Introduction

Thank you for purchasing the TrueCharge2 12V 10A Battery Charger (PN: 804-1210). The battery charger provides an efficient three-step charge to smaller 12-volt lead-acid batteries (Flooded, GEL, AGM, or Lead-calcium) used in recreational vehicles and boats. This product is part of a family of handheld renewable power energy devices from Xantrex™, the leader in high frequency inverter design and power electronic technology.

The TrueCharge2 12V 10A Battery Charger ships with the following items:
- one 12V 10A Battery Charger
- owner’s guide,
- enclosed fuses and AC input cables, and
- three crimp connectors for AC wires.

Read this guide before operating the TrueCharge2 12V 10A Battery Charger, and save it for future reference.

Important Safety Information

Misusing or incorrectly connecting the TrueCharge2 12V 10A Battery Charger may damage the equipment or cause hazards conditions for users. Read the following safety instructions and pay special attention to all Caution and Warning statements in the guide.

Electrical Shock Hazard

Do not enjoy the battery charger to rain, snow, sleet, or other electrical hazard.

Do not operate the battery charger if it has received a sharp blow, been dropped, or is otherwise damaged.

Do not disassemble the battery charger. There are no serviceable parts inside. If the charger is in doubt, contact the factory or a service center.

Physical Injury Hazard

The battery charger can be used by persons including children with physical, sensory, or mental capabilities if they are supervised or instructed concerning use of the appliance by someone responsible for their safety. Children should be supervised to ensure that they do not play with the battery charger.

Precautions When Preparing to Charge

1. Locate the TrueCharge2 12V 10A Battery charger unit away from batteries in a well ventilated compartment.

2. Always have someone within range of your voice or close enough to come to your aid when you work near small lead-acid batteries! Never work alone.

3. Battery chargers are more likely to overheat or cause permanent damage in case battery contacts skin or clothing. Do not touch battery charger with wet or damp hands.

4. If battery charger contacts skin or clothing, wash immediately with soap and water. If acid enters your eye, immediately flood it with running cold water for at least twenty minutes and get medical attention immediately.

Precautions When Placeing the Battery Charger

1. Study and follow all of the battery manufacturer’s specific precautions, such as removing or not reusing dead cells while charging and recommissioning times of charge.

2. For flooded non-sealed batteries, and distilled water in each cell unit by battery acid to reach the level specified by the battery manufacturer. This helps to purge excessive gas from cells. Do not overfill. If a battery without rechargeable cells, carefully follow manufacturer’s instructions.

3. Do not operate the battery charger if it has received a sharp blow, been dropped, or is otherwise damaged.

4. Do not work in the vicinity of lead-acid batteries. Batteries generate explosive gases during normal operation.

5. Disconnect both AC and DC power from the battery charger before attempting any maintenance or cleaning, working on any circuits connected to the battery charger.

Failure to follow these instructions will result in death or serious injury.

Precautions When Charging

1. Do not charge lead-acid batteries (Flooded, GEL, AGM, or Lead-calcium) used in recreational vehicles and boats.

2. Charge only properly rated 12-volt lead-acid (GEL, AGM, Lead-calcium, or Lead-calcium) rechargeable batteries because other types may explode and burst.

3. Never use a universal charger with a 10A battery charger.

4. Battery charger when connected to the battery charger and all accessories are off so you don’t come across.

Precautions When Charging

1. Disconnect both AC and DC power from the battery charger before attempting any maintenance or cleaning, working on any circuits connected to the battery charger.

2. Do not use the battery charger to rain, snow, sleet, or other electrical hazard.

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Explosion Hazard

Do not place the battery charger in machinery space or in areas containing gasoline tanks or storage in which explosive atmosphere may be allowed.

Failure to follow these instructions will result in death or serious injury.

Risk of Damage to the Battery Charger

1. Never allow battery acid to drip on the battery charger when charging, or during the charge process.

2. Carefully clean battery terminals and battery charger prior to charge, or during the charge process.


4. Do not charge a battery charger that is on top of the battery charger.

Failure to follow these instructions can damage the unit and/or damage other equipment.

CAUTION:

Unauthorized changes or modifications to the equipment could void the user’s warranty and may result in danger or death. Do not operate the battery charger if it has received a sharp blow, been dropped, or is otherwise damaged.

Tools and Materials

Tools needed:

- Phillips screwdriver for the DC terminals and ground connections.
- Phillips screwdriver for removing and re-securing the AC wiring compartment covers.
- flathead screwdriver for the DC terminals and ground connection.
- wire stripper,
- battery terminals, and
- battery charger for reemplacing the AC wiring compartment.

Materials needed:

- The battery charger is designed to be permanently mounted. Figure 1 is a typical installation with two different types of branch rated circuit breaker: one 15A and one 20A. The installer must ensure that the battery charger is properly grounded and that the battery charger is protected by the appropriate branch rated circuit breaker.

