

T03-00014-AAAA Battery-Only Vehicle Charger Installation Instructions




Introduction

The T03-00014-AAAA vehicle charger is used to charge lithium-ion batteries, detached from the portable radio. The kit consists of the charger, four self-drilling screws, and a power cable.

The input voltage of the charger is 12V to 16V.



Notice You must use the vehicle charger with a 24V to 12V DC-DC converter if the vehicle has a 24V power supply, or if the power supplied by the vehicle may be unstable (for example, while the battery in a fire truck is being charged at the station).

 Tait can provide a TA2761-02 voltage converter which takes input between 10V and 30V and regulates it to 14.4V at up to 6A.

Installation tools

The following tools are required to install the vehicle charger:

- if enabling the ignition sense signal (see page 5): Torx T10 screwdriver
- if pre-drilling mounting holes: drill template (see page 11), center punch, hammer, drill, and drill bits
- Pozidriv PZ2 screwdriver
- side cutters or wire strippers

Important safety requirements



Warning Installation of this product in a vehicle must be performed according to the instructions provided by the vehicle manufacturer.

For more information, refer to the vehicle manufacturer's website or contact the vehicle manufacturer's dealer.



Warning Observe the following precautions when installing the battery charger. Failure to observe these precautions could result in personal injury and/or equipment damage.

- Check before drilling holes in the vehicle. Select points where drilling will not damage existing wiring, fuel tanks, fuel lines, brake pipes, or battery cables.
- Avoid obstructions. When mounted, the charger must not obstruct or endanger the occupants of the vehicle. The charger must not obscure the driver's vision, interfere with control of the vehicle, or obstruct any airbags.
- Mount the charger securely. The charger must not break loose in the event of a collision. An unsecured charger can seriously injure vehicle occupants.
- If the vehicle is a fuel or gas tanker, observe the special conditions that must be observed when installing radio equipment on fuel or gas tankers. For details, contact your radio provider or a Tait-accredited service center.
- If the vehicle is powered by LPG (liquefied petroleum gas), observe LPG requirements. If the LPG container is in a sealed-off space within the interior of the vehicle, a radio equipment installation must conform to the National Fire Protection Association Standard NFPA 58. The standard states that the radio equipment installation must meet the following requirements:
 - The space containing the radio equipment shall be isolated by a seal from the space containing the LPG container and its fitting.
 - Outside filling connections shall be used for the LPG container and its fittings.
 - The LPG container space shall be vented to the outside of the vehicle.
- Avoid interference with vehicle electronics. Install the charger and the power cable clear of all other electronic systems and cables.

Installation overview

Installing the charger in a vehicle is done in six steps:

- 1 Choose the mounting position for the charger.
- 2 Decide how power will be supplied to the charger and, if necessary, enable the ignition sense signal.



If using the ignition sensed connection method, enable the ignition sense signal **before** mounting the charger.

- 3 Choose the best path for the power cable.
- 4 Test the proposed installation.
- 5 Mount the charger in the required position.
- 6 Connect power to the charger.

1 Choosing the mounting position for the charger

Choose a position for the charger that is safe and convenient to use. Make sure that the installation procedure and installation will meet all safety requirements identified in “Important safety requirements”. The mechanical dimensions of the charger are illustrated on page 10.

2 Choosing how to connect power to the charger

Notice Leave the vehicle battery connected during the installation. Disconnection is not necessary and may disrupt other electronic systems in the vehicle.

Power cable

The power cable supplied in the charger package has red (+), black (-), and blue (ignition sense) leads, and a DC power plug (connects to the charger). The red and black leads in the power cable each have a built-in 3 A automotive blade fuse. The fuses are plugged into in-line fuse holders and are easily replaced if necessary.

When installing the power cable, make sure that the fuses are near the battery and accessible. To remove a fuse, slide it from the holder. (If the fuse has blown, the ‘S’ is no longer visible through the plastic body of the fuse.) To order a replacement fuse from your Tait dealer, quote part number **265-00010-64**.

Vehicle power source

Make sure that the vehicle power source can supply the power required by the charger. The charger is designed to operate from a 12 V nominal supply but will tolerate a supply voltage range of 11 V to 20 V. The charger will draw a maximum of 2.1 A.



