



QuiQ

SERIES

QuiQ Troubleshooting Guide - JLG



DISPLAY PANEL LEGEND:

100%
BATTERY CHARGED

BATTERY CHARGING

FAULT CODE - # RED BLINKS

1 FLASH - BATTERY VOLTAGE HIGH
2 FLASHES - BATTERY VOLTAGE LOW
3 FLASHES - CHARGE TIMEOUT
4 FLASHES - CHECK BATTERY
5 FLASHES - OVER TEMPERATURE
6 FLASHES - CHARGER FAULT

SEE MANUAL FOR ADDITIONAL INFORMATION

DANGER: RISK OF ELECTRIC SHOCK. CONNECT ONLY TO PROPERLY GROUNDED AC OUTLET. DO NOT TOUCH UNINSULATED PORTION OF OUTPUT CONNECTOR OR UNINSULATED BATTERY TERMINAL.
DO NOT REMOVE COVER. NO OPERATOR SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.
RISQUE DE CHOC ELECTRIQUE. NE PAS TOUCHER LES PARTIES NON ISOLEES DU CONNECTEUR DE SORTIE OU LES BORNES NON ISOLEES DE LA BATTERIE.

CAUTION: READ MANUAL BEFORE CHARGING. USE ONLY ON BATTERY SYSTEMS WITH AN ALGORITHM SELECTED THAT IS APPROPRIATE TO THE SPECIFIED BATTERY TYPE AND CAPACITY. SET MANUAL CHARGING OTHER BATTERY TYPES OR VOLTAGES MAY CAUSE PERSONAL INJURY AND DAMAGE. SURFACES MAY BE HOT. TO AVOID RISK OF BURNS, DO NOT TOUCH.
ATTENTION: UTILISER SEULEMENT SUR LES BATTERIES AVEC UN ALGORITHME APPROPRIE AU TYPE ET A LA CAPACITE SPECIFIQUES DE LA BATTERIE. VOIRE LE MANUEL D'AUTRES TYPES DE BATTERIES POURRAIENT ECLATER ET CAUSER DES BLESSURES OU DOMMAGES.

WARNING: RISK OF EXPLOSIVE BATTERY GASES. ADEQUATE VENTILATION DURING CHARGING IS REQUIRED. PREVENT FLAMES OR SPARKS. CONSULT MANUAL.
DISCONNECT AC SUPPLY BEFORE MARKING OR BREAKING CONNECTIONS TO THE BATTERY. OR ARCING AND BURNING MAY RESULT TO AVOID DAMAGE. DO NOT PULL ON CHARGE CORD. HAVE DEFECTIVE CORDS OR PLUGS REPLACED IMMEDIATELY BY QUALIFIED PERSONNEL.
THIS EQUIPMENT COMPLIES WITH PART 15 OF THE FCC RULES AND INDUSTRY CANADA'S ICES 003 FOR A CLASS A DIGITAL DEVICE. OPERATION IS SUBJECT TO TWO CONDITIONS:
1) THIS DEVICE MUST NOT CAUSE HARMFUL INTERFERENCE, AND
2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION.
CET APPAREIL NUMERIQUE DE LA CLASSE A EST CONFORME A LA NORME NMB 003 DU CANADA.

BATTERY TYPE: Selectable - see manual
US DESIGN PATENT 5,982,251 Made in China
HEFFFC, BATTERY CHARGER



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CANADA

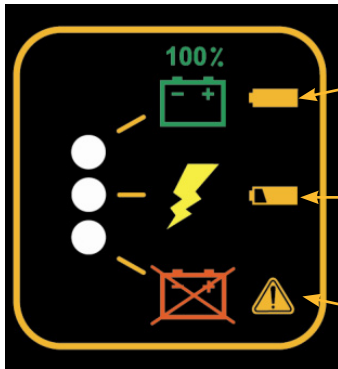
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Delta-Q QuiQ Troubleshooting Guide: Table of Contents

1.0 Indications on the Charger 3-LED Display	4
2.0 Fault Indications	5
3.0 QuiQ-dci Charger/Converter Troubleshooting	7
4.0 Other Conditions	8
5.0 QuiQ Charging Profiles	9
6.0 Charging Profile (Algorithm) Matrix	10
7.0 Instructions for using the QuiQ Programmer CT	11
8.0 Selecting a Charge Profile	15
9.0 Battery Testing	16

1.0 Indications on the Charger 3-LED Display

- ✦ 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.



Charge Completion Indicator (Green Light)

- ✦ When solid: Charging complete. Charger in maintenance mode.