- The battery charger is designed to be permanently mounted. Figure 1 is a typical installation with two different types of branch rated circuit breaker: one 15A and one 20A. The installer must ensure that the battery charger is properly grounded and that the battery charger is protected by the appropriate branch rated circuit breaker.
AC Wiring

FIRE HAZARD

Use only on circuits provided with 20 A maximum branch circuit protection in accordance with the National Electrical Code, NFPA 70. Failure to follow these instructions will result in death or serious injury.

The AC wiring must be of sufficient size, and it must be protected by the appropriate size and type of overcurrent protection, based on the jurisdiction and application. An example is given below:

- Ac input wiring: NEC, 14 AWG, rated 15 A, plastic insulated, black.
- Grounding conductor: NEC, 8 AWG, rated 40 A, plastic insulated, green.
- GFCI RCD: NEC, 15 A, 120 V, with integral ground fault detection and operation (GFCI). The GFCI RCD is non-polarized, and its neutral conductor is protected by a circuit breaker. The GFCI RCD is to be used in a branch circuit providing electrical power to a receptacle, and it is not to be used as a means of protecting equipment from ground fault conditions.

Failure to follow these instructions will result in death or serious injury.

AC Wiring Examples Based on ABYC E-11 2008 and Table VI-A and Table IX

- Disconnect all AC and DC sources to the charger and wait five minutes for internal voltage and energy to dissipate before proceeding.
- Before proceeding to the next step, carefully check the wiring polarity. Do not connect any power source to the charger until you are sure that the polarity is correct and all connections are secure.
- Failure to follow these instructions can damage the unit and/or damage other equipment.

CAUTION

NOTE:

1. United States American Boating and Yachting Council
2. Do not use the AC supply cable for shore power.
3. Do not use the AC supply cable for shore power.
4. The AC supply cable must be replaced if it becomes damaged or frayed.
5. The AC supply cable must be replaced if it becomes damaged or frayed.

DANGER

ELECTRICAL SHOCK HAZARD

Disconnect all AC and DC sources to the charger and wait five minutes for internal voltage and energy to dissipate before proceeding.

Failure to follow these instructions will result in death or serious injury.

Mount the Changer in Position

The charger should be mounted to a wall using the provided screws. Mount the charger securely to the wall using the provided screws. If the wall is not flush with the charger, it may be necessary to provide additional support for the charger. Failure to do so could result in damage to the charger and/or damage to the wall.

Connect the DC Ground

The charger must be connected to a grounded, metal, permanent chassis ground (earth) wire in the engine compartment or the DC compartment. The DC ground wire must be the same size as the AC input ground wire, and it must be connected to the same point on the charger as the AC input ground wire.

Failure to follow these instructions will result in death or serious injury.

AC Input Wiring

FIRE HAZARD

Use only on circuits provided with 20 A maximum branch circuit protection in accordance with the National Electrical Code, NFPA 70. Failure to follow these instructions will result in death or serious injury.

Failure to follow these instructions will result in death or serious injury.

NOTE:

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2. Do not use the AC supply cable for shore power.
3. Do not use the AC supply cable for shore power.
4. The AC supply cable must be replaced if it becomes damaged or frayed.
5. The AC supply cable must be replaced if it becomes damaged or frayed.

DANGER

ELECTRICAL SHOCK HAZARD

Disconnect the AC source by turning off the breaker feeding the circuit, unplugging from shore power and disconnecting any other power sources (such as wind or solar power), and then proceed with the following steps:

Failure to follow these instructions will result in death or serious injury.

Install the DC wiring:

Place the battery cable on a flat deck or mount it on a wall vertically. When using the battery charger, make sure that the battery cable is secure and cannot be pulled out of the charger. Failure to do so could result in damage to the charger and/or damage to the battery.

Failure to follow these instructions will result in death or serious injury.

Install the DC Wiring

The AC wiring is important when installing the DC wiring. Make sure that all connections are secure and that the wiring is properly grounded. Failure to do so could result in damage to the charger and/or damage to the DC wiring.

Failure to follow these instructions will result in death or serious injury.

EXPLOSION AND/OR FIRE HAZARD

Never install the AC supply cable on a boat without a fire extinguisher. Failure to follow these instructions will result in death or serious injury.

