Sunrise Medical Inc.
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Quickie *i*Q PC Programmer Owner's Manual

REV B

May 09, 2007

LIMITED WARRANTY

Sunrise Medical, Inc. ("*Quickie*") warrants the iQ PC Programmer Kit (including any accessories) against defects in material or workmanship as follows:

1. For a period of one (1) year from the date of purchase if this Product is determined to be defective, Sunrise Medical, Inc. will repair or replace the Product, at its option, at no charge. After this one (1) year period, you must pay for the replacement unit.

2. To obtain warranty service, you must call Sunrise Medical Technical Services and send the product, in either its original packaging or packaging affording an equal degree of protection, to Sunrise Medical, Inc.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of, or to any part of the Product. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than Sunrise Medical, Inc.

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. SUNRISE MEDICAL, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

For your convenience, Sunrise Medical, Inc. has established telephone numbers for service assistance or resolution of a service problem, or for product information or operation, call Sunrise Medical, Inc. Technical Services at **1-800-456-8166** or visit the Sunrise Medical Web Site at **www.sunmed.com.**

Parts Replacement Warranty If an item is replaced under warranty, the new warranty period shall be the greater of the remaining original item's warranty or 6 months.

This limited warranty only applies to the original owner of the *iQ* PC Programmer Kit.

1 Introduction

The Quickie iQ PC Programmer software is intended to provide an easier, more visually intuitive means with which to program and diagnosis your Quickie power wheelchair with electronics powered by Delphi.

This PC based program communicates with the power wheelchair via a USB to CAN interface cable sold within this kit. This is the only means with which to use the iQ PC software.

This dynamic program features:

- all profile at a glance programming
- changing the software version level through a flash process
- the ability to quickly save, email and load unique programming files into your Quickie power wheelchairs
- pop-up help and parameter explanation boxes

Additionally, we hope you will find the additional diagnostic and customization tools allow you to do new, useful tasks with your Quickie electronics powered by Delphi.

2 Installation

2.1 What's in the box

The Quickie iQ PC Programmer Kit (101871) consists of the following items:-

Part #:	Description
101852	Quickie iQ PC Programmer CD
102292	Quickie iQ PC Programmer Dealer Connector Kit
102293	Quickie iQ PC Programmer Warranty Card

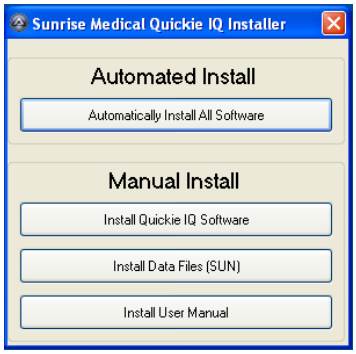
NOTE: The Quickie iQ PC Programmer CD contains the Owner's Manual, Software Program, USB to CAN Driver, and selected configuration files for North American built chairs.

2.2 Hardware Installation

There is no hardware installation required. See Section 3.2 for connecting the Quickie iQ PC Program Dealer Connector to your PC and to Quickie Wheelchair with iQ components.

2.3 Software installation

1. Insert the CD into the drive of your computer



2. Choose the installation method preferred. The automated install is highly recommended. After, clicking the "**Automatically Install All Software**" button, the software will install automatically.

If the computer is not set to autorun, from the desktop double left click the 'My Computer' icon and navigate to the CD drive. Double left click the *Quickie iQ.exe* file and follow the installation procedure.

2.4 Registration

It is highly recommended to fill out the warranty/registration card and send it into Sunrise Medical. This will allow us to contact you if and when there is an upgrade available for the iQ PC Programmer Software.