Charging Indicator (Amber Light)

- ✦ When solid: Charger output is active.
- ✦ When flashing: Charging profile is displayed.

Fault Indicator (Red Light)




- ✦ Charger error. Refer to troubleshooting information below.

Troubleshooting Instructions - Overview

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.

2.0 Detailed Fault Indications

Red Flashes	Explanation and Solution
	<p>High Battery Voltage Detected – starting voltage above 2.5V/cell or voltage during charge rose above 2.7V/cell (algorithm dependent).</p> <ul style="list-style-type: none"> + Check that the battery charger voltage is consistent with the battery pack voltage. + Check for wiring errors. + Occasionally a new, fully charged battery pack may cause this condition. Use this pack before charging it again. + Disconnect any other sources during charging. + If this problem does not clear after the battery voltage is measured to be less than 2.5V per cell, contact Delta-Q. + This fault will automatically clear and the charger will restart charging when the voltage drops to within operating range.
	<p>Low Battery Voltage Detected – starting voltage below 0.5V/cell</p> <ul style="list-style-type: none"> + Check the battery and connections to the battery. + Check the nominal battery voltage. Confirm that the nominal battery voltage is the same as the charger voltage. + If this problem does not clear after the battery voltage is measured to be higher than 1V per cell and all connections are good, contact Delta-Q. + This fault will clear automatically when the returns within range.
	<p>Charge Timeout - Indicates the battery failed to charge within the time allowed by the charge algorithm. This could occur if the battery is of larger capacity than the algorithm is intended for. In unusual cases it could mean charger output is reduced due to high ambient temperature. It can also occur if the battery is damaged, old, or in poor condition.</p> <ul style="list-style-type: none"> + Check the battery for damage such as shorted cells and insufficient water. Try the charger on a good battery. + If the same fault occurs on a good battery, check the connections on the battery and connection to AC power, and AC voltage. + Confirm that the nominal battery pack voltage is the same as the battery charger voltage. + If a charger displays this fault on a battery pack, and the pack is of questionable status, reset the charger by disconnecting AC power for 30 seconds, and then reconnect the AC to start a new charge cycle. After a few charge cycles this problem could stop occurring as the pack “recovers.” + This fault must be cleared manually by unplugging the AC, waiting 30 seconds and reconnecting the ac power.

Red Flashes	Explanation and Solution
	<p>Check Battery - This fault indicates the battery pack could not be trickle charged up to the minimum level required for the normal charge cycle to be started.</p> <ul style="list-style-type: none"> ✦ Check that none of the battery pack connections between modules are reversed or incorrectly connected. ✦ Check that one or more cells in the battery are not shorted. ✦ Confirm that the nominal battery pack voltage is the same as the battery charger voltage. ✦ Try the charger on a good battery. ✦ If this fault occurs the battery pack is likely in poor condition. Try to recover the pack with a charger that can charge the individual batteries – such as an automotive charger. Be sure to set this charger to the appropriate voltage – 6V per 6V battery, 12V per 12V string/battery.
	<p>Over-Temperature: This fault indicates the charger has become too hot during operation and has shut down. This extra fault indication (as opposed to the flashing ammeter described above), indicates an even higher temperature was reached inside the charger. Though not damaging to the charger, charge time will be extended significantly</p> <ul style="list-style-type: none"> ✦ This fault indication will not clear automatically, but the charger will restart charging automatically when the temperature drops. The fault indication must be cleared manually by unplugging the AC power, waiting 30 seconds and reconnecting the AC. ✦ If possible, install the charger in a cooler location or increase cooling airflow to the cooling fins. ✦ Confirm that dirt or mud is not blocking the cooling fins of the charger. If required, clean the charger by rinsing it with a low-pressure hose.
	<p>QuiQ Internal Fault: This fault indicates that the batteries will not accept charge current, or an internal fault has been detected in the charger. This fault will nearly always be set within the first 30 seconds of operation. If it occurs after the charger has started charging normally, be sure to make a note of it.</p> <ul style="list-style-type: none"> ✦ Try to clear the fault by unplugging AC power, waiting 30 seconds and reconnecting the AC. ✦ Check all battery connections. Look for a high resistance connection. The most likely reason for this fault is a fault in the battery such as a bad battery connection, an open cell, or insufficient water. ✦ Other electrical hardware such as contactors, switches, etc. which are badly wired may also cause this fault. ✦ This fault will occur if an internal fuse inside the charger blows. If the green wire is shorted to ground even momentarily this fuse will blow. To check the fuse, measure with an ohmmeter between the green and red wires with the AC disconnected. If a short circuit is not measured, the fuse has blown. Contact Delta-Q ✦ If this fault occurs after battery charging has started, confirm that AC power was not interrupted and that all battery connections are good. ✦ If all battery connections are good, an internal fault has been detected. Contact Delta-Q.