1. Mount the charger in position.
2. Connect the DC ground.
3. Connect the AC input wiring.
4. Connect the AC source to the charger.
5. Connect the AC supply wiring.
6. Connect the DC supply wiring.
7. Connect the AC supply wiring.
8. Connect the DC supply wiring.
9. Connect the AC supply wiring.
10. Connect the DC supply wiring.
11. Connect the AC supply wiring.
12. Connect the DC supply wiring.
13. Connect the AC supply wiring.
14. Connect the DC supply wiring.
15. Connect the AC supply wiring.
16. Connect the DC supply wiring.
17. Connect the AC supply wiring.
18. Connect the DC supply wiring.
19. Connect the AC supply wiring.
20. Connect the DC supply wiring.
21. Connect the AC supply wiring.
22. Connect the DC supply wiring.
23. Connect the AC supply wiring.
24. Connect the DC supply wiring.
25. Connect the AC supply wiring.
26. Connect the DC supply wiring.
27. Connect the AC supply wiring.
28. Connect the DC supply wiring.
29. Connect the AC supply wiring.
30. Connect the DC supply wiring.
31. Connect the AC supply wiring.
32. Connect the DC supply wiring.
**Battery Installation**

Battery installation should always be treated like a brand new installation. This means that all safety and precautionary guidelines that were followed prior to the installation of the battery charger must be followed in order to avoid risks of electrical shock, injury, or death.

**ELECTRICAL SHOCK HAZARD**

Disconnect both AC and DC power from the battery charger before replacing old and defective batteries and even before installing new batteries.

Failure to follow these instructions will result in death or serious injury.

**Charging Voltage Setpoints**

The Truecharge2 Battery Charger charging process is designed to make the battery or battery banks reach their maximum voltage setpoints.

**Charging Maximum Voltages**

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Absorption (Volts)</th>
<th>Float (Volts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooded</td>
<td>14.5</td>
<td>13.7</td>
</tr>
<tr>
<td>GEL</td>
<td>14.5</td>
<td>13.7</td>
</tr>
<tr>
<td>LeadCalcium</td>
<td>14.5</td>
<td>13.7</td>
</tr>
<tr>
<td>AGM</td>
<td>14.5</td>
<td>13.7</td>
</tr>
</tbody>
</table>

**Battery Qualification**

The Truecharge2 Battery Charger will perform a battery qualification on each application of AC, to determine if battery packs are present and healthy.

To ensure a battery detection sequence:

1. Turn off AC.
2. Wait approximately 20 seconds or until all lights on the charger have gone out.
3. Turn on AC. The charger will then perform a battery detection.

The Truecharge2 Battery Charger checks all banks at the same time but the bank in most need of charging is the one that receives the most charge. For example, if Bank 1 and Bank 3 are both charged, but Bank 2 has a load and Bank 2 does not, then the charger may only charge Bank 2.

**Operating DC Loads**

When the battery charger is operating, DC loads such as fans and lights may vary in speed or intensity. This is normal. The Truecharge2 Battery Charger will not harm any load connected to it as long as the load can withstand the maximum voltage of 12V DC.

**Three Stage Charging**

The Truecharge2 Battery Charger has two outputs that share the full input current enabling it to charge two different batteries or battery banks that either have the same chemistry or can tolerate the same charge sequence and thresholds. The Truecharge2 Battery Charger performs sequential three-stage charging (Bulk, Absorption, and Float).

**IMPORTANT:** The battery banks are different from one another in chemistry, temperature, or age, remember to reconfigure the battery settings accordingly. See “Setting the Battery Temperature” and “Configuring the Battery Bank Type”.

**CAUTION**

Set the battery temperature before charging the batteries.

**Risk of Battery Damage**

Do not set a battery temperature that is lower than the actual temperature as this may cause the battery to freeze or damage. Similarly, do not set a battery temperature that is higher than the actual temperature as this may result in over-charging the battery.

**Failure to follow these instructions can damage the unit and/or cause a hazard other than battery damage.**

**NOTE:** Always be aware of the temperature setting, observe the battery’s actual temperature and adjust the Battery Temperature setting accordingly. For varying conditions, use the ‘Bulk’ setting.

To configure the battery temperature:

**NOTE:** By default, the battery type is set to Warm.

1. Press and hold the Battery Temp. Select better for three seconds to advance to the next setting.
2. Select the appropriate battery temperature setting.

**Temperature Selection**

- **Temperature of Battery:**
  - Below 25°C (77°F)
  - Between 25°C and 50°C (77°F and 122°F)
  - Above 50°C (122°F)

**Voltage added to temperature compensation error over 25°C**

<table>
<thead>
<tr>
<th>Temperature Selection</th>
<th>Voltage added to temperature compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 25°C (77°F)</td>
<td>-0.01</td>
</tr>
<tr>
<td>Between 25°C and 50°C (77°F and 122°F)</td>
<td>0.01</td>
</tr>
<tr>
<td>Above 50°C (122°F)</td>
<td>0.20</td>
</tr>
</tbody>
</table>

**Configuring the Battery Bank Type**

**NOTE:** By default, the battery type is set to Flooded.

1. Press and hold the Battery Type Select button for three seconds to advance to the next type.
2. Select the proper battery type.