3 Operation

3.1 Overview

The Quickie iQ PC programmer software application can be used with one or many of the following modules (or controllers);

- MCM (Motor Control Module – QC or QR level)
- HCM (Hand Control Module - Quickie QR3, QR7, QC4, QC5, QC9)
- QR-MAC (Quickie Multiple Actuator Control Module)
- SCIM (Specialty Control Input Module)
- ECM (Environmental Control Module)
- HHP (Hand Held Programmer)
- MHCM (Mini Hand Control Module – Quickie QR2)
- ACM (Attendant Control Module)

The list of features supported by the Quickie iQ PC Programmer software:

1. Program Parameters (One parameter at a time)
2. Calibration (set up or replacements)
3. Drive Profile – all profiles at once
4. Monitoring – service aide

5. Assign Buttons & jacks - customization
6. Driver Menu Setup - customization
7. Diagnostics Faults Display – service aide
8. Update Module Software – flash software versions

This program will only run if the USB to CAN interface is plugged into the computer. Additionally, it is a good idea to plug it into the same USB port on the computer so as to avoid issues with the Windows driver.

You can view a program without being connected to the chair, but this tool has limited options in this configuration. For full capability, please connect the power wheelchair to the PC via the USB to CAN interface cable and load the Quickie iQ PC Programmer software.

3.2 Connecting to Chair

(i) Plug the USB Harness into the Quickie iQ PC Programmer Dealer Connector

(ii) Plug the CAN Harness into the Quickie iQ PC Programmer Dealer Connector

(iii) Plug the USB Harness into a USB port on your PC

(iv) Plug the CAN Harness into a bus connector on the wheelchair

The CAN Harness may be plugged into any convenient bus connector on the wheelchair; this would normally be at the front of the hand control module (joystick).

3.3 Running Quickie iQ PC Programmer

To open the Quickie iQ from your desktop, double click the icon:

NOTE: *If the Quickie iQ PC Programmer application software fails to launch then unplug and reconnect the USB cable to your computer, this will initiate the USB connection with the Quickie iQ PC Programmer Dealer Connector Kit.*

3.3.1 Terms and Conditions.

You must read and understand the terms and conditions displayed.

*****SAFETY WARNING*****

RISK OF DEATH FROM IMPROPER USE

Use of this software to program wheelchair controllers should only be conducted by healthcare professionals with training and in-depth knowledge of Sunrise Medical electronic control systems, keeping in mind the following risks:

1. **Incorrect programming (e.g. an acceleration setting inappropriate for a given end user) could result in an unsafe set up of the wheelchair for such user. The healthcare professional using this programmer is responsible for verifying that the values programmed into the control system ensure that the wheelchair is appropriate and safe for the end user taking into account all applicable factors including, for example, medical conditions and environment of use.**

2. **Certain programmable parameters and diagnostic functions have specific warnings which must be read and understood. You should only adjust these parameters or carry out system diagnosis when you have read and understood these warnings.**

3. **It is recommended that the drive inhibit safety feature of Quickie iQ be enabled at all times. Turning off this feature will not affect the operation of iQ but it will be possible to drive the chair with the computer connected which may damage the harness or computer. Exercise caution at all times when testing a chair with the computer connected.**

4. **It is recommended that a basic driving test be undertaken after changing any parameters to ensure that the chair does not perform in an unsafe or unexpected manner. If reconfiguring a chair causes modules to be added/removed from the system or a change to powered seating functions or drive train components then the user must be removed from the chair and testing performed on all the chair functions to ensure that they operate correctly. Particular care must be exercised when changing the wheel configuration of a chair, e.g. front wheel drive to rear wheel drive, removing and reconnecting the motor controller or adding Intellidrive to a system. In these circumstances the user must not be in the chair and the chair must be jacked**

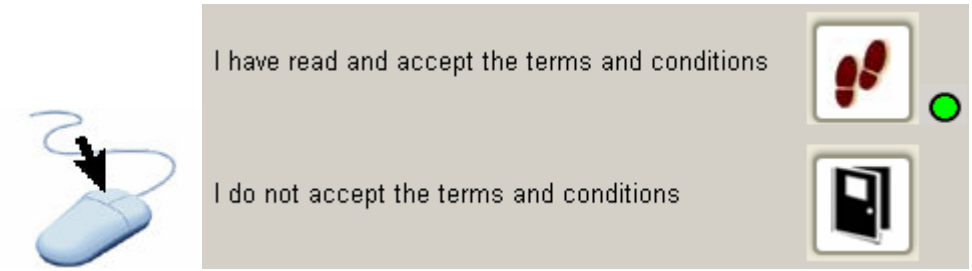
up with its drive wheels clear of the ground to verify that they rotate in the correct direction for a joystick command.