3.0 QuiQ-dci Charger/Converter Troubleshooting

The DC-DC converter in the QuiQ-dci is a highly reliable, high performance unit. It has no operating indicators. If abnormal operating conditions arise, consult the symptoms and possible solutions below.

Symptom	Possible Causes and Solutions
No or low output	<ul style="list-style-type: none">+ Input voltage out of range:<ul style="list-style-type: none">+ 35 – 87V for the 48V model+ 50 – 130V for the 72V model+ Unit overheating – increase cooling air flow+ Short circuit detected+ Poor connections – Inspect connections+ Converter damaged
No switched output	<ul style="list-style-type: none">+ Switched input voltage out of range:<ul style="list-style-type: none">+ 8 – 87V for the 48V model+ 8 – 130V for the 72V model+ Switching input circuit damaged from high voltage+ Poor connections – Inspect connections
Turn-on or turn-off delay greater than 3 seconds	<ul style="list-style-type: none">+ Switched input circuit variability – no action required
Wiring or connectors overheating	<ul style="list-style-type: none">+ Wire gauge too small (minimum 18AWG)+ More than 18A drawn from single connector

4.0 Other Conditions

Indication	Explanation and Solution
AC on LED lit, charger won't start charging.	<p>Charger has detected a condition that does not allow it to charge</p> <ul style="list-style-type: none"> ✦ This condition is generally corrected by resetting the charger by removing AC power for 30 seconds and reconnecting it.
Excessive battery watering or strong sulphur (rotten egg) smell	<p>Overcharging or high battery temperature. These symptoms are unlikely to be caused by too high a charge current since the maximum charge current of the charger will be small compared to even a moderately sized battery pack. The most likely cause for this problem is incorrect charge algorithm setting and/or high ambient temperatures.</p> <ul style="list-style-type: none"> ✦ Confirm that the battery pack is not too small – Delta-Q chargers are usually used with batteries larger than 50Ah. ✦ Confirm that the nominal battery voltage matches the charger output voltage. ✦ Confirm the correct battery charge algorithm. If the battery pack is new, the algorithm will need to be changed if the pack is not the same as the old one. Refer to the Product Manual for instructions on how to determine and change the battery charge algorithm. ✦ If the pack is older, it is possible sulphation has taken root. Increased resistance of the battery pack due to this will cause excessive heat and water usage.
Charger operates at low current only	<p>Delta-Q charge algorithms only operate at a low current, usually 2-5A if the battery voltage is less than 2.0V/cell. This is to slowly recharge an over discharged battery to avoid damaging it.</p> <ul style="list-style-type: none"> ✦ Check the battery pack voltage, if it is <2.0V/cell then this low current is normal.
Charger restarts automatically	<p>There are two features of algorithms that may cause this:</p> <ul style="list-style-type: none"> ✦ Maintenance Mode – charger automatically restarts after 14d or 30d, or when the battery voltage falls below 2.08V/cell or 1.5V/cell. These settings are algorithm dependent. ✦ Battery overvoltage – If the battery is very resistive, sometimes in new batteries, the voltage may rise so quickly the charger trips off due to overvoltage. It will then restart the charge cycle when the voltage falls back into range.
Difficulty changing the default battery charge algorithm	<ul style="list-style-type: none"> ✦ The mode to change the battery charge algorithm can only be selected during the first 10 seconds of operation. Refer to the Product Manual for instructions. ✦ If the 10 second window is missed, cycle AC power by unplugging the charger, waiting 30 seconds, and reconnecting AC power. ✦ To extend Battery Charge Algorithm Change Mode by 30 seconds (120 seconds on newer models), connect the charger output to a good battery for approximately 1 second and then disconnect the battery again.

5.0 QuiQ Charging Profiles

QuiQ™ Charging Profiles

JLG Part Number:	0400236C 1001102932 1001136381 1001112111 1001171918	JLG Part Number:	1001129847 1001171917	JLG Part Number:	1001103105	JLG Part Number:	1001152650 1001197707
No.	Battery Type	No.	Battery Type	No.	Battery Type	No.	Battery Type
5	Trojan 30/31XHS	17	150-255Ah flooded or sealed lead acid	42	Discover AGM 80-150Ah	23	JLG/Douglas constant power dv/dt
8	Concorde 10xAh AGM			43	Discover AGM	42	Discover AGM 80-150Ah
11	Generic 200-255Ah flooded constant power DV/DT			73	Generic 400Ah DV/DT	43	Discover AGM
17	150-255Ah flooded or sealed lead acid			141	Fullriver 300Ah AGM	73	Generic 400Ah DV/DT
21	Exide flooded			143	JLG Discover 400Ah	141	Fullriver 300Ah AGM
23	Douglas flooded DV/DT			173	Accelerated 400Ah flooded cp DV/DT	143	JLG Discover 400Ah
42	Discover AGM 80-150Ah					173	Accelerated 400Ah flooded cp DV/DT
43	Discover AGM						
151	Fullriver AGM 200-260Ah						