If using a 24 V to 12 V converter to supply power to the charger, make sure that the converter maintains output regulation to 12 V when the load current is 0 mA.

Connection method

Decide how to connect the charger to the power source.



If using the ignition sensed method, enable the ignition sense signal **before** mounting the charger.

Method	Description
Ignition sensed	The charger is switched off when the vehicle ignition is switched off. Charging resumes when the ignition is switched on again. Until then, the charger draws only minimal standby power from the vehicle battery. To use this method, remove link W1 to enable the ignition sense signal. See “Enabling the ignition sense signal” on page 5.
Ignition switched	The charger is switched off when the vehicle ignition is switched off. An easier installation than ‘ignition sensed’ because the ignition sense signal does not have to be enabled. The source of switched accessory power (for example, the fuse box in the vehicle) must have a current rating of at least 3A. If the charger and multiple in-vehicle systems are connected to the same source of switched accessory power, the total power drawn can trigger a charger ‘under voltage’ event. This will not harm the charger but charging will be temporarily suspended and the orange LED will stay lit until the voltage returns to normal.
Continuously powered	An easier installation than ‘ignition sensed’ because the ignition sense signal does not have to be enabled. The charger is on at all times. Even when the vehicle ignition is switched off, the charger continues to operate and to draw power from the vehicle battery. If the charger is left on when the vehicle is not in regular use, the vehicle battery could be drained.

Cigarette lighter

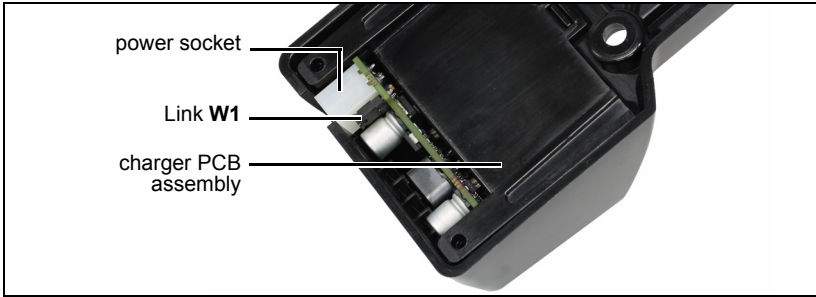
If the cigarette lighter works only when the ignition is switched on, connection to the lighter has the same effect as ‘ignition switched’. If the cigarette lighter works even when the ignition is switched off, connection to the lighter has the same effect as ‘continuously powered’.

Enabling the ignition sense signal

The charger is supplied with the ignition sense signal disabled.

To enable the ignition sense signal:

- 1 Use a Torx T10 screwdriver to remove the four back plate screws from the rear of the charger, and lift off the back plate.
- 2 Tilt the charger PCB assembly, and remove link **W1** from the charger PCB, as shown.



- 3 Replace the charger PCB assembly and secure the back plate using the four screws.

3 Routing the power cable

Plan the best route available to run the supplied power cable from the charger location to the power source. This route must take into consideration the safety requirements identified in “Important safety requirements” on page 2.

4 Testing the proposed installation

- 1 Place the battery in the charger.
- 2 Hold the charger in the intended position.
- 3 Make sure that the proposed installation will satisfy all conditions identified in the checklist below.

- The installation will meet all important safety requirements.**
See "Important safety requirements" on page 2.
- The charger will not be subjected to direct sunlight once mounted.
Direct sunlight will heat the battery and may interfere with normal charging.
Tait recommends that you install the charger low in the vehicle cabin.
- There is clearance below the charger so that cool air can flow between the bottom of the charger and the nearest surface. To prevent overheating, the bottom of the charger must be at least 3/16 inch (5mm) from the surface below it.
- The charger will not be upside down once mounted. A battery placed loosely in the charger will remain in the charger even if the catch is not engaged. A battery, when ejected from the charger, will not fall on or injure occupants of the vehicle.
- The charger can be used when seatbelts are secured, and will not obstruct airbags.
- The battery can conveniently be placed in and removed from the charger.
- The glove box can be opened without obstruction.
- The power cable can comfortably reach both the power source and the charger, and can be plugged into the power socket on the charger. (If there will be no access to the socket once the charger is mounted, connect the power cable before mounting the charger.)
- The power cable can be safely routed from the power source to the charger. The power cable is protected from engine heat and sharp edges, and will not be pinched or crushed.
- If the 'ignition sensed' power connection method is to be used, the ignition sense signal has been enabled.
- The surface around the charger is strong enough to support the charger. The charger fits comfortably on the mounting surface.

