

## Product Manual

This manual contains important safety and operating instructions for standard Delta-Q QuiQ chargers. Please read this information in its entirety before using your QuiQ Charger. For technical support, please visit [delta-q.com/support](http://delta-q.com/support) or contact the manufacturer of your vehicle or machine, as their versions of this charger may require special instructions.

### Warning

Use charger only with an algorithm selected that is appropriate to the specific battery type. Other usage may cause personal injury and damage. Lead acid batteries may generate explosive hydrogen gas during normal operation. Keep sparks, flames, and smoking materials away from batteries. Provide adequate ventilation during charging. Never charge a frozen battery. Study all battery manufacturers' specific precautions (e.g. maximum charge rates and if cell caps should be removed while charging).

### Danger

Risk of electric shock. Connect charger power cord to an outlet that has been properly installed and grounded in accordance with all local codes and ordinances. A grounded outlet is required to reduce risk of electric shock – do not use ground adapters or modify plug. Do not touch uninsulated portions of output connector or uninsulated battery terminals. Disconnect the AC supply before making or breaking the connections to the battery. Do not open or disassemble charger. Do not operate this charger if the AC supply cord is damaged or if the charger has received a sharp blow, been dropped, or is damaged in any way – refer all repair work to the manufacturer, or qualified personnel. This charger is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge on electrical systems and battery charging, unless they have been given supervision or instruction concerning use of the charger by a person responsible for their safety. Children should be supervised to ensure that they do not play with the charger.

### Attention

Utiliser le chargeur seulement avec un algorithme approprié au type spécifique de batterie. D'autres types de batteries pourraient éclater et causer des blessures ou dommages. Les batteries peuvent produire des gaz explosifs en service normal. Ne jamais fumer près de la batterie et éviter toute étincelle ou flamme nue à proximité des batteries. Fournissez une ventilation adéquate du chargement. Ne jamais charger une batterie gelée. Prendre connaissance des mesures de précaution spécifiées par le fabricant de la batterie, p. ex., vérifier s'il faut enlever les bouchons des cellules lors du chargement, et les taux de chargement.

### Danger

Risque de décharge électrique. Ne pas toucher les parties non isolées du connecteur de sortie ou les bornes non isolées de la batterie. Toujours connecter le chargeur à une prise de courant mise à la terre. Déconnectez la source AC avant de faire ou défaire les connexions à la batterie en chargement. Ne pas utiliser le chargeur si le cordon d'alimentation AC est endommagé ou si le chargeur est abîmé suite à une chute ou autre incident. Ne pas ouvrir ni désassembler le chargeur – référer toute réparation aux personnes qualifiées. Cet appareil n'est pas destiné à un usage par des personnes (dont les enfants) avec des facultés motrices, sensorielles ou mentales réduites, ou ayant une expérience et des connaissances insuffisantes, à moins qu'elles sont sous la supervision ou reçoivent les instructions sur l'utilisation de l'appareil d'un répondant garant de leur sécurité. Les enfants devraient être surveillés afin qu'il ne jouent en aucun temps avec l'appareil.

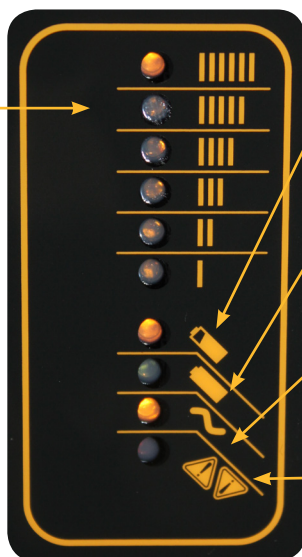
## Operating Instructions

- + The charger may become hot during charging. Use hand protection to safely handle the charger during charging.
- + Extension cords must be 3-wire cord no longer than 30m (100') at 10 AWG or 7.5m (25') at 16 AWG per UL guidelines.
- + Only connect one QuiQ Charger to a single 120VAC 15A circuit, or the circuit may become overloaded.
- + The charger will conduct a self-test after being powered on, visible by flashing all of its LEDs in sequence.

### Charger 10-LED Display

#### Ammeter

- + If solid: Displays scale of output during bulk phase.
- + If flashing: Output has been reduced due to high internal charger temperature. Displays charge profiles 1-6 for 11 seconds if no battery is connected.



#### Bulk Charge Indicator

- + If solid: Bulk charge phase complete (80% charged); in absorption phase.
- + If flashing: Displays charge profile number if no battery is connected. Displays charge profiles 7 and above.

#### Charge Completion Indicator (Green Light)

- + If solid: Charging complete and maintenance mode is active.
- + If flashing: Absorption phase complete, in finishing phase.

#### AC Indicator

- + If solid: AC power is present.
- + If flashing: Low AC voltage. Check electrical source and cord length.

#### Fault Indicator (Red Light)

- + Charger error. Refer to troubleshooting information below.