Part Number Reference

JLG Part Number	Delta-Q Part Number
0400236C	912-2400-J1
0400238E	912-2400-J2
0400241D	912-2400-J3
1001095003	912-2400-J4
1001103105	912-4800-J5
1001102932	912-2400-J6
1001136381	912-2400-J6
1001112111	912-2400-J7(B)
1001129847	912-2400-06(B)
1001171917	912-2400-11/12
1001171918	912-2400-13/14
1001152650	922-4854-05
1001197707	922-4854-08

6.0 Charging Profile (Algorithm) Matrix

	Description	Optimised Battery	Other Tested Batteries	May be Compatible with
#1	150 - 260Ah Trojan flooded Temperature compensated	T105	T875, T1260, T1275, T145	Flooded 150-260Ah
#3	150 - 260Ah Trojan flooded non-Temperature compensated	T105	T875, T1260, T1275, T145	Flooded 150-260Ah
#5	80 - 150Ah Trojan flooded Temperature compensated	Trojan 31XHS	30XHS, 27TMX, SC225	Flooded 12V "Marine" batteries
#6	80 - 150 Ah Gel cell Temperature compensated	DEKA 8G31	n/a	80-15Ah gel
#7	300 - 400Ah Trojan Flooded Batteries non-Temperature compensated	Trojan J305	Trojan L16	Flooded 300-400Ah
#11	180Ah - 250Ah Flooded batteries non-Temperature compensated	US125's	US2200, US12VXC, US8VCX	Flooded 180-250Ah
#17	General Flooded/ AGM battery charging Non-Temperature compensated	180-260Ah batteries	Interstate GC2, Trojan T105, US2200XC, Deka 8CGG2	AGM, gel or Flooded 180-250Ah
#21	Exide Flooded 200-250Ah Temperature compensated	Exide 3ET200	Exide FF06255, Exide 185PZB210	n/a
#26	180-220Ah Gel Temperature compensated	Deka 8GCC2	n/a	150-230Ah gel
#28	180-220Ah Gel Float finish Temperature compensated	Deka 8GCC2	n/a	150-230Ah gel
#42	Discover AGM 80-150Ah Temperature compensated	Discover EV31A	n/a	80-150Ah AGM
#43	Discover AGM 200-400Ah Temperature compensated	Discover EVGC6A	EVL16A, EV185A	200-400Ah AGM
#51	Exide 150-200Ah gel Temperature compensated	Sonnenschein 180Ah gel	n/a	150-200Ah gel
#52	Exide 80 -130Ah gel Temperature compensated	Sonnenschein 105Ah gel	n/a	80-130Ah gel
#62	Trojan Group 31 Flooded non-Temperature compensated	Trojan 31XHS	30XHS, 27TMX, SC225	Flooded 12V "Marine" batteries
#71	140-200Ah Flooded non-Temperature compensated	US8VCX	US2200, US12VXC	Flooded 140-200Ah
#72	250-335Ah Flooded non-Temperature compensated	US305HC	n/a	Flooded 250-330Ah
#73	300-400Ah Flooded non-Temperature compensated	USL16HC	n/a	Flooded 330-400Ah
#125	FullRiver 160-200Ah AGM Temperature compensated	FullRiver DC180-6, DC224-6	n/a	160-200Ah AGM
#126	FullRiver 85-145Ah AGM Temperature compensated	FullRiver DC115-12	n/a	85-145Ah AGM
#141	FullRiver 300-370Ah AGM Temperature compensated	FullRiver DC335-6	n/a	300-370Ah AGM
#151	FullRiver 220-290Ah AGM Temperature compensated	FullRiver DC250-6	n/a	220-290Ah AGM

7.0 Instructions for using the Delta-Q QuiQ Programmer CT

Contents of the QuiQ Programming Kit

Description	Part Number
QuiQ Programmer CT Kit	900-0089-02
QuiQ USB Interface Module	480-0033
QuiQ Programmer CT Installation CD	
USB Cable	475-0072
Wire Assembly	475-0071
QuiQ Programmer CT Instructions	710-0133 R1