5 Mounting the charger in position

Notice Do not drill additional holes into the charger. Additional holes may damage components.



If using the ignition sensed connection method, enable the ignition sense signal before mounting the charger. See “Enabling the ignition sense signal” on page 5.

The charger can be installed on the dashboard or on any sufficiently flat surface (e.g. cabin floor or trunk). The charger can be mounted using the self-drilling screws provided in the installation kit, or nuts and bolts (not included).

Notice When mounting the radio on a surface, check whether the mounting screws will screw into material providing sufficient strength. Reinforce the mounting surface, if required.

- 1 Hold the charger in chosen position and use the mounting holes as a template to mark the mounting locations. Use all four screws to install the charger. You can also use the drill template provided on page 11.

Notice Ensure that drilling at the selected points will not damage existing wiring.

- 2 The screws provided are self-drilling. For more precise positioning, predrill pilot holes for the self-drilling screws.

The size of the hole to be drilled in the vehicle surface depends on the material and construction of the mounting surface (for example, thin metal, thick metal, wood, or plastic). For some surfaces, you may need to prepare the holes. Use a center punch and then drill the hole.

- 3 Drill any holes required for cables and install suitable grommets or bushings in the holes.
- 4 If access to the power socket on the charger will be restricted once the charger is mounted, connect the power cable to the charger now. Otherwise connect it once the charger is mounted.

Notice Do not over-tighten the self-drilling screws that secure the charger, or you will damage the mounting surface or distort the charger.

- 5 Screw the charger in the chosen mounting position using the self-drilling screws.

6 Connect power to the charger

Connect the power cable to vehicle power, and then connect the power cable to the charger.

Connecting to vehicle power

Notice Leave the vehicle battery connected during the installation. Disconnection is not necessary and may disrupt other electronic systems in the vehicle.

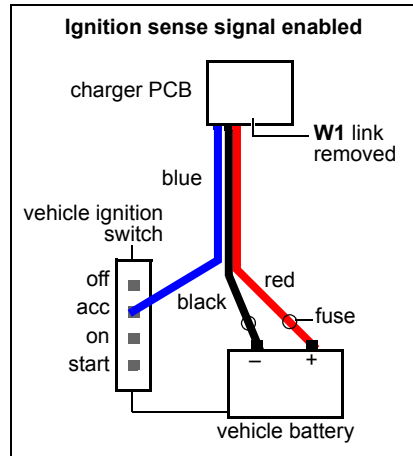
- 1 Run the supplied power cable from the charger location to the power source.
- 2 Remove the in-line fuses from the fuse holders in the power cable. Using your fingers or a pair of rubber-nosed pliers, slide the fuses from the fuse holders.

Notice If using pliers, do not crush the fuse.

- 3 Position the power cable so that the fuse holders are as close to the power source as possible. This makes it easier to change a fuse later if necessary.
- 4 Cut the power cable to length. If connecting the power cable to the vehicle battery, leave approximately 8 inches (200mm) of excess lead at the vehicle battery end. Split the leads, strip the ends, and connect the leads according to the chosen connection method. See “Connection method” on page 4.

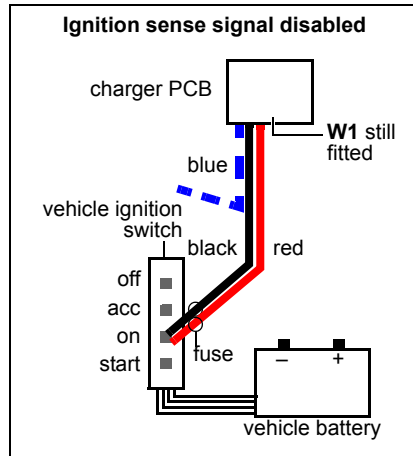
Ignition sensed

- 1 Make sure that you have enabled the ignition sense signal.
- 2 Connect the power cable to the vehicle power as shown.
- 3 Re-install the fuses in the power cable.



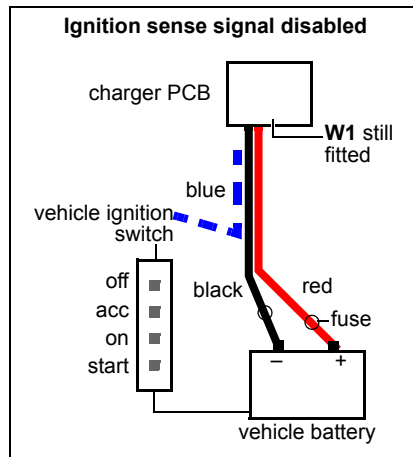
Ignition switched

- 1 Connect the power cable to vehicle power as shown here. The blue lead carries no signal: tie it back.
- 2 Re-install the fuses in the power cable.

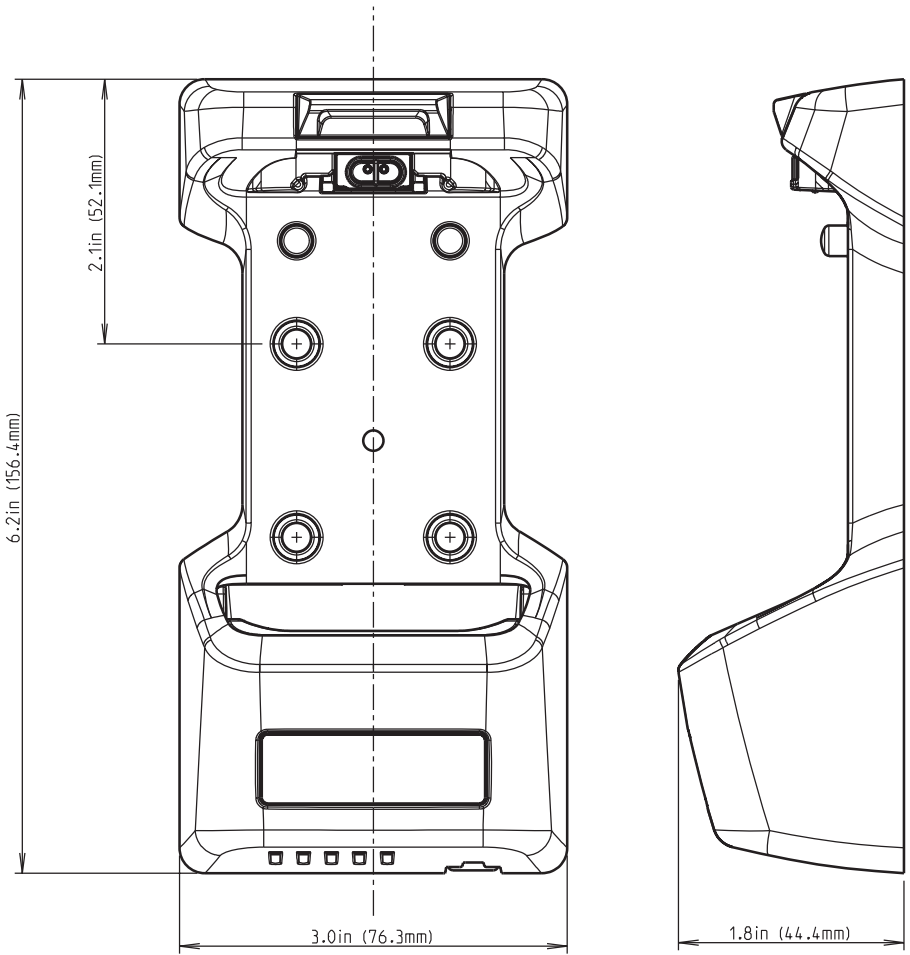


Continuously powered

- 1 Connect the power cable to vehicle power as shown here. The blue lead carries no signal: tie it back.
- 2 Re-install the fuses in the power cable.



Mechanical Dimensions (not to scale)



Drill template



The template must be printed with the printer set to 100%. Check against the measurements to confirm.

