

## Installation Instructions (for qualified personnel only)

**WARNING:** The output of chargers and terminals of batteries pose an energy and/or shock hazard under normal use. These units must be installed in the host equipment in such a manner that the output cable and battery connections are only accessible with the use of a tool by qualified personnel.

### Permanent Mounting:

- 1) **This product is intended for permanent mounting.** Install the charger with adequate ventilation, ideally mounted horizontally with airflow from below. If the charger is mounted vertically, it is recommended that the DC-output cord be at the higher end of the charger.
- 2) Keep the charger free of oil, dirt, mud, or dust to keep the cooling fins operating as efficiently as possible.
- 3) Install the charger to the mounting surface using all four holes in the base plate and four appropriate fasteners. (ie. locking ¼" or M6 bolts).
- 4) For UL2202 compliance, a 12AWG green bonding wire must be attached from the stud located on the charger (see Figure 1) to the vehicle frame.
- 5) **Caution:** The charger may become hot to the touch during operation. Install such that risk of human contact with hot surfaces is reduced.
- 6) The charger's AC plug must be located at least 18" above the ground and the display visible to the user.

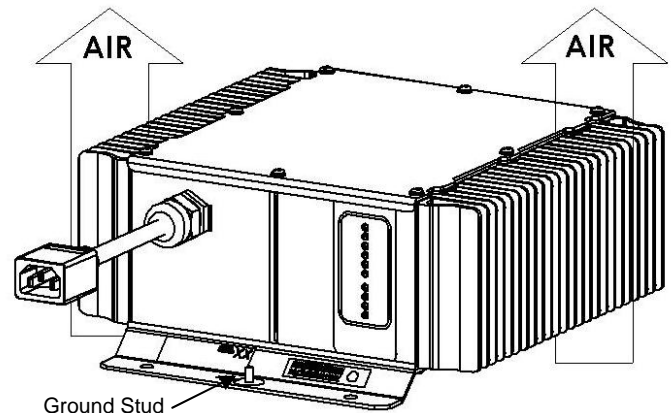


Figure 1: Charger Mounting

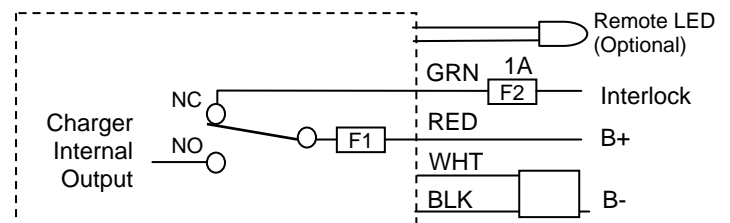


Figure 2: Standard Charger Connections

### DC Output Connection Procedure:

**WARNING:** Shock and Fire hazard. Keep sparks, flames, and smoking materials away from batteries. Provide adequate ventilation when charging. Use extra care to ensure that tools, and other metallic objects do not contact charger connections or battery terminals.

**CAUTION:** For protection of service personnel from shock and energy hazards, Delta-Q recommends the installation of protective insulators on all battery terminals.

**Note:** When connecting the last connection to the battery installation, a small spark may be seen. This is normal, and is caused by the charger's output capacitors.

- 1) The green interlock wire provides a safety interlock function, by outputting battery voltage when the charger is not plugged into AC. (see Figure 2).
- 2) **If the Interlock Relay is used, a user-supplied 1A fast-blow external fuse must be installed in-line to prevent damage. Shorting or drawing more than 1A may damage charger and void the warranty.**
- 3) Securely fasten the black ring terminal to the negative terminal ("-", or "NEG") of the battery pack.
- 4) Check that the correct charge algorithm is being used and, if necessary, change the algorithm by following the algorithm change procedure. Securely fasten the red ring terminal to the positive terminal ("+", or "POS") of the battery pack.
- 5) Install battery terminal insulation on exposed terminals of batteries.