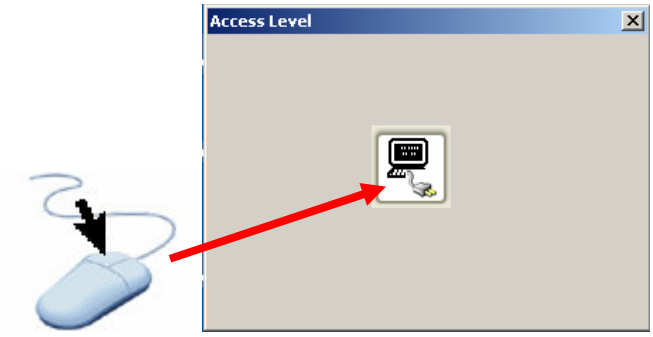
5. **When this programmer is connected to a wheelchair, the electromagnetic compatibility ("EMC") performance of the wheelchair may be affected. Disconnect the wheelchair from a programmer as soon as programming is completed and do not connect the wheelchair to a programmer in environments that are EMC sensitive.**

Sunrise Medical expressly disclaims any and all liability for losses of any kind arising from failure to comply with these conditions.

If you have received training for Quickie iQ and you accept the terms and conditions you may proceed.

If you have NOT received training for Quickie iQ you must decline the terms and conditions and contact Sunrise Medical to attend a STEPS training program.





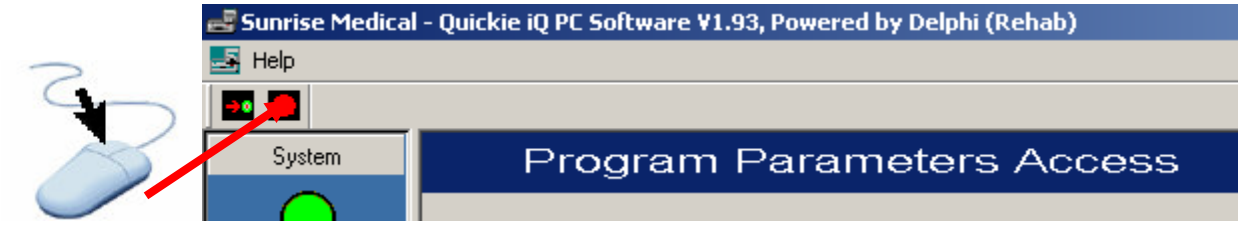
Click the icon to start Quickie iQ.

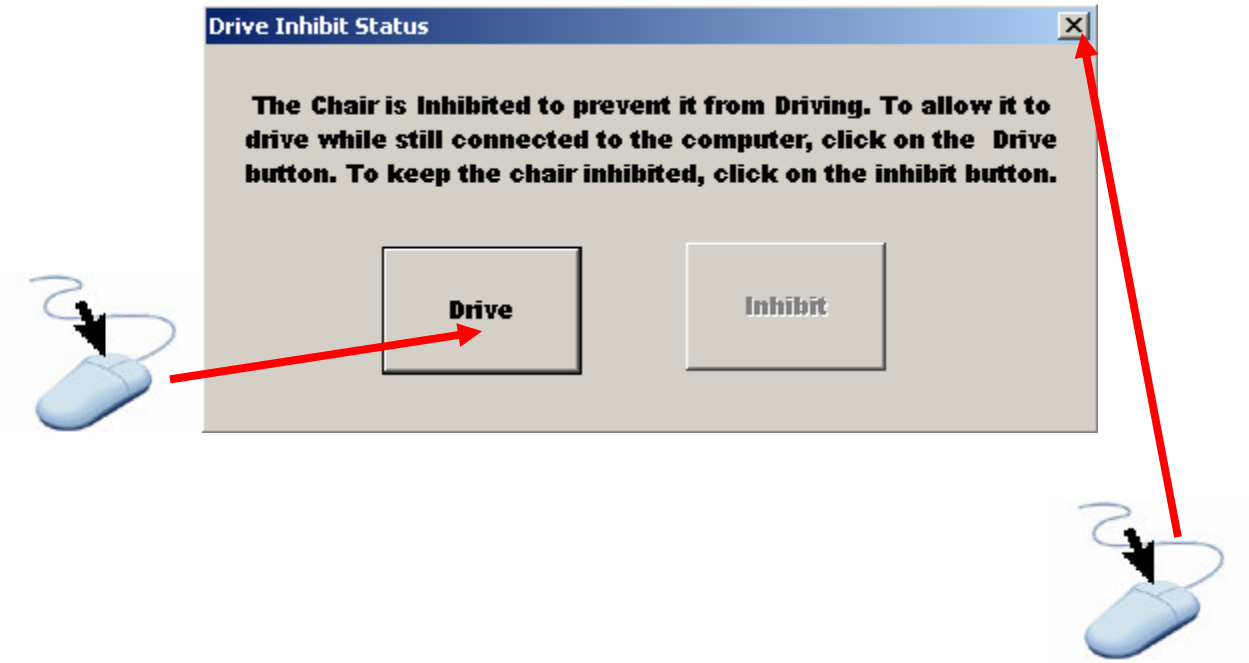
Note: The access permissions to Quickie iQ are dictated by the Dealer Connector.

