are constant, the HAWK has completed its charge cycle and the charger has reverted to trickle charge.

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### (3) BATT 1 /BATT 2 Charger Socket

These sockets are used in conjunction with the appropriate charger lead to charge the *HAWK* batteries. The respective indicators are directly above each socket.

### (4/5) Press to Start Buttons.

The press to start buttons, allow the operator to start the main charge procedure on each battery.

### (6/7) Audio Alert Switches.

The audio alert switches, when placed in the on position, informs the operator when the trickle charge system is in operation by emitting an audible intermittent bleep.

This alert can also be used to remind the operator when the batteries have completed a full charge cycle. (When used in the battery charge mode the alert will only commence once all the cells have been fully charged.)

If the operator switches the alert off. It will not interfere with the trickle or full charge.

**Note.** The audio alert switches are a locking type switch and must be pulled out before switching to either On or Off.

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### **(8/9) Trickle Charge Indicators (TCI)**

The trickle charge indicators inform the operator by their flashing red LED that the battery or batteries are being trickle charged.

This process automatically starts when the battery charger is initially switched on.

When the operator starts the charging procedure the LED will go out, informing him/her that the trickle procedure has stopped.

After the HAWK battery has been fully charged, the main charging system turns off and the trickle charge commences again.

*Note* The battery or batteries can be left on trickle charge for several days without damage to the battery or batteries, ensuring they are kept fully charged.

### **(10) ON/OFF Switch.**

The ON/OFF switch supplies mains power (110v > 240v AC) to the charger When in the ON position.

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### (11) Power Indicator.

The power indicator lamp informs the operator when illuminated that mains power is being supplied to the charger.

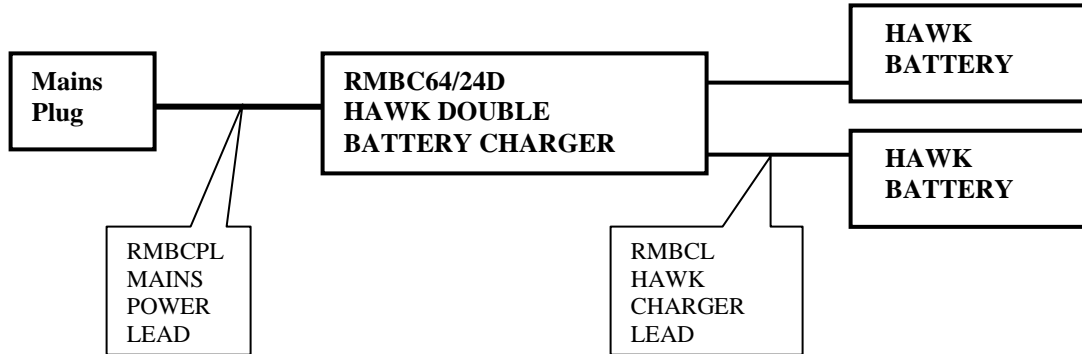
### (12) Fuse

An 8AMP Anti-Surge fuse is fitted to this charger.

**WARNING. THIS CHARGER IS FOR INDOOR USE ONLY.**

## RMBC64/24D ELECTRONIC BATTERY CHARGER

### Trouble Shooting.



Problem	Possible Cause	Possible Remedy
Charger no power. Mains neon light not illuminated.	No mains power	Check mains plug. Replace 13Amp fuse. Check power from source.
Charger has power. Neon mains light illuminated but not charging. (No LED's flashing)	Charger fuse blown	<b>WARNING CHARGER MUST BE SWITCHED OFF FROM THE MAINS BEFORE OPENING FUSE HOLDER</b> Replace fuse with RMFA8 * see note
Charger green LED's flashing but red LED's will not illuminate when start button is pressed.	RMBC24 lead not connected	Check both ends are connected correctly and the rings are locked on the Amphenol plug and socket.
Charger green LED's flashing but red LED's will not illuminate when button is pressed.	HAWK fully charged.	Allow battery to cool for 1 hour Note it is not recommended to use full charge again when battery is fully charged. <i>Trickle charge is sufficient to keep the battery topped up from full.</i>

**\* Note**

The RMBC64/24D is designed to warn the operator that power is **ON** by the mains neon light being illuminated.

The neon light is in front of the fuse to warn the operator **NOT** to open the fuse holder until the mains has been **SWITCHED OFF**, to avoid an electrical shock.