

Delta-Q SC-48 Charger Manual



A Textron Company

MAINTENANCE INSTRUCTIONS

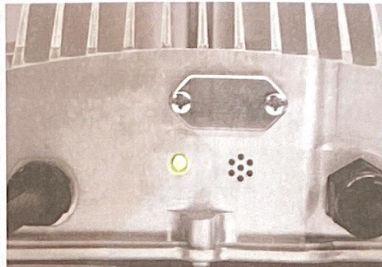
With its sealed enclosure, the Delta-Q 48V Sealed Charger is protected from dirt, mud, dust or water entering the charger.

1. For flooded lead-acid batteries, regularly check water levels of each battery cell after charging and add distilled water as required to level specified by battery manufacturer. Follow the safety instructions recommended by the battery manufacturer.
2. Make sure charger connections to battery terminals are tight and clean. Check for deformation/cracks in plastic parts. Check charger harness for chaffing and rubbing. Inspect all wiring for fraying, loose terminals, chaffing, corrosion or deterioration of insulation.
3. Keep cooling fins free of contamination and do not expose charger to oil, dirt, mud or to direct heavy water spraying when cleaning equipment.
4. Inspect the plug of the battery charger and vehicle receptacle housing for dirt or debris, and clean if necessary.

INSTALLATION INSTRUCTIONS

For optimal charging performance, shorter charge times and safe operation, operate the charger according to the following guidelines:

1. **Mount or place the charger in a clean area with adequate ventilation.** To keep the charger cool, place it in an area that allows clear airflow over its cooling fins. The best configuration is placing the charger horizontally with the cooling fins facing upward. If the charger remains clean and its surface is free of dirt or other contaminants, it will remain cooler and perform better.
2. **Mount or place the charger in an area that reduces risk of contact by people, since it may become hot while in operation.** Wall mount or shelf mount the charger using #10-M5 screws. If hanging by keyhole slots, use at least one additional screw in the hole in the mounting flange to secure. The charger's status display must be visible to the user.
3. **Always use a grounded outlet.** When using an extension cord, avoid excessive voltage drops by using a grounded 3-wire 14 AWG cord. The charger should not be left plugged in to vehicle for extended periods with no AC present.



Green LED light indicating charging is underway or completed



Red LED light indicating absence of AC voltage or fault code

LED DISPLAY INFORMATION

Short green flash: Less than 80% charged

Long green flash: More than 80% charged

Solid green LED: 100% charged

Red flash: Fault code. See section below.

LED FAULT CODE INFORMATION

All fault codes are shown on the charger's LED indicator in RED.

FLASH RED: Light turns on briefly, then goes out. Check for valid AC voltage.

ONE FLASH - Charge Enable Fault: Poor contact in DC connector or battery temperature fault: battery temperature is greater than 122° F (50° C).

TWO FLASHES - Battery Voltage Fault: Battery Pack is less than 36.0 Volts or more than 67.2 Volts. Battery pack is too discharged or overcharged to be charged.

THREE FLASHES - Battery Charge Timeout: Charge time exceeded. This may indicate a problem with the battery pack (old battery pack) or that the charger output current was severely reduced due to high ambient temperatures.

FOUR FLASHES - Battery Fault: Charge time exceeded. This indicates a problem with the battery pack voltage not attaining the required nominal level within the maximum time allowed.

SIX FLASHES - Charger Fault: an internal fault has been detected. If Fault 6 is again displayed after unplugging and then plugging the DC power cord, the charger must be brought to a qualified service center.