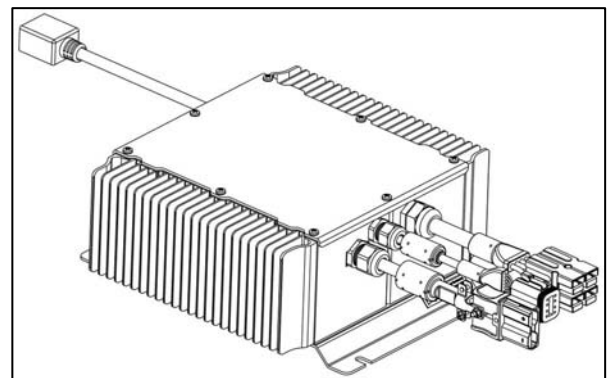


Figure 3: ICON Charger Connections

6) Install an approved Delta-Q temperature sensor on the Battery Temp Sense input or connect it securely to Battery NEG(-).

**CAUTION:** An unconnected temperature input may cause unpredictable charger behaviour

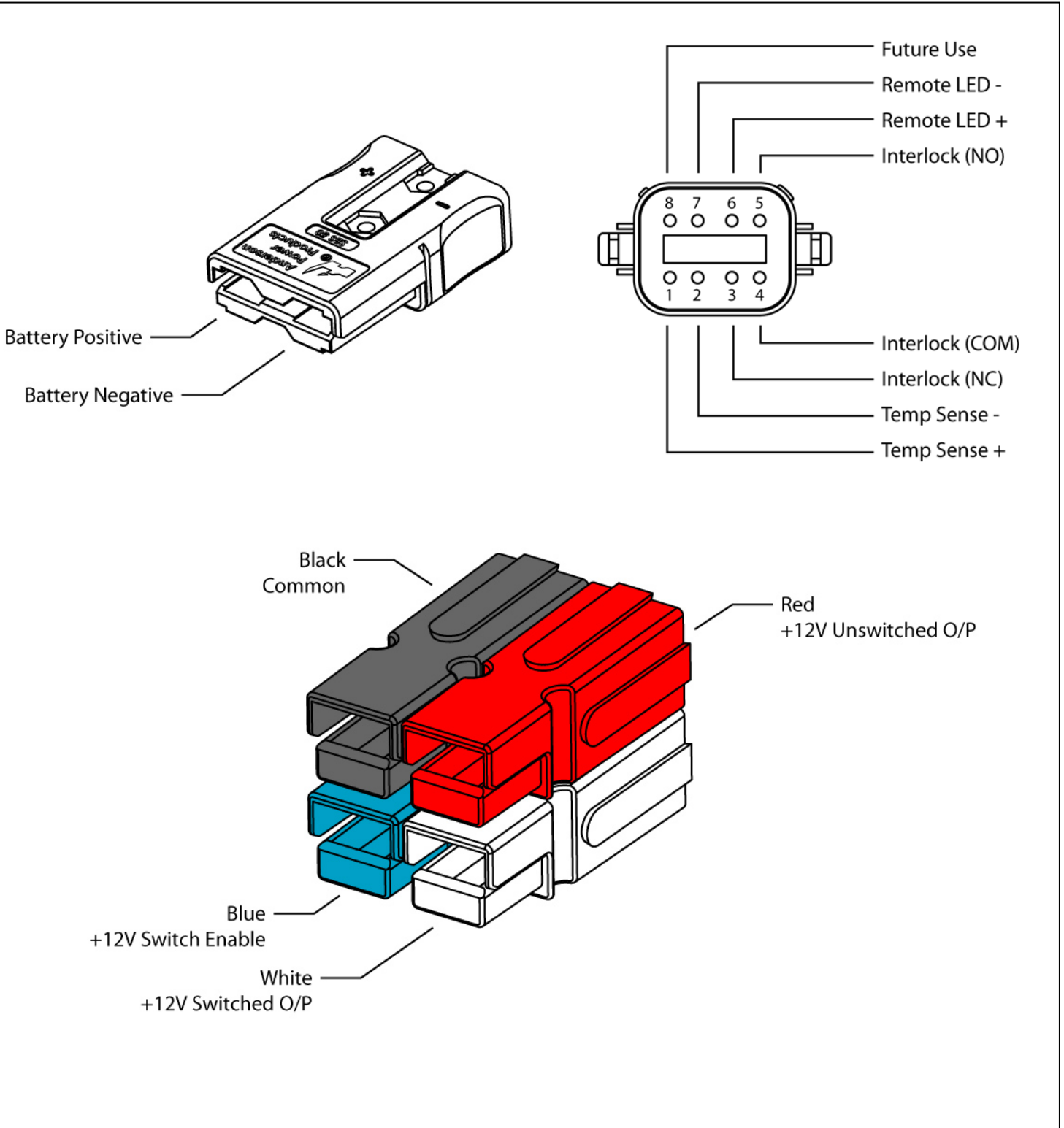


Figure 4: QuiQ ICON Charger Connection Details

## Specifications

### DC Output – see Operating Instructions

QuiQ Model: 912-	24xx	36xx	48xx	72xx	96xx
Voltage-nom (V)	24	36	48	72	96
Voltage-max (V)	33	50	67	100	135
Current-max (A)	25	21	18	12	9
Battery Type	Specific to selected algorithm				
Reverse Polarity	Electronic protection – auto-reset				
Short Circuit	Electronic current limit				

### AC Input

All models	
Voltage-max (Vrms)	85 – 265
Frequency (Hz)	45 - 65
Current - max (Arms)	12A @ 104VAC (reduced by 20% < 104V)
Current – nom (Arms)	10A @ 120VAC / 5A @ 230VAC
AC Power Factor	>0.98 at nominal input current

### Mechanical

All models	
Dimensions	28 x 24.5 x 11cm (11 x 9.7 x 4.3")
Weight	<5 kg (11 lbs) w/ standard cord
Environmental	Enclosure: IP66, AC input connector: IP20
Operating Temperature	-30°C to +50°C (-22°F to 122°F), derated above 30°C, below 0°C
Storage Temperature	-40°C to +70°C (-40°F to 158°F)
AC input connector	IEC320/C14 (see User's Guide for cord selection)
DC output connector	Anderson SBS50 or 12AWG wire with 3/8" ring terminals

