



Mobility Charger Series OWNER'S MANUAL

OFF BOARD BATTERY CHARGERS

<u>Models</u>	<u>Amperage</u>	<u>Volts</u>
28003	3 Amps	24
28005	5 Amps	24
28008	8 Amps	24

See Connection diagrams for warnings.

IMPORTANT NOTICE

This manual contains important safety and operating instructions for the charger. Read the entire manual before using. Also read all instructions and cautions for and on the charger, batteries and equipment in the vicinity of the batteries.

SAVE THESE INSTRUCTIONS

1. INTRODUCING THE CHARGER

The Guest model 28003, 28005 AND 28008 are designed to both recharge your batteries, and extend your battery's life in applications where it is stored for long periods of time. They are "3-stage" electronic, completely automatic, lightweight, silent, battery chargers and each output produces 24 Volts DC at either a full 3, 5 or 8 Amps (model specific), while using much less AC current than other charger types. Unlike automotive "trickle" chargers, the 28003, 28005 and 28008 will not boil off the electrolytes in properly installed and maintained batteries. The red and green LED's, mounted on the charger face, let you know the unit is *recharging* and *maintaining* your batteries. This sophisticated device is designed to recharge and maintain the 24VDC batteries in you wheelchair or scooter.

SAVE THESE INSTRUCTIONS

WARNINGS

THIS CHARGER SHOULD BE USED TO CHARGE ONLY 24VDC LEAD ACID OR GEL CELL TYPE BATTERY SYSTEMS. USE ON OTHER BATTERY TYPES MAY EXPLODE AND CAUSE PERSONAL INJURY.

RISK OF EXPLOSIVE GASES! WORKING IN THE VICINITY OF LEAD ACID BATTERIES IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL OPERATION. THEREFORE IT IS OF THE UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER YOU FOLLOW THE INSTRUCTIONS EXACTLY.

Personal Safety Precautions

Adhere to the following personal safety precautions when installing or working with the chargers:

1. Someone should be within voice range or close enough to come to your aid when you work near a lead-acid battery.
2. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
3. Wear complete eye protection and clothing protection. Avoid touching eyes while working near a battery.
4. If battery acid contacts skin or clothing, wash them immediately with soap and water. If acid enters the eye, flood the eye with cold, running water for at least ten minutes and get medical attention.
5. Never smoke or allow an open flame in the vicinity of the battery.

6. Do not drop a metal tool onto the battery. It may spark, short circuit the battery and may cause an explosion.
7. Remove all personal metal items such as rings, bracelets, necklaces, and watches when working near a lead-acid battery. A battery can produce short circuit currents high enough to weld a ring or the like to metal, causing a severe burn.

Preparing to Charge Precautions

Before charging a battery with the charger, read the following precautions:

1. Do **NOT** operate the charger if the cables or an LED is damaged.
2. Make sure all accessories on the product you are charging are **OFF**.
3. Be sure the area around the battery is well ventilated while the battery is being charged. Gas can be forcefully blown away using a piece of cardboard or other non-metallic material as a “hand fan”.
4. Add distilled water in each cell until battery acid reaches levels specified by the battery manufacturer, if applicable. Do not overfill. For all batteries, carefully follow the manufacturer’s recharging instructions.
5. Never allow the ring terminals to touch each other.
6. **NEVER** charge a frozen battery.
7. Please be sure the DC system to which the charger is connected is not drawing excessive current from the battery for extended periods of time while the charger is operating. This is important to ensure the charger correctly transitions through each charging stage to finish with the float voltage level. If the DC system is drawing continuous current while charging, reduced life or damage to the battery may occur.

AC Connection and Grounding Precautions

DANGER

DO NOT OPERATE THIS CHARGER WITH A TWO BLADED ADAPTER PLUG OR EXTENSION CORD. DOING SO CAN RESULT IN SERIOUS PERSONAL INJURY. AFTER SECURING THE BATTERY CONNECTIONS, PLUG THE AC LINE CORD INTO AN AVAILABLE AC OUTLET THAT IS PROTECTED BY A GROUND FAULT CIRCUIT INTERRUPTER (GFCI) BREAKER.

CAUTION: To reduce the risk of shock, connect only to a properly grounded outlet.

NOTE: AC Line Cord color coding is EU style. Line = Brown, Neutral = Blue, Ground = Green

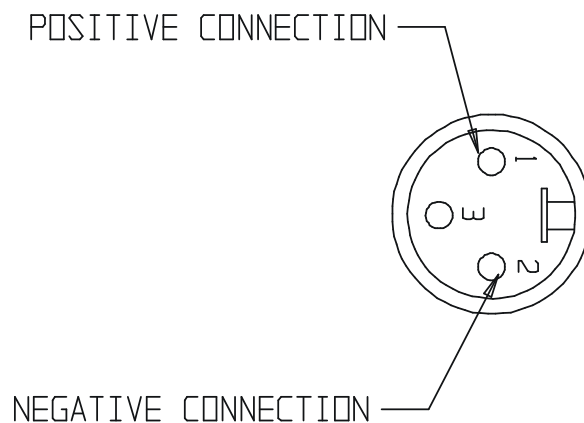
2. INSTALLING THE CHARGER

Choosing Charging Location

The charger should have at least eight inches of unobstructed area on all sides of the unit for effective cooling. The case of this charger will become warm during operation. It is recommended that the charger be positioned in the standing position (handle up) during normal operation. Do not operate the charger on carpeted, upholstered, or varnished surfaces.