3.4 Drive inhibited with Quickie iQ

When Quickie iQ is connected to a chair and the application is running on your computer the connected chair will be inhibited from driving. This is a safety feature to prevent damage to the connections and computer.

If you require to drive the chair whilst making adjustments, i.e. you are using a laptop computer, then this feature can be disabled as follows.





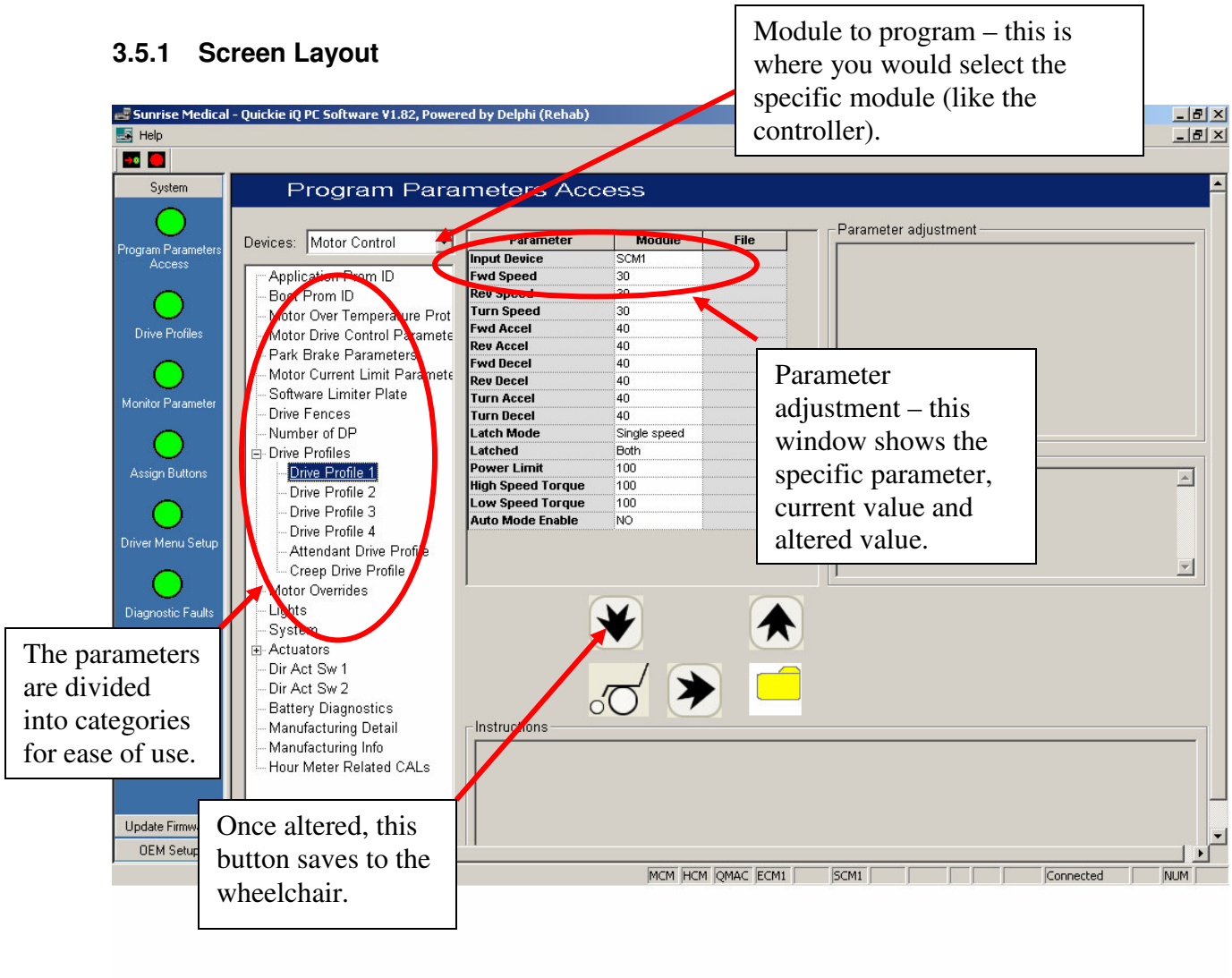
WARNING

With drive enabled it will be possible to drive the chair with the computer connected which may damage the harness or computer. Exercise caution at all times when testing a chair with the computer connected.

3.5 Parameter Access

This portion of the iQ PC Programmer software is useful when altering one parameter in one module at a time is needed. This is also where you would go to alter non-driving parameters.

