

Deltran Battery Tender®
Auto/2A/8A/15A Charger
Designed for Six cell Lead-Acid Batteries



IMPORTANT SAFETY INSTRUCTIONS

- 1) SAVE THESE INSTRUCTIONS – This manual contains important safety and operating instructions for battery charger model P/N 022-0234-DL-WH.
- 2) Do not expose charger to rain or snow.
- 3) 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.
- 4) To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
- 5) An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:
 - a) That pins on plug of extension cord are the same number, size, and shape as those of plug on charger;
 - b) That extension cord is properly wired and in good electrical condition; and
 - c) That wire size is large enough for ac ampere rating of charger as specified in Table 1

TABLE 1

Length of Cord, Feet	25	50	100	150
AWG Size of Cord	18	18	18	16

- 6) Do not operate charger with damaged cord or plug – replace the cord or plug 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.
- 8) Do not disassemble charger; take it to a qualified serviceman 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 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 and on engine.
 - c)

Manual P/N 392-0430-R0

11) PERSONAL PRECAUTIONS

- a) Consider having someone close enough by to come to your aid when you work near a 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 battery. A 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 a **Lead-Acid/AGM/GEL/** batteries only. It is not intended to supply power to a low voltage electrical system. Do not use battery charger for charging non-rechargeable 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) If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- b) Be sure area around battery is well ventilated while battery is being charged.
- c) Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- d) 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.
- e) Study all battery manufacturers specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
- f) Determine voltage of battery by referring to car owner's manual and make sure that output voltage selector switch is set at correct voltage. Do not use the battery charger unless battery voltage matches the output voltage rating of the charger.

13) CHARGER LOCATION

- a) Locate charger as far away from battery as dc cables permit.
- b) Never place charger directly above battery being charged; gases from battery will corrode and damage charger.
- c) Never allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.
- d) Do not operate charger in a closed-in area or restrict ventilation in any way.
- e) Do not set a battery on top of charger.

14) DC CONNECTION PRECAUTIONS

- a) Connect and disconnect dc output clips only after setting any charger switches to "off" position and removing ac cord from electric outlet. Never allow clips to touch each other.
- b) Attach clips to battery and chassis as indicated in 15(e), 15(f), and 16(b) through 16(d).

15) FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:

- a) Position ac and dc cords to reduce risk of damage by hood, door, or moving engine part.
- b) Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
- c) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -) post.
- d) Determine which post of battery is grounded (connected) to the chassis. If negative post is grounded to chassis (as in most vehicles), see (e). If positive post is grounded to the chassis, see (f).
- e) For negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of battery first. Then connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gage metal part of the frame or engine block.
- f) For positive-grounded vehicle, connect NEGATIVE (BLACK) clip from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery first. Then connect POSITIVE (RED) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gage metal part of the frame or engine block.
- g) When disconnecting charger, turn switches to off, disconnect AC cord, remove clip from vehicle chassis, and then remove clip from battery terminal.
- h) See operating instructions for length of charge information.

16) FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:

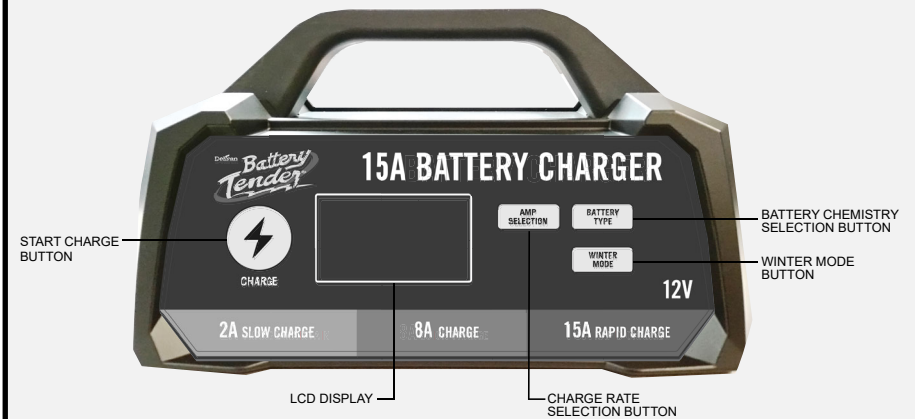
- a) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.
- b) Attach at least a 24-inch-long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post.
- c) Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of battery.
- d) Position yourself and free end of cable as far away from battery as possible – then connect NEGATIVE (BLACK) charger clip to free end of cable.
- e) Do not face battery when making final connection.
- f) When disconnecting charger, always do so in reverse sequence of connecting procedure and break first connection while as far away from battery as practical.
- g) A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.