QuiQ Programming Kit

QuiQ Programmer CT software will enable you to easily program a QuiQ or QuiQ-dci charger. With QuiQ Programmer CT you can:

- + Add a battery charge algorithm
- + Select a different algorithm for battery charging
- + Delete a battery charge algorithm
- + Upgrade the software in your QuiQ or QuiQ-dci charger
- + View charge tracking data from charger
- + Upload Charge Events to Delta-Q's Online Charge Event Database

Installing QuiQ Programmer CT Software and Drivers

You will find the QuiQ Programmer CT application on the QuiQ Programmer CT installation CD. QuiQ Programmer CT requires a PC with a minimum of 512 MB of RAM, running 32-bit or 64-bit edition of Windows XP, Vista, or 7.

To install QuiQ Programmer CT Insert the QuiQ Programmer Installation CT CD into the CD or DVD drive of your PC (label must be facing up). If the setup application does not launch the QuiQ Programmer CT installer automatically (this will depend on your computer's security settings and configuration), click the Start button (or  icon) on the taskbar; click My Computer; double click the drive labeled QuiQ Programmer CT; double click Setup.exe to launch the installer. You may also use Windows Explorer to navigate to Setup.exe. Then follow the instructions on your screen to complete the software installation.

Note: If your computer is running Windows XP Professional 64-bit, you must install x64 .NET Framework 2.0 before installing QuiQ Programmer CT. You will find x64 .NET Framework 2.0 on the CD in the subfolder Net64Fx. Double click Net64Fx.exe to start installing the software.

Connecting a QuiQ Charger to your Computer



WARNING

Charger outputs greater than 40 VDC pose an energy and/or shock hazard under normal use. Do not energize charger with AC until wire assembly clips are securely connected to charger output, and all leads are secured against movement.



CAUTION

Ensure that the battery leads from the USB Interface Module are protected from sources of electrostatic discharge that may damage the unit.

To connect a QuiQ charger to your computer:

QuiQ Programmer CT must be installed on your computer before you connect a QuiQ charger. See Figure 1.

1. Disconnect AC power from the QuiQ charger.
2. Disconnect the QuiQ charger from all batteries.
3. Connect the Wire Assembly red clip to the charger positive wire (red).
4. Connect the Wire Assembly black clip to the charger negative wire (black).
5. Connect the Wire Assembly to the QuiQ USB Interface Module.
6. Connect the USB cable upstream end to an open USB port on your PC.
7. Connect the USB cable downstream end to the QuiQ USB Interface Module.
8. Upon connection, Windows will detect the QuiQ USB Interface Module and install drivers for it. If Windows does not detect the QuiQ Module you will need to reinstall QuiQ Programmer CT. See section Installing QuiQ Programmer CT Software and Drivers.
9. Connect the QuiQ charger to AC power.

Note: For a reliable connection, ensure that the bare leads do not touch each other or other metallic objects.