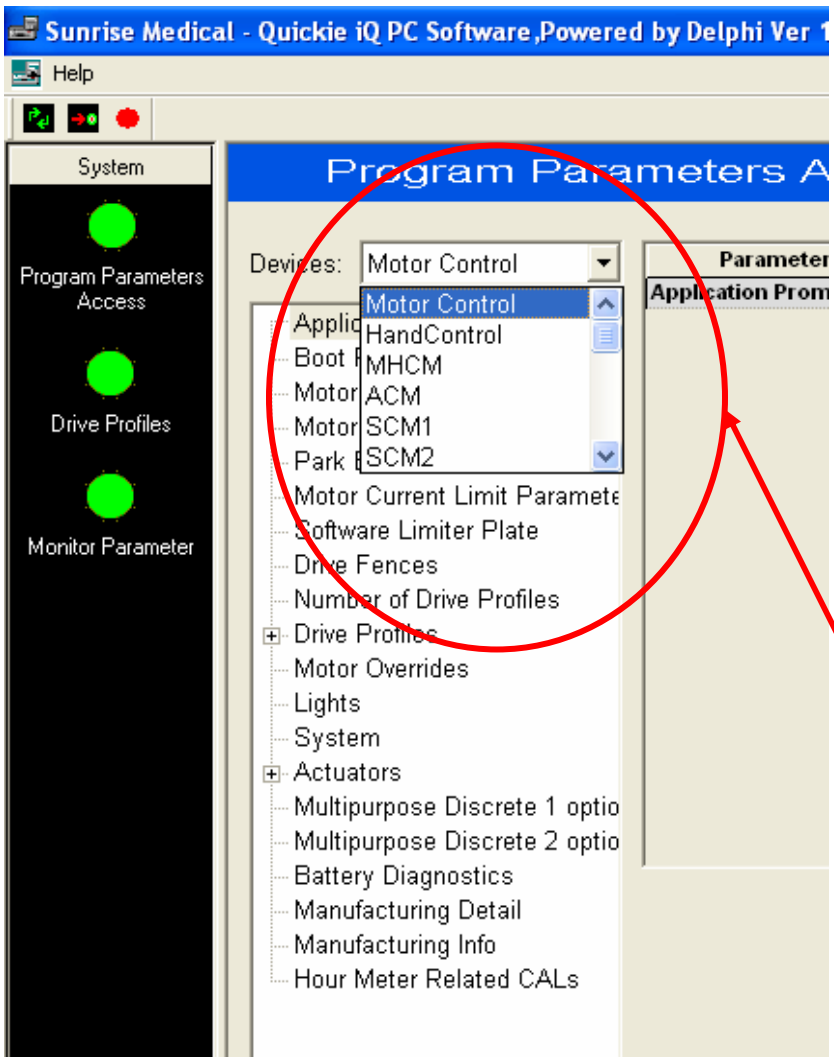
3.5.1 Screen Layout



3.5.2 Selecting Modules and Parameters

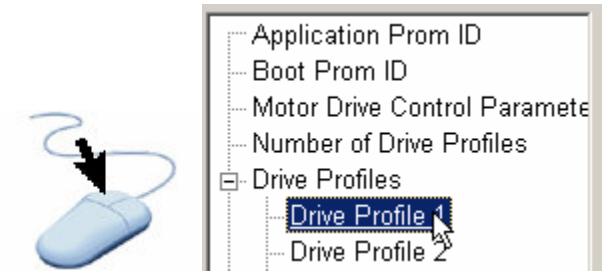
In the parameter access screen, it is necessary to select the module in which the parameter is housed. For example, if the parameter deals with joystick sensitivity, then