**NOTE:** The LEDs indicate which of the four types is being selected: Flooded (default), GEL, Lead Calc., and AGM.

**Operation**

**CHARGING BATTERIES**

**NOTE:** Please read sections “Precautions When Working With Batteries,” “Precautions When Connecting,” and “Precautions When Placing the Battery Charger” before proceeding.

1. Disconnect all heavy loads on the battery banks being charged, by opening one or both disconnect switches.
2. Reconnect the AC power to the battery charger.
3. The LED will illuminate for one second (power on test) as the initialization sequence runs.
4. After initialization, the indicator LEDs will display the present state and settings of the charger.
5. Place the battery charger in the location specified by the manufacturer of your battery and follow all safety precautions and recommended steps.

**Faults or Warning Conditions versus Charging Output**

- The Truecharge2 Battery Charger will not harm any load connected to it as long as the load can withstand the maximum voltage of 12V DC.

**CAUTION**

**WARNING**

- Do not set a battery temperature that is lower than the actual temperature as this may cause the battery to freeze or damage. Similarly, do not set a battery temperature that is higher than the actual temperature as this may result in over-charging the battery.

**Failure to follow these instructions can damage the unit and/or cause a hazard other than battery damage.**

**NOTE:** Always be aware of the temperature setting, observe the battery’s actual temperature and adjust the Battery Temperature setting accordingly. For varying conditions, use the ‘Bulk’ setting.

**Temperature Selection**

- **Temperature of Battery:**
  - Below 25°C (77°F)
  - Between 25°C and 50°C (77°F and 122°F)
  - Above 50°C (122°F)

**Voltage added to temperature compensation error over 25°C**

<table>
<thead>
<tr>
<th>Temperature Selection</th>
<th>Voltage added to temperature compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 25°C (77°F)</td>
<td>-0.01</td>
</tr>
<tr>
<td>Between 25°C and 50°C (77°F and 122°F)</td>
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</tr>
<tr>
<td>Above 50°C (122°F)</td>
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</tr>
</tbody>
</table>

**Configuring the Battery Bank Type**

**NOTE:** By default, the battery type is set to Flooded.

1. Press and hold the Battery Type Select button for three seconds to advance to the next type.
2. Select the proper battery type.

**NOTE:** The LEDs indicate which of the four types is being selected: Flooded (default), GEL, Lead Calc., and AGM.
**Charger Maintenance**

**Maintaining the Battery Charger**

**Troubleshooting**

In the event that you have a problem with your Truecharge2 Battery Charger, the following tables will help you to identify the problem and offer possible solutions to the problem.

**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Nominal</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>0–50 °C (32–149 °F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input voltage</td>
<td>12 VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output voltage</td>
<td>12V 10A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery terminals and lugs exposed to open air</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Truecharge2 Battery Charger contains solid-state electronic components that require no maintenance. The best way to keep the charger is to store it with a contact with metal or salt water, gasoline or oil, or other corrosive material. Do not operate if the charger is exposed to any liquid.

**Replacing a Blown Fuse**

- Disconnect all AC and DC sources and check all DC voltage connections to be sure they have not loosened or deteriorated. Also check all cable clamps to ensure they are tightly fastened.
- Ensure correct polarity (negative connected to the negative terminal and any nearby exposed metal parts). If it contacts skin, it will cause burns unless rinsed immediately.
- To clean battery terminals, follow the recommendations and procedures of the battery manufacturer.

**Specifications**

- **Input Voltage:** 12 V DC (nominal)
- **Output Voltage:** 12 V 10 A
- **Weight:** 1.5 kg (3.3 lbs)
- **Humidity:** Non-condensing 5–95%
- **Operating Temperature:** 0–50 °C (32–149 °F)
- **Input Fuse:** Littelfuse® ATO/ATC 15 A 32 V (blue)

**Warning and Return Information**

**Warranty**

Warranty does not cover: Warranty only covers: Product damage
- Any items damaged or lost in transit. 
- Any items damaged or lost in transit. 
- Any items damaged or lost in transit. 
- Any items damaged or lost in transit.

**Return Material Authorization Policy**

Before returning a product directly to Xantrex, you must obtain a Return Material Authorization (RMA) number from our Customer Service department at 1-800-669-5500. Products returned to Xantrex without a return authorization number will be refused and returned at the sender’s expense. The requested information is as follows:

- Product name and serial number
- The reason for the return (e.g., warranty return, end of warranty)
- The unit must be returned freight prepaid. Xantrex reserves the right to use parts or products of original or improved design in replacement products. Xantrex reserves the right to use parts or products of original or improved design in replacement products. Xantrex reserves the right to use parts or products of original or improved design in replacement products.