### DC-DC Output

QuiQ-dci Model 922-	48xx/72xx/96xx
Voltage	13.5 V
Current-max	30 A – combined pin 1 and pin 2
Current-surge	60 A – max 2 seconds
Short Circuit	Electronic Current Limit
Overload	Electronic Protection

### Operation

All models	
Battery Temperature Compensation	Automatic
Maintenance Mode	Auto-restart if V < 2.1Vpc or 30 days elapse

### Regulatory

Safety	
EN 60335-1/2-29	Safety of Appliances/ Battery Chargers
UL2202	EV Charging System Equipment
UL1564	Industrial Battery Charger
CSA-C22.2 No. 107.2	Battery Chargers- Industrial
Emissions	
FCC Part 15/ICES 003	Unintentional Radiators Class A
EN 55011	Radio disturbance characteristics (Cl A)
EN 61000-3-2	Limits for harmonic current emissions
EN 61000-3-3	Limits of voltage fluctuations and flicker
Immunity	
EN 61000-4-2	Electrostatic discharge immunity
EN 61000-4-3	Radiated, radio-frequency, EMF immunity
EN 61000-4-4	Electrical fast transient/burst immunity
EN 61000-4-5	Surge immunity
EN 61000-4-6	Conducted Immunity
EN 61000-4-11	Voltage variations immunity

### DC-DC Input

QuiQ-dci Model 922-	48xx	72xx	96xx
Voltage range (V0)	35 – 87	50 - 130	60-150
Current-max (A) (peak)	12 (24)	8 (16)	6 (12)
Voltage Range, Switched Output Enable (V)	8 – 17 (3 second off delay)		
Reverse Polarity	Electronic Protection		

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.

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