the module would be hand control module, while the driving parameters would be housed in the motor control module.

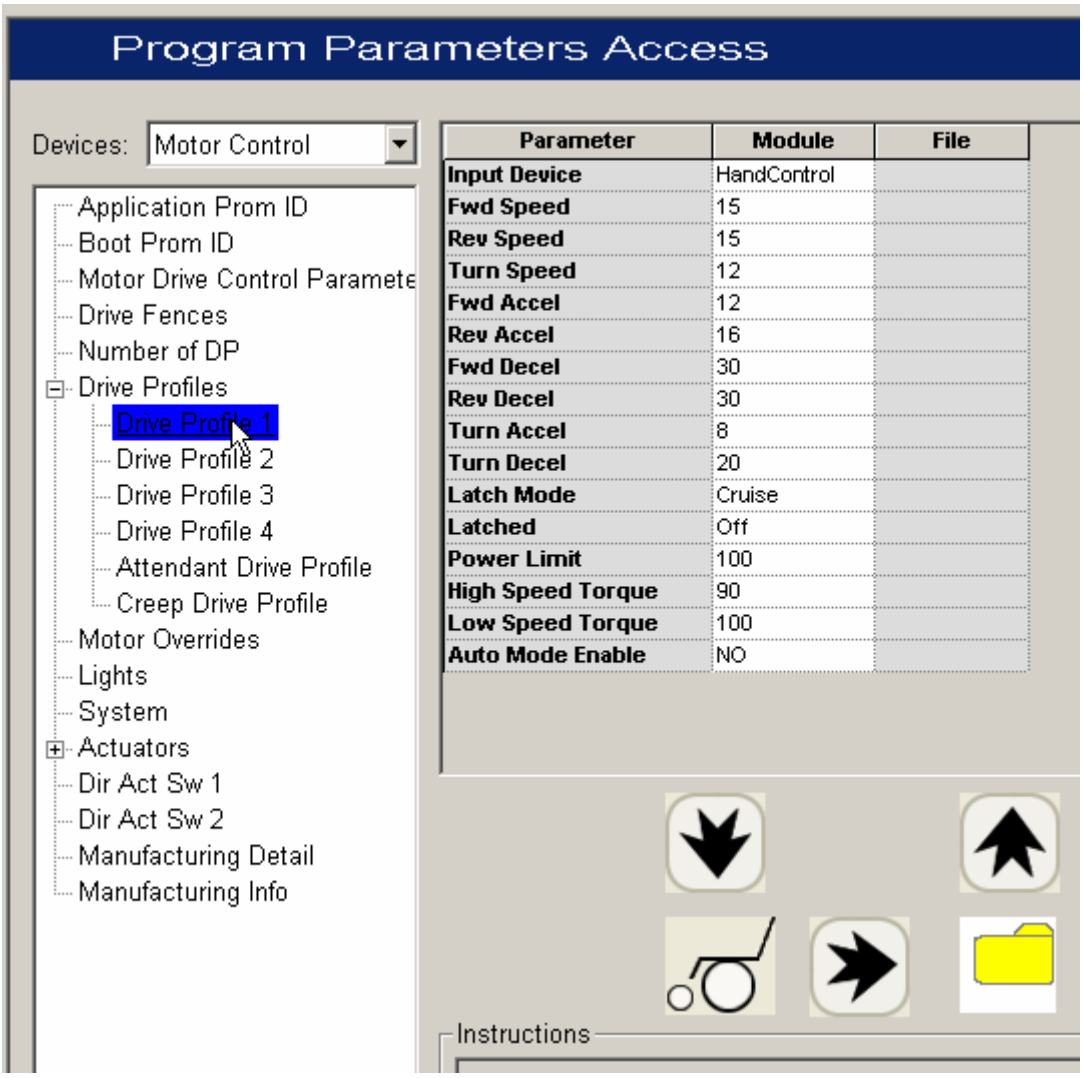
Once you have confirmed that the lower toolbar reflects the module you believe to be on the chair, then, select the module to program from the pull down menu.

