

UniCharge 50

Automatic Battery Charger

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

1. This manual contains important safety and operating instructions for battery charger types UniCharge 50.
2. Do not expose charger to rain or snow.
3. This charger is suitable for commercial use only and is to be permanently installed and hard-wired within an enclosure.
4. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
5. Do not over-tighten field wiring terminals. Observe the recommended tightening torque of 0.5Nm (4.5 pound/inch).
6. Do not operate charger with damaged connections replace faulty external wiring immediately.
7. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; Take it to a qualified serviceman or return it to the manufacturer.
8. Do not disassemble charger; take it to a qualified serviceman or return it to the manufacturer when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
9. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

10. WARNING – RISK OF EXPLOSIVE GASES.

- a) **WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS EACH TIME YOU USE THE CHARGER.**
- b) To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary marking on these products.

11. PERSONAL PRECAUTIONS

- a) Consider having someone close enough by to come to your aid when you work near a lead-acid battery.
- b) Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- c) Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
- d) If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

- e) NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- f) Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
- g) Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.
- h) Use charger for charging LEAD-ACID, SEALED LEAD ACID (VRLA) or GEL type batteries only. DO NOT use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
- i) NEVER charge a frozen battery.

12. PREPARING TO CHARGE

- a) Be sure area around battery is well ventilated while battery is being charged.
- b) Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- c) Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. Do not overfill. For a battery without removable cell caps, such as valve regulated lead acid batteries, carefully follow manufacturer's recharging instructions.
- d) Study all battery manufacturer's specific precautions while charging and recommended rates of charge.
- e) Determine voltage of battery by referring to battery manufacturers manual and make sure that the battery chargers output voltage is set at the correct voltage.

13. CHARGER LOCATION

- a) Install the charger in an enclosure separated from the battery.
- b) Mount the unit on a flat surface in any orientation
- c) Use pre-drilled holes, press-fit nuts or drill mounting holes to suit. Use M4 or equivalent machine screws with suitable nuts and vibration-proof washers. DO NOT over tighten fixing screws.
- d) Ensure adequate ventilation within enclosure. Do not operate charger in a closed-in area or restrict ventilation in any way. Leave at least 15mm of space on all sides for adequate heat dispersion and free air convection.
- e) Never place charger directly above battery being charged; gases from battery will corrode and damage charger.
- f) Never allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.
- g) Do not set a battery on top of charger.

14. DC CONNECTION PRECAUTIONS

- a) This charger is suitable for commercial use only and is to be permanently installed and hard-wired within an enclosure.
- b) Use tri-rated cable of at least 16 AWG (1.5mm² cross-sectional area) for dc output connections. Recommended cable type is UL style 1015 or

equivalent. Contact manufacturer for other approved cable types.

- c) NEVER connect dc output cables with charger switched on. Isolate and remove ac input before connection. Never allow exposed dc cable ends to touch each other.

15. GROUNDING INSTRUCTIONS

This battery charger should be connected to a equipment-grounding conductor run with circuit conductors and connected to the equipment-grounding terminal on the battery charger. Connections to the battery charger should comply with all local codes and ordinances.

16. AC CONNECTION PRECAUTIONS

- a) This charger is suitable for commercial use only and is to be permanently installed and hard-wired within an enclosure.
- b) Use tri-rated cable of at least 22 AWG (0.5mm² cross-sectional area) for ac input connections. Recommended cable type is UL style 1015 or equivalent. Contact manufacturer for other approved cable types.
- c) WARNING - Always Isolate and remove the ac input before any connections are made.

17. FAIL SIGNAL CONNECTION PRECAUTIONS

- a) The optional fail signal circuit is rated at 30V 1A dc.
- b) CAUTION - Never use the fail signal with voltages above its dc rating. Never use ac voltages on the fail signal circuit.

18. OPERATING INSTRUCTIONS

- a) DC Output Voltage Adjustment:
Turn the output adjustment potentiometer, marked 'Volt Adj.' clockwise to increase the chargers output voltage or anti-clockwise to decrease the voltage. CAUTION - Always adhere to the battery manufacturers recommended float voltage and adjust the battery chargers output to suit. Only set the chargers output voltage when the battery is in float condition (minimal charge current into battery).
WARNING - DO NOT try to overcharge the battery by increasing the voltage above the battery manufacturers recommendation. This can result in excessive heating or gassing of the battery.
- b) DC Output Fuse:
The DC O/P fuse will blow if excessive output current flows (abnormal condition) or the battery polarity is reversed.
WARNING - If the fuse blows then it must be replaced with the same type and rating of fuse. Fuse = ATO type 5 Amp, colour code = Tan.
- c) Fail Alarm (Optional):
The optional fail alarm provides one set of volt-free SPCO contacts for remote signalling of a fault condition. The contacts are energised when the chargers output is healthy and will de-energise on one of the following; Loss of ac input power, loss of dc output power, output overvoltage, output undervoltage, thermal cutout or reversed battery connection.
- d) The battery charger is designed for continuous

automatic trickle charging and has a constant current / constant voltage characteristic. When the battery is discharged the charger will supply maximum output current (constant current mode) until the battery reaches the float voltage setting. Once this is reached the charger switches to constant voltage mode and automatically float charges the battery.

- e) Output Current Limit:
The battery chargers output is automatically protected against over-load by means of an electronic current limiting feature.
- f) Output Short Circuit:
A short circuit applied to the battery chargers dc output will not damage the unit. Short circuit current is equal to the maximum output current rating of the unit.
- g) Reversed Battery Polarity:
Incorrect battery polarity will cause the DC output fuse to operate. The fuse must be replaced with the same type and rating (5 Amp ATO Type) for correct operation.
- h) Output Overvoltage Shutdown:
Excessive dc voltages on the chargers output will operate the overvoltage shutdown feature. The AC input and dc output power sources have to be re-cycled to reset this protection feature.
- i) High Temperature Shutdown;
The battery charger will automatically switch off if the internal temperature rises above acceptable limits. This feature automatically resets when the unit has cooled.

19. MAINTENANCE INSTRUCTIONS

No specific maintenance plan is required, however it is recommended that the output voltage is measured periodically to ensure compliance with the battery manufacturers recommended levels. If the voltage requires adjustment then refer to '18 a' above.

20. INPUT RATING

Voltage Range	100 - 240 V AC
Frequency	50 - 60 Hz
Input Current	1.5 A
Inrush Current	60 A
Leakage Current	<1.0mA @ 240V AC

21. OUTPUT RATING

Voltage	12V Type = 13.6V Float (Adjustable) 24V Type = 27.2V Float (Adjustable)
Current	12V Type = 3.5A Continuous 24V Type = 2.0A Continuous
Ripple & Noise	<0.5%
Efficiency	75% - 80%

22. ENVIRONMENTAL CONDITIONS

Operating Temperature (at full load)	-10 to +25 °C
Storage Temperature	-20 to +60 °C
Maximum unpacked weight	1 Kg



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