Making DC Connections

The output connector on the charger has been selected to accommodate 95% of newer made wheelchairs and scooters available. The charger output therefore interlocks directly with the mating connector located on the wheelchair or scooter. See diagram below for connector polarization.



Note:
E+J Wheelchairs
require Guest P/N
2800-1 adapter.

Battery Size Recommendations

The recommended maximum battery size per 3 amp bank is 36AH.







The recommended maximum battery size per 5 amp bank is 60AH.

The recommended maximum battery size per 8 amp bank is 96A

Charger Characteristics

3. OPERATING THE CHARGER

The LED Function Chart describes the charging process for any of chargers listed above.

Display	Operating condition
Yellow  Green 	<p>When the yellow LED is on, it indicates that your batteries are discharged and is recharging them at the "Charging" rate (stage 1). This charging rate is specified (3,5,8) Amps.</p> <p>While the yellow LED is on, the voltage measured (with the charger on) will be approximately 22.0 – 26.0 Volts.</p> <p>If the yellow LED stays on for more than 24 hours, the charger will shut down the output automatically and green LED will become flash, refer to Problem 2 in the troubleshooting section in this manual.</p>
Yellow  Green 	<p>When both the green and the yellow LED's are on, it is charging at the "Finishing" rate. (stage 2). During this second charging stage, the charger holds the battery voltage at approximately 29 VDC, and then gradually reduces the amount of current (Amps) it delivers to the battery. By doing this, the battery is able to "absorb" the last 10% of charge as quickly as possible without becoming overheated.</p> <p>If both lights stay on longer than 6 hours, the charger will shut down the output automatically and green LED will become flash, refer to Problem 2 in the troubleshooting section in this manual.</p>
Yellow  Green 	<p>When the battery approaches full charge, the charger switches into its third charging stage, gradually reducing the current fed to the batteries to as low as 0.1 Amps. At the same time, it reduces its output voltage to a "Float" or "Ready" charging rate of approximately 27.1 VDC, indicated by the green LED light. This low "Float" or "Maintenance" voltage gently "tops off" your batteries, keeping them fully charged and ready until needed. Now you can store your batteries at full charge indefinitely without overcharging. The green LED indicates that your batteries are now fully charged and ready for use.</p> <p>If the green LED stays on when your battery is known to be low, refer to Problem 1 in the troubleshooting section in this manual.</p>

4. TROUBLESHOOTING

Problem	Cause	Solution
1. Green LED stays on when the battery is known to be low.	<ol style="list-style-type: none"> 1. Faulty or contaminated terminal connections. 2. Bad DC fuse embedded in the output connector. 	<ol style="list-style-type: none"> 1. Clean and tighten or repair all terminal connections. 2. Call Guest Service Dept.
2. Green LED flashing.	<ol style="list-style-type: none"> 1. Battery is connected in reverse. 2. Faulty or contaminated terminal connections. 3. One or more defective or damaged cells. 4. The mobility vehicle is drawing more current than the charger can supply. 5. Charger has reduced its output voltage below the normal level due to a DC overload or a DC short. 	<ol style="list-style-type: none"> 1. Ensure proper DC connection. 2. Clean and tighten or repair all terminal connections. 3. Load test the batteries and replace if necessary. 4. Turn off all DC equipment while charging. 5. Remove the source of the overload or short. Disconnect the charger's DC connector from the battery. Reapply AC power and the green LED only should now light.
3. Yellow LED Flashing	<ol style="list-style-type: none"> 1. Not correct operation. 2. Extremely low AC voltage at the battery charger. 3. Component failure. 	<ol style="list-style-type: none"> 1. Reapply AC power. 2. Apply a higher AC voltage source or reduce the length of the extension cord. 3. Return charger to the Guest Service Dept.
4. Neither of the LED's turn on when the AC power is applied.	<ol style="list-style-type: none"> 1. No AC power available at the charger 2. Component failure 	<ol style="list-style-type: none"> 1. Connect AC power or reset the AC breaker on the main panel 2. Return charger to the Guest Service Dept.

5. MAINTAINING THE CHARGER

Periodically clean both battery terminals with baking soda and tighten all connections. No other maintenance on the charger is required.

7. SPECIFICATIONS

Model	Output Volts	Output Amps	Banks	DC Cable Size	Size (inches) L x W x H	Input Volts	Input Amps Max
28003	24	3	1	4'	2.7 x 7.3 x 6.6	115VAC 50/60Hz	1.5 Amps
28005	24	5	1	4'	2.5 x 8.3 x 7.2	115VAC 50/60Hz	2.0 Amps
28008	24	8	1	4'	2.9 x 9.6 x 7.9	115VAC 50/60Hz	4 Amps

FCC Class B EMC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning this equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

LIMITED WARRANTY

For two (2) years from the date of purchase, The Guest Co. will, at its discretion, repair or replace for the original consumer, free of charge, any parts found defective in material or workmanship.

This product is guaranteed for life against water damage.

Proof of purchase is required: A computerized register receipt is required. Hand-written receipts are not accepted for warranty proof of purchase.

There is no other expressed warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year from the date of purchase. This is the exclusive remedy and consequential damages are excluded where permitted by law.

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