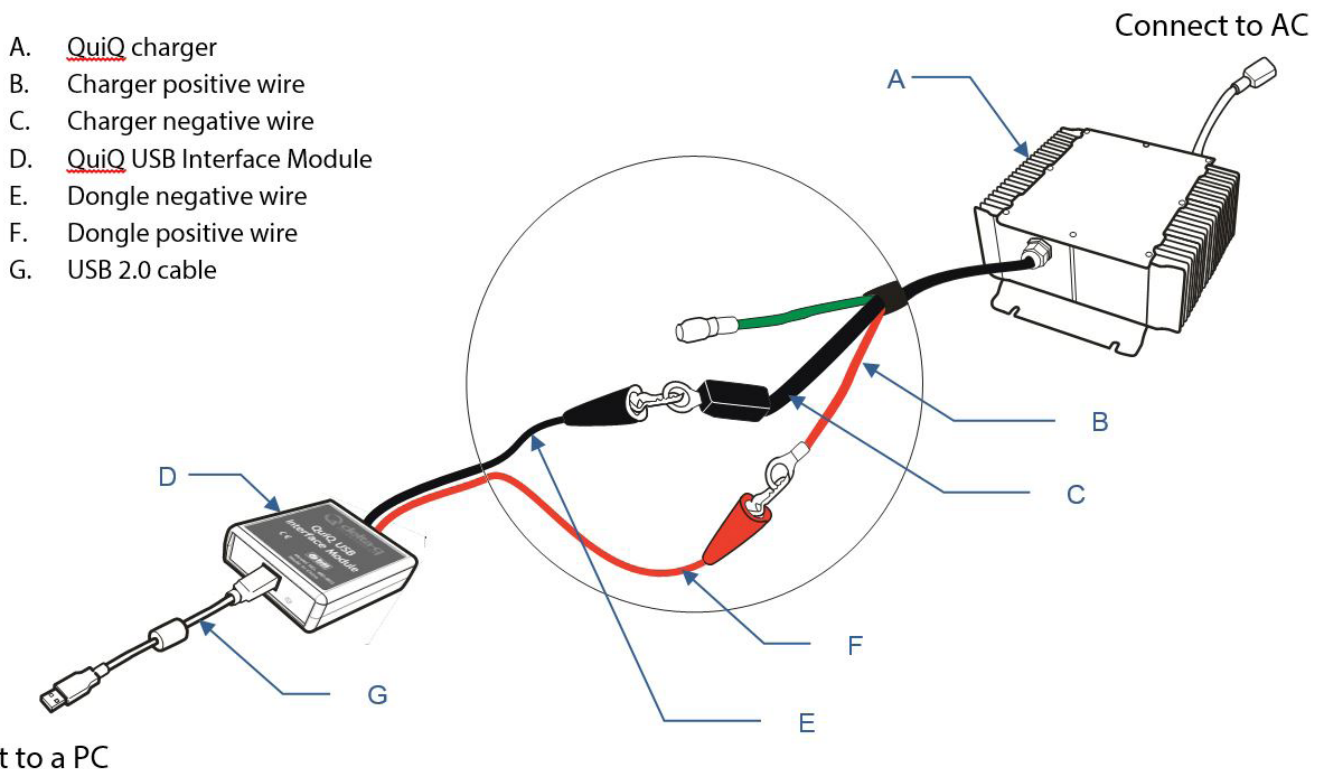
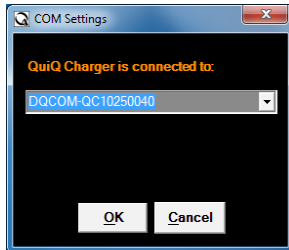


Figure 1. Wire connections for Programmer setup

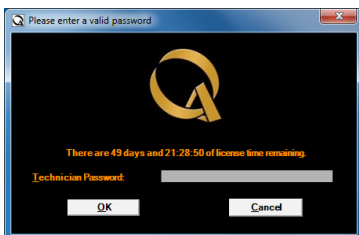
Starting QuiQ Programmer CT

Start Application in User Mode

1. To start QuiQ Programmer CT, select Program/QuiQ Programmer CT/QuiQ Programmer CT from the Start Menu.
2. If your installation has not been registered with a license key, starting the application in User Mode is the only option. First select the Dongle you wish to connect in the COM Setting dialog.



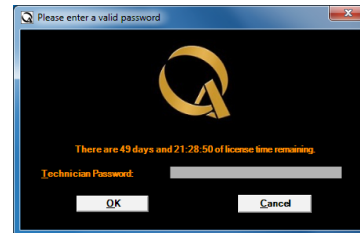
3. Then, the QuiQ Programmer CT starts. If your installation has been registered with a license key, then upon starting the application the login dialog appears:



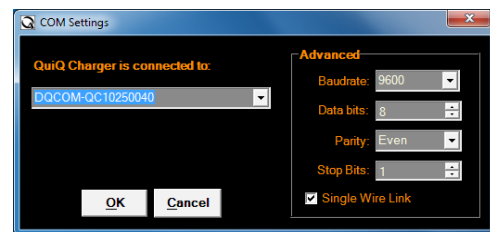
Click on "Cancel" to start the application in User Mode.

Start Application in Technician Mode

1. To access Technician Mode, first obtain a license key and register the QuiQ Programmer CT application. Consult the User Manual for instruction on how to register your enabling sequence for technician mode.
2. To start QuiQ Programmer CT, select Program/QuiQ Programmer CT/QuiQ Programmer CT from the Start Menu. The login screen appears:

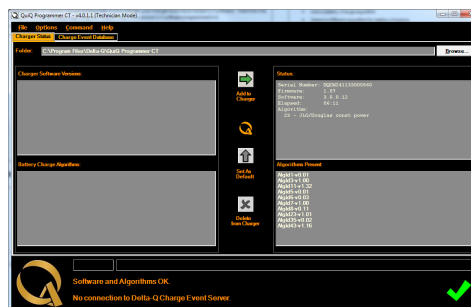


3. Enter the Technician mode password and click OK. If the password is accepted, you may access the application in Technician mode. In the COM Settings dialog, you may select the dongle you wish to use, and click "Ok" to continue.