■ This symbol indicates separate collection for electrical and electronic equipment

USER INSTRUCTIONS

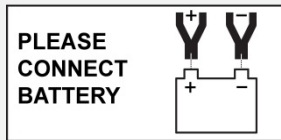
Battery Charger Functions:



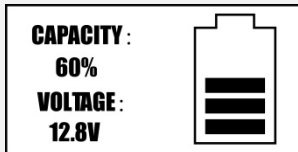
- **LCD Display:**
Displays charging status, charging current, voltage, and battery type (chemistry), winter mode, and any error messages.
- **Charge Rate Selection Button:**
Change the charge rate from 2 Amps to 8 Amps to 15 Amps or select the “AUTO” mode for automatic charge rate.
- **Battery Chemistry Selection Button:**
Select the battery chemistry from “Standard”, “AGM” or “GEL”.
- **Start Charge Button:**
Press to manually start a charge cycle or illuminate the LCD display.
- **Winter Mode Button:**
Press to select the winter mode charging.

Battery Charger Operation:

- 1) Follow the directions on pages 2 and 3 on how to correctly connect the battery charger to the battery. If the alligator clips are not connected or there is a bad connection the following screen will appear.



- 2) Once a good connection has been made, the following screen will appear displaying the battery capacity and voltage (example only).

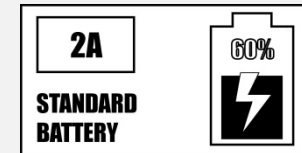


- 3) The charge rate and battery chemistry can be changed by pushing the Amp selection button (Auto, 2A, 8A, 15A) along with the Battery chemistry button (Standard, AGM, GEL). Then press the "Charge" button to start the charging cycle. The following screen will then appear (example only)

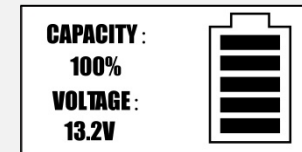


NOTE:

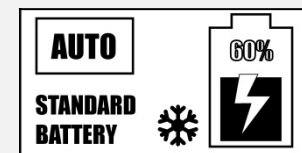
- 4) If you do not select the charge rate or battery type within 30 seconds the charger will automatically start charging in the default "2Amp" mode using a Standard battery. The following screen will then appear (example only)



- 5) Once the battery is fully charged (100%) the LCD screen will automatically turn its self off after one minute. To turn the LCD back on press the CHARGE button one time. (example only).



- 6) The Winter Charge Mode can be used for specialized charging in winter conditions. To compensate for cold conditions the bulk charge voltage is increased slightly. To activate this mode press the WINTER MODE button and a snowflake icon will appear on the LCD screen.



Automatic Charging and Battery Status Monitoring:

Battery Tender® chargers are completely automatic and may be left connected to both AC power and to the battery that it is charging for long periods of time. The charger output power, voltage, and current depends on the condition of the battery it is charging.

Three Primary Charge Modes:

- 1) **Qualification/Initialization mode:** The Monitor Circuit verifies appropriate battery voltage levels and good electrical continuity between the battery and the charger DC output.
- 2) **Bulk mode** (full charge, constant current, battery is 0% to 80% charged)
- 3) **Absorption mode** (high constant voltage, battery is 80% to 100% charged).