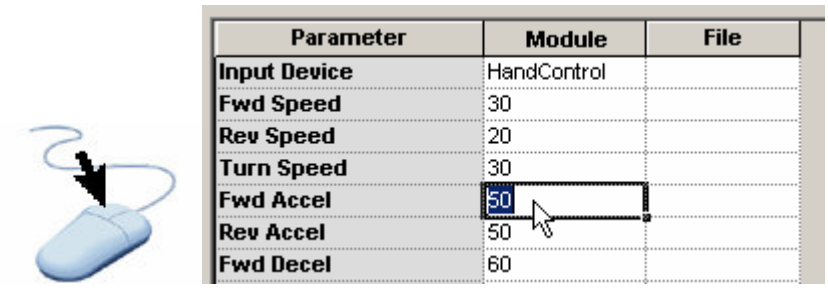


Module Selection window – this will alter the list of parameters available to program.

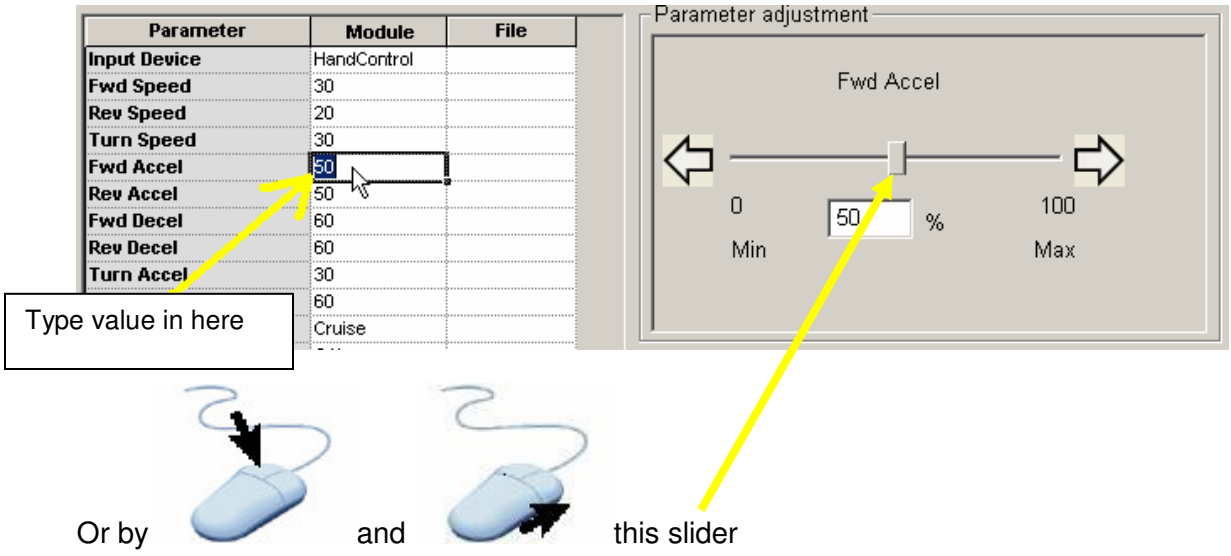
3.5.3 Changing Parameters Settings