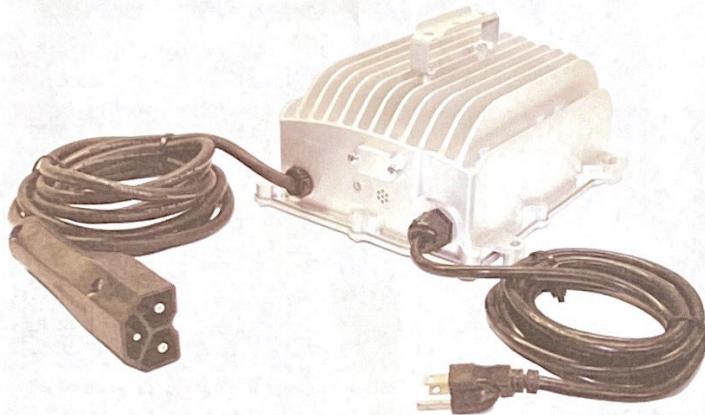
CHARGING PROCESS

1. When the charger's paddle is plugged into the vehicle's charger receptacle and the AC cord into the electrical outlet, the charger will automatically turn on. The charger's LED indicator will start flashing green to indicate the battery is charging.
2. Once a minimum battery voltage of 2 volts per cell (Vpc) is reached, the charger's output current will change from a trickle current to the full rated charging current. The length of charge time will vary by how depleted the battery pack is, the input AC voltage, and/or charger ambient temperatures. The charger's LED will feature a short green flash if charge is <80% and a long green flash if >80%.
3. When the charger's LED and the vehicle's receptacle LED is continuously green, the batteries are completely charged. The charger may now be unplugged from the vehicle. If left plugged in and the battery pack voltage drops below a minimum voltage or 30 days has elapsed, the charger will automatically restart a complete charge cycle.
4. If a fault occurred anytime during charging, a fault indication is given by quickly flashing the red LED on the charger. The specific fault is indicated on the charger by flashing red a number of times, pausing, and then repeating. There are several possible conditions that generate errors. Some errors require human intervention to resolve the problem and then to reset the charger by unplugging the DC cord from the vehicle. Others may be simply transient and will automatically recover when the fault condition is eliminated. If the AC voltage is interrupted and restored, the charger will turn back on automatically.

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Save These Important Safety Instructions

Read before using charger. This manual contains important safety, operating and installation instructions.

Battery Safety Information



WARNING

Use charger only on 48 volt battery systems. 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 such as recommended rates of charge and removing or not removing cell caps while charging.

Electrical Safety Information



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 portion of output connector or uninsulated battery terminal. Disconnect the AC supply before making or breaking the connections to the battery while charging. Do not open or disassemble charger. Do not operate charger if the AC supply cord is damaged or if the charger has received a sharp blow, been dropped, or otherwise damaged in any way. Refer all repair work to qualified personnel. Not for use by children.

Informations Importantes De Sécurité

Conserver ces instructions. Ce manuel contient des instructions importantes concernant la sécurité et le fonctionnement.

Information de Sécurité de la Batterie



ATTENTION

Utiliser seulement sur les batteries avec un algorithme approprié au type spécifique de batterie – voire le manuel. 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 de ces derniers. Fournir la bonne ventilation lors 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 de la batterie, et les taux de chargement recommandés.

Information de Sécurité Électrique



DANGER

Risque de chocs électriques. 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. Ne pas ouvrir ni désassembler le chargeur – référer toute réparations aux personnes qualifiés. Pas à l'usage des enfants.

Guarde Estas Instrucciones Importantes De Seguridad

Este manual contiene instrucciones de seguridad importantes para la operación e instalación del cargador – lea antes de utilizar el cargador.

Información de seguridad de batería.



¡ATENCIÓN!

Utilice el cargador sólo en sistemas de batería con un algoritmo escogido que es apropiado al específico tipo de batería. Otro uso puede causar la herida y daño personal. Las baterías de plomo-ácidas principales pueden engendrar gas explosivo de hidrógeno durante la operación normal. Mantenga las chispas, las llamas y las materias humeantes lejos de baterías. Proporcione la ventilación adecuada durante la carga de la batería. Nunca cargue una batería congelada. Estudie las precauciones específicas de todos los fabricantes de baterías, las tasas tal como recomendadas de la carga y quitando o no quitando la célula las tapas al cargar... – Use solamente para aplicaciones de 48 voltios.

Información eléctrica de seguridad



¡PELIGRO!

El riesgo de calambre. Conecte la cuerda del cargador a una salida de corriente o enchufe que ha sido instalada apropiadamente y basada en la conformidad a códigos y ordenanzas locales. Una salida de corriente firme es requerida para reducir el riesgo de calambre. No utilice adaptadores de suelo ni modifique tapón. No toque la porción aislada del conector de salida ni terminal aislada de batería. Desconecte el suministro de A.C. antes de hacer o romper las conexiones a la batería al cargar. No abra ni desmonte el cargador. No opere el cargador si la cuerda del suministro de A.C. ha sido dañado o si el cargador ha recibido un golpe agudo, fue dejado caer, o de otro modo dañado en ninguna manera. Refiera todo trabajo de la reparación al personal calificado. Este cargador no es para uso por niños.