Attention: The Battery Tender® Charger Has A Spark Free Circuitry:

The output alligator clips will not spark when they are touched together. The Battery Tender® charger will not produce an output voltage until it senses at least 2 volts. It must be connected to a battery with the correct polarity before it will start charging a battery. Therefore, if you plug the AC power cord into an AC power outlet, and if the output alligator clips are not connected to a battery, and if you touch the alligator clips together, there will be no electrical spark.

NOTE:

THE OUTPUT CLIPS MUST BE CONNECTED TO A BATTERY BEFORE THE CHARGER CAN PRODUCE AN OUTPUT VOLTAGE.

Time Required To Charge A Battery:

If the charger is set on the two (2) amp mode a fully discharged 30 Amp-Hour battery will take approximately 12 hours to recharge to 80% capacity.

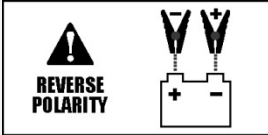
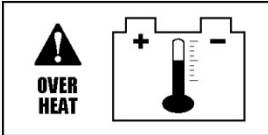
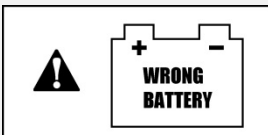
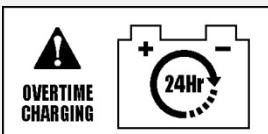
Working With a Dead Battery or a Battery With a Very Low Voltage:

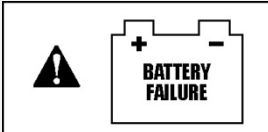
If you try to charge a dead battery having a voltage below 2 volts from a StandardAGM/Gel battery the Battery Tender® charger will not start. An internal safety circuit prevents the charger from generating any output voltage unless it senses at least 2 volts from a StandardAGM/Gel battery at the charger output. The LCD screen will show the battery capacity at 50%

NOTE:

If a 12 Volt, Lead-Acid battery has an output voltage of less than 9 volts when it is at rest, when it is neither being charged nor supplying electrical current to an external load, there is a good chance that the battery is defective. As a frame of reference, a fully charged 12-Volt, Lead-Acid battery will have a rest-state, no-load voltage of approximately 12.9 volts. A fully discharged 12-Volt, Lead-Acid battery will have a rest-state, no-load voltage of approximately 11.4 volts. That means that a voltage change of only 1.5 volts represents the full range of charge 0% to 100% on a 12-Volt, Lead-Acid battery. Depending on the manufacturer, and the age of the battery, the specific voltages will vary by a few tenths of a volt, but the 1.5-volt range will still be a good indicator of the battery charge %.

TROUBLESHOOTING GUIDE

LCD Error Message	Possible Cause	Solution
	The alligator clips are connected to the incorrect battery terminals.	Reverse the connection to the battery. Positive clip to positive terminal, negative clip to negative terminal.
	The charger has over heated and automatically shut down.	The air vents on either end of the charger are blocked. The fan has stopped working. The charger will automatically resume charging once it has cooled down.
	Incorrect battery. The battery voltage is too high.	Verify the battery being charged is a 12V battery.
	If the battery does not reach full charge within 24hrs the charger will stop charging. The selected charge rate is too low for the size of the battery. There is a load on the battery.	Select a higher charge rate. Disconnect any load from the battery.

LCD Error Message	Possible Cause	Solution
	Defective battery. Will not hold a full charge. Battery being charged is not a 12V battery.	Have the battery checked by a qualified source. Replace the battery if necessary. Ensure you are charging a 12V battery.

WARRANTY

**This product is covered by a
5 Year general limited warranty**

**DISTRIBUTED BY:
DELTRAN USA LLC.
801 International Speedway Blvd.
Deland, Florida 32724
(386) 736-7900
www.batterytender.com**

FCC Warning

Title 47 Subpart, 15.105(b)

Note: 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 in residential installation. 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 television reception, which can be determined by tuning the 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.
- Consult the dealer or an experienced radio/TV technician for help.