LED Colour	Indication
Green	<ul style="list-style-type: none"> <li>+ If solid: Charging complete and maintenance mode is active.</li> <li>+ If flashing:                             <ul style="list-style-type: none"> <li>Short: &lt;80% Charge.</li> <li>Long: &gt;80% Charge.</li> </ul> </li> </ul> When battery is not connected: Charge Profile (Algorithm Number) display
Amber	<ul style="list-style-type: none"> <li>+ If flashing: Reduced power mode. Low AC voltage or high internal charger temperature.</li> </ul>
Red	<ul style="list-style-type: none"> <li>+ If flashing: Charging error. Reset charger power and refer to Troubleshooting Instructions below.</li> </ul>

## Maintenance Instructions

- Do not expose charger to high pressure water spray when cleaning vehicle.
- The enclosure of the charger meets IP66, making it dust-tight and protected against powerful water jets. The AC connection is rated to IP20, which is not protected against water. Protect the AC connection if used in wet or dusty environments.
- If the detachable input power supply cord set is damaged, replace with a cord that is appropriate for your region:
  - + This charger is provided with a cord set for connection to outlets operating at nominal 120 Volts (or 240 Volts as appropriate). If the input plug does not fit the power outlet, contact Delta-Q Technologies for the proper cord set terminating in an attachment plug of the proper configuration for the power outlet.
  - + 'North America: UL or CSA listed / approved detachable cord, 3 conductor, 16AWG minimum and rated SJT; terminated in a grounding type IEC 60320 C14 plug rated 250V, 13A minimum
  - + For all other regions: Safety approved detachable cord, 3 conductor, 1.5mm<sup>2</sup> minimum, rated appropriately for industrial use. The cord set must be terminated on one end with a grounding type input connector appropriate for use in the country of destination and, on the other end, an output grounding type IEC 60320 C14 plug.

## Troubleshooting Instructions

If a fault occurs, count the number of red flashes between pauses and refer to the table below.

Flashes	Cause	Solution
	Battery high voltage	Check battery size and condition. This fault will clear automatically once the condition has been corrected.
	Battery low voltage	Check battery size and condition. This fault will clear automatically once the condition has been corrected.
	Charge timeout caused by battery pack not reaching required voltage; or charger output reduced due to high temperatures.	Check connections, that battery type matches selected charge profile and operate the charger at a lower ambient temperature. Reset the charger by interrupting AC power for 15+ seconds.
	Battery could not be trickle charged up to minimum voltage.	Check for shorted or damaged cells. Reset the charger by interrupting AC power for 15+ seconds.
	Charger shutdown due to high internal temperature.	Ensure sufficient cooling airflow. Reset the charger by interrupting AC power for 15+ seconds.
	Internal charger fault	Reset the charger by interrupting AC power for 15+ seconds. Return to service depot if fault persists.

Note: This is a Class A product complying with United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 15. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

WARNING: Charger connectors must be mated to connectors from the same manufacturer. Failure to do so may void warranty and cause a hazardous condition or equipment damage.

## Selecting A Charge Profile

Delta-Q's QuiQ Charger can store up to 10 charging profiles, also called charge algorithms. This section shows how to identify the default profile and select a new profile using the "tap method."

QuiQ chargers are reprogrammable using the QuiQ Programmer supplied by Delta-Q to its OEM partners. Pre-2006 QuiQ chargers with serial number prefix DQCP allow pre-loaded profiles to be selected, but cannot be reprogrammed with new profiles.

### Identify the default profile

1. Required supplies include an insulated wrench, eye protection and gloves.
2. Disconnect the AC power source from the charger, either from the wall outlet, or from the IEC320 connector on the charger.



Figure 1: Disconnect AC power.

3. Use your insulated wrench to remove the positive lead from the positive terminal on the battery pack.



Figure 2: Remove positive lead from positive terminal on the battery pack.

4. Reconnect AC power.



Figure 3: Reconnect AC power to the charger.

5. Charger will conduct a self-test of its LED indicators.



Figure 4: Charger LED indicator self-test.

- 6a. For 11 seconds after the self-test, the charger will display its default charge profile. Profiles #1-6 will display on the ammeter, as well as on the bulk charge indicator.



Figure 5: Charge profile #1 on the ammeter.

- 6b. Charge profiles #7 and above will display on the bulk charge indicator. If the charge profile number has two digits, it will be displayed by one or more flashes, a pause, then one or more flashes (e.g. #13 = ☀️ ⏸️ ☀️ ☀️ ☀️ )



Figure 6: Bulk charge indicator displays charge profiles 7 and above.

### Select a new profile

7. Disconnect AC power (see Figure 1).
8. Reconnect AC power (see Figure 3).
9. Touch the positive lead to the positive terminal for three seconds (+/- 0.5 seconds), then remove the lead. You will see the next profile displayed on the charger's display. Repeat this step until you reach the desired charge profile.



Figure 7: Touch the positive lead to the positive battery terminal for 3 seconds.

10. When the charger displays the desired charge profile, apply the positive lead to the positive battery terminal for 10 seconds. When the charge profile is locked, you will hear a click from the charger. See Figure 7 for how to apply the positive lead to the positive terminal.

11. Disconnect AC power, wait for the LED indicator display to turn off, then reconnect AC power. (See Figure 3)

12. Check the LED display to ensure that the desired charge profile is selected.

13. Disconnect the charger from AC power and wait for the LED indicator display to turn off. (See Figure 1)

14. Reconnect the positive lead to the positive battery terminal.



Figure 8: Reattach the positive lead to the positive terminal after disconnecting AC power.