Now, you have started QuiQ Programmer CT in Technician mode.

4. The QuiQ Programmer CT interface will appear. The connection status area at the bottom of the window will indicate if the QuiQ USB Interface Module is properly connected to your PC and the QuiQ charger.

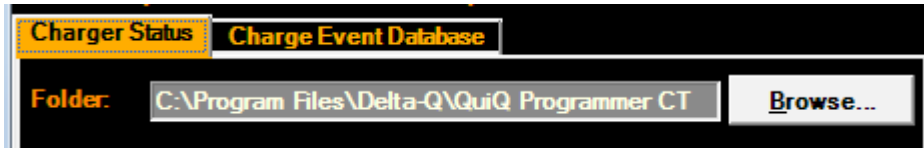


If the connection area displays Status: No Connection, then QuiQ Programmer is unable to communicate with your charger. This may be due to one of the following:

- ✦ The charger is not connected to the PC. Ensure that all wires are connected (see section Connecting a QuiQ Charger to your Computer).
- ✦ The wrong COM port was chosen. Exit QuiQ Programmer CT; restart QuiQ Programmer CT and choose the correct COM port (see step 2 above).
- ✦ The USB connection may be temporarily disabled. Exit QuiQ Programmer CT; disconnect the USB cable from your PC; wait 5 seconds, then re-connect the USB cable to your PC. Start QuiQ Programmer CT and choose the correct COM port. See Starting QuiQ Programmer step 2.
- ✦ The charger is not connected to an AC power source. Ensure that the charger is connected to AC.
- ✦ The QuiQ USB Interface Module driver was installed incorrectly. Exit QuiQ Programmer CT. Disconnect the QuiQ USB Interface Module USB cable from your PC. Remove QuiQ Programmer software from your computer. Reinstall QuiQ Programmer CT.

Programming Delta-Q QuiQ and QuiQ-dci Chargers

Click on the Charger Status tab to activate the Charger Status tab. Then click Browse, to select the folder on your PC containing the QuiQ charger software and algorithms.



What do you want to do?	Icon	Action
Add a charge algorithm to the charger		In the Battery Charge Algorithms list, on the QuiQ Programmer CT user interface, select the algorithms that you want to add to the charger; click the Add to Charger icon.
Upgrade the charger software		In the Charger Software Versions list, on the QuiQ Programmer CT user interface, select the software version that you want to add to the charger; click the Add to Charger icon. Software may take up to 90 seconds to load.
Select a different default algorithm		In the Algorithms Present list on the QuiQ Programmer CT user interface, select the algorithm that you want to set as the default charge algorithm; click Set as Default icon.
Delete an algorithm from the charger		In the Algorithms Present list on the QuiQ Programmer CT user interface, select the algorithms that you want to delete from the charger; click the Delete from Charger icon. Note: You cannot undo an algorithm deletion.

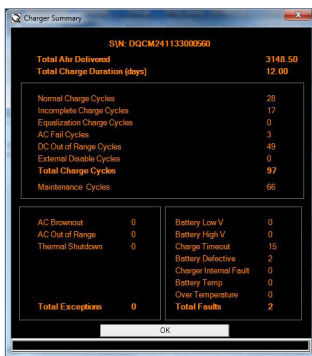
Tip: To select two or more items one after the other in a list, select the first item, press and hold down the SHIFT key on your keyboard, then select the last item. To select two or more items in a list that may not be one after the other, press and hold down the CTRL key, and select the items.

View Charge Tracking Data with QuiQ Programmer CT

Requirement: To view the charge tracking data in your charger, your charger must have version 3.X software. Note that only chargers with serial number beginning with "DQCM" may have version 3.X software programmed in it.

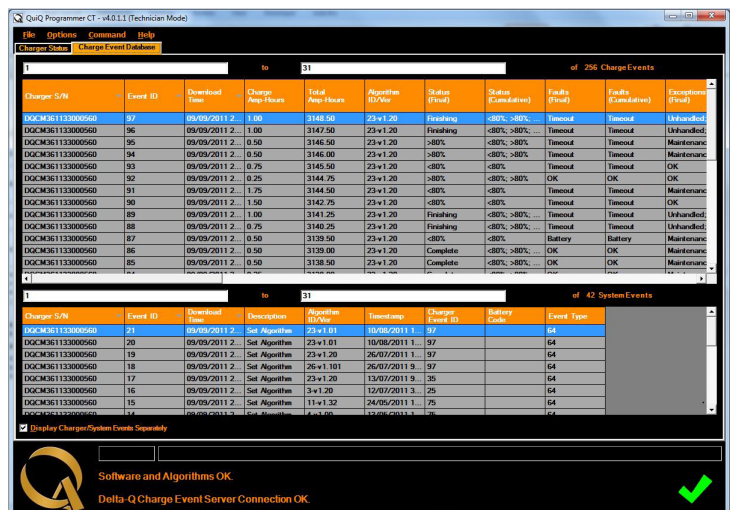
Start Application in User Mode

- + Click on the Charge Event Database tab. This will display the Charger Summary Dialog for that summarizes charge data for the connected charger.



