

Charger Socket Module

DX-ACC3

INSTALLATION MANUAL



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1 Introduction

The Charger Socket Module is suitable for use in any DX system. It can be used where there is no existing charging facility, or as a convenient option for users who have difficulty accessing another charger socket present elsewhere in the system. Note only one charger socket should be used at any one time.

The Charger Socket Module is to be used for 24 volt battery chargers, up to a maximum of 8 amps peak current.

Warning Chargers can be rated either by ‘peak current’, or ‘root mean square (RMS)’. A charger rated at 8amps RMS may be capable of supplying up to 14 amps peak current, and may not be compatible with the Charger Socket Module. Contact your battery charger manufacturer for more information.

Dynamic Controls welcomes feedback from its customers on its products and documentation. If you would like to comment on this manual or the product it describes, please contact us at any of the addresses at the back on this manual or by email at:

info@dynamic-controls.co.nz

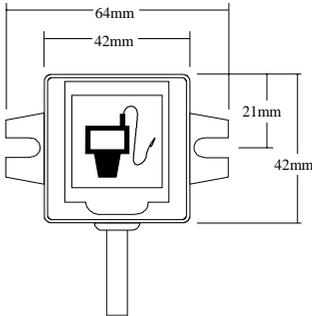
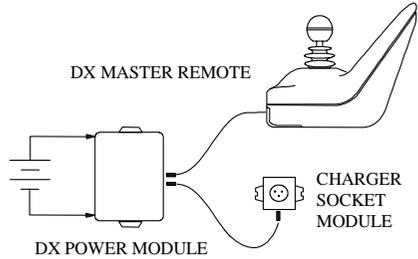
Intended Use Statement

The DX-ACC3 is an accessory of the DX System intended to allow convenient connection of 24V battery chargers of charging current up to 8 Amps. Intended for use with DX Master Remotes that do not have a charging socket (e.g. Tray Remote or Chin Remote), it may also be used as an alternative to the charging socket on a DX Master Remote.

2 Installation

The Charger Socket Module is to be installed in a system already comprising a *DX Power Module*, and *DX Master Remote*.

The Charger Socket should be securely fitted in a position that is easily accessible to the chair user, or person connecting the charger. The selected position and orientation should also give maximum mechanical and environmental protection. Avoid positions in which the module or its wiring can be knocked or physically damaged or those which are exposed to splashing and/or other forms of abuse.



Once fastened to the wheelchair, and with the system turned off, connect directly to the Power Module, as illustrated above. This will ensure the Charger Socket Module is electrically connected as close to the batteries as possible, and avoid charging problems that can result from voltage drops due to lengthy connecting wires.

Warning: Do not use the frame of a wheelchair or scooter as the earth return for any lights or actuators. Making any low resistance connection to the frame is regarded as a possible safety hazard and not allowed by international performance and safety standards for wheelchairs and scooters.

Ensure that all wiring is suitably restrained and of such a length that it is physically impossible to connect the motor directly to the battery.

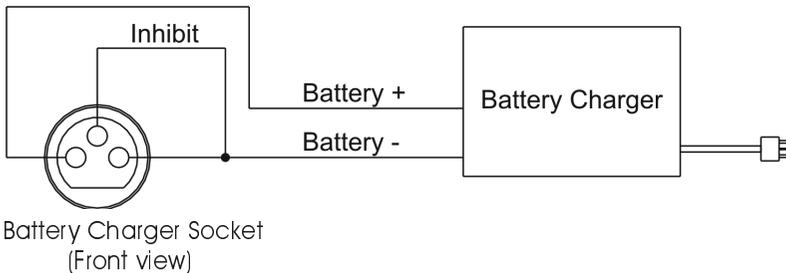
3 Battery Charging

The satisfactory performance of the DX system is critically dependant on the type and state of the batteries. The battery charger used must be correctly selected and adjusted according to the battery manufacturers instructions. Failure to do so may damage or destroy the batteries, give poor range, or be potentially dangerous. Batteries should not be abused (for example by deep discharge or overcharging), and must be operated, maintained and charged according to manufacturer's instructions.

A warning from the *DX Master Remote* will alert the user when the wheelchair needs charging. When this occurs the user should look to charge as soon as possible. Note that around this time a loss of performance will occur, due to the low charge, and battery saver feature managing the amount of power available. This feature is designed to prevent over discharge, and so contribute towards extending battery life, as well as maximise the range under 'reserve charge'.

The charger socket itself is a 3 pin XLR type with pin configurations as shown below. Ensure that the charger used is compatible with this configuration before connection. Charger plugs suitable for connecting battery chargers to all Dynamic wheelchairs and scooters are available from Dynamic, quoting part number GCN0309.

The safety link between B- and the Inhibit Pin must be fitted so that the wheelchair is prevented from driving while the batteries are being charged. The middle 'bar' of the seven segment display, as found on most Master Remotes, is used to indicate that the wheelchair cannot be used.