Start Application in Technician Mode

- + Click on the Charge Event Database tab. This will display the Charge Event data grids.
- + Double clicking on a Charge Event row will display the Charge Summary Dialog for that charger.



8.0 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.



Figure 1: Insulated wrench and gloves

2. Disconnect the AC power source from the charger, either from the wall outlet, or from the IEC320 connector on the charger.

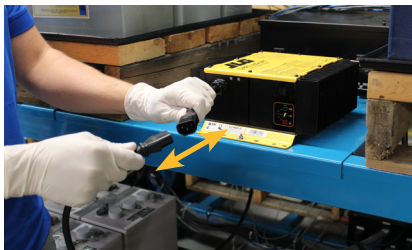


Figure 2: Disconnect AC power.

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



Figure 3: Remove positive lead from positive terminal on the battery pack

4. Reconnect AC power.



Figure 4: Reconnect AC power to the charger

5a. For 11 seconds after the self-test, the charger will display its default charge profile. Profiles are indicated by the number of consecutive flashes followed by a pause (e.g. #2 = ☀️☀️⏸️☀️☀️⏸️☀️☀️).



Figure 5: Default charge profile is displayed by the amber charging indicator light

5b. Charge profiles in the double digits will display in the same way, by one or more flashes, a pause, then one or more flashes (e.g. #42 = ☀️☀️☀️☀️⏸️☀️☀️).

6. After 11 seconds the the red fault light will then blink.



Figure 6: Red fault light blinking

Select a new profile

7. Disconnect AC power (see Figure 2).

8. Reconnect AC power (see Figure 4).

9. Touch the positive lead to the positive terminal for 3 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 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 1,3)

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 positive lead to the positive terminal after disconnecting AC power.

9.0 Battery Testing

As part of regular maintenance, battery testing using a discharge tester or calibrated load is recommended. Battery condition can be determined by comparing actual discharge capacity versus a battery manufacturer's stated reserve capacity (RC). Discharge testing can also help identify defective batteries or cells in battery packs which need attention. Industry standard battery discharge machines use the following rates of discharge to measure battery capacity:

Battery Pack Size (Nominal)	24V	36V	48V
Discharge Rate (Amps)	75	75	56
Cutoff Voltage (1.75Vpc)	21	31.5	42

Procedure:

- + Check electrolyte levels in each cell and add distilled water as required to just ensure that the plates are not exposed. Do not overfill as electrolyte levels typically rise during charging
- + Using Delta-Q charger, fully charge the battery pack (indicated by solid green 100% LED)
- + Check electrolyte levels in each cell and add distilled water as required to restore each cell to the proper level (typically 1/8-1/4" below the bottom of the fill well)
- + Reconnect the charger and allow it to run to normal completion (indicated by solid green 100% LED)
- + Using a discharge tester/load rated for the nominal battery pack size, discharge the pack at a rate appropriate for the type of battery modules in use (see chart above) until the pack voltage reaches 1.75 volts per cell (see chart above)
- + Compare the duration of the discharge test (in minutes) to the manufacturer's rated reserve capacity for your specific battery make and model. A Trojan T-105 battery reserve capacity specification @75A is shown as an example:

PRODUCT SPECIFICATIONS

BCI GROUP SIZE	TYPE	CAPACITY ^A Minutes		CAPACITY ^B Amp-Hours (AH)			
		@25 Amps	@75 Amps	5-Hr Rate	10-Hr Rate	20-Hr Rate	100-Hr Rate
6 VOLT DEEP CYCLE BATTERY - W							
GC2	T-105	447	115	185	207	225	250

There is no set pass/fail criteria for battery discharge times but use the following results as a guide:

- + 80 - 100 % rated capacity minutes - Good
- + 50 -80 % rated minutes - Acceptable
- + Under 50 % - One or more defective batteries. Battery service recommended

A method used to identify a battery with a weak or shorted cell(s) is to restart a discharge tester after reaching the cutoff voltage. Measure the voltage of each battery with the discharge tester running (or under load). A battery with a weak cell under load will have a lower voltage compared to other batteries in a pack.