Important If connecting the charger wakes up the DX system (even if initially turned off), leave it turned on. This allows the charging progress to be monitored by the Power Module, and ensures battery gauge accuracy. Later versions of the *Master Remote* do not wake up.

Warning Do not disconnect batteries or open circuit the circuit breaker during charging.

Important Charging is completed only when indicated by the battery charger. Do not confuse indication from the battery charger with the *DX Master Remote* fuel gauge, if fitted. The *DX Master Remote* fuel gauge is designed to show capacity while driving, not during charging.

On occasions during and after charging, the *DX Master Remote* fuel gauge (if fitted) may be seen to flash. This will occur when

- The wheelchair is on charge, and the batteries are nearing full capacity
- The batteries are overcharged
- The wheelchair is travelling down a slope and the batteries are full
- The batteries are faulty

This warning will reset automatically as the voltage drops. Contact Dynamic if flashing persists.

4 Safety

Users and Suppliers of Assistive Mobility products should give consideration to the possibility of a failure to operate, or an incorrect operation, by the product. Should an operator be left with limited or no mobility due to an equipment failure, they should still be able to summon assistance from where ever they may be.

A warning must be conveyed to the operator that they have the responsibility to ensure that the vehicle is kept in a good safe operating condition, and ensure that components, such as cables, are protected from damage by securing them in optimum positions.

All vehicle components should be regularly checked for loose, damaged or corroded connectors, terminals, or cabling. All cables should be restrained to protect them from damage. Damaged components should be replaced.

The user must turn the system off while getting in and out of the wheelchair.

5 Electromagnetic Compatibility (EMC)

Dynamic Electronic Controllers have been tested on typical vehicles to confirm compliance with the following EMC standards:

Emissions:	CISPR22, class B
Susceptibility:	IEC1000-4-3
ESD:	IEC1000-4-2
Compliance levels and set-up as per ISO 7176, part 21.	

National and international directives require confirmation of compliance on particular vehicles. Since EMC is dependant on the particular installation, each variation must be tested. The guidelines in this section are written to assist with meeting EMC requirements.

Minimising Emissions

- Motors:** Motor brushes generate electromagnetic emissions. It may be necessary to fit capacitors between the brush holders and the motor case. Ensure the leads are kept as short as possible. A suitable capacitor is 4n7, 250V Ceramic.
- Wiring:** Keep wire lengths as short as practical for a tidy layout. Minimise any wire loops, particularly loops of single wires as opposed to wire return pairs. Endeavour to run wires as send and return pairs. Where practical, attach cables to wheelchair frame.

Immunity to Radiated Fields

Follow the wiring recommendations for minimising emissions.

Immunity to ESD

- Follow the wiring recommendations for minimising emissions. Ensure all vehicle sub-frames and modules are electrically connected. Ensure any metal casing on speed setting potentiometers is electrically connected to the vehicle frame. Do not leave connection points unnecessarily exposed.

6 International Standards

Dynamic Controls products built today allow our customers' vehicles to conform to national and international requirements. In particular to:

- ISO7176-9 - Climatic Tests for Electric Wheelchairs
- ISO7176-14 - Power and Control Systems for Electric Wheelchairs
- ISO7176-21 - Requirements and test Methods for Electromagnetic Compatibility of Electric Powered Wheelchairs and Scooters.

However the performance of controllers fitted to wheelchairs and scooters is very dependent on the design of the scooter or wheelchair so final compliance must be obtained by the vehicle manufacturer for their particular vehicle. No component compliance certificate issued by Dynamic Controls relieves a wheelchair/scooter manufacturer from compliance testing their particular vehicles.

User manuals should contain EMC warnings along the following lines:

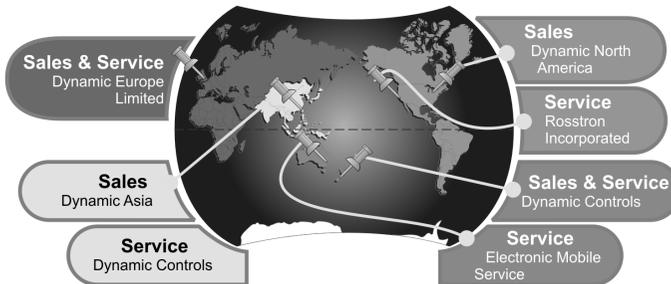
Most electronic equipment is influenced by Radio Frequency Interference (RFI). Caution should be exercised with regard to the use of portable communications equipment in the area around such equipment. While the manufacturer has made every effort to ensure that RFI does not cause problems, very strong signals could still cause a problem. If RFI causes erratic behaviour, shut the wheelchair off immediately. Leave off while transmission is in progress.

7 Miscellaneous

This manual must be read in conjunction with the installation manuals for all other DX Modules to be used in your application. Heed all safety and misuse warnings and if in doubt ask for advice.

For further information and assistance, including Sales and Servicing, contact Dynamic.

<http://www.DynamicMobility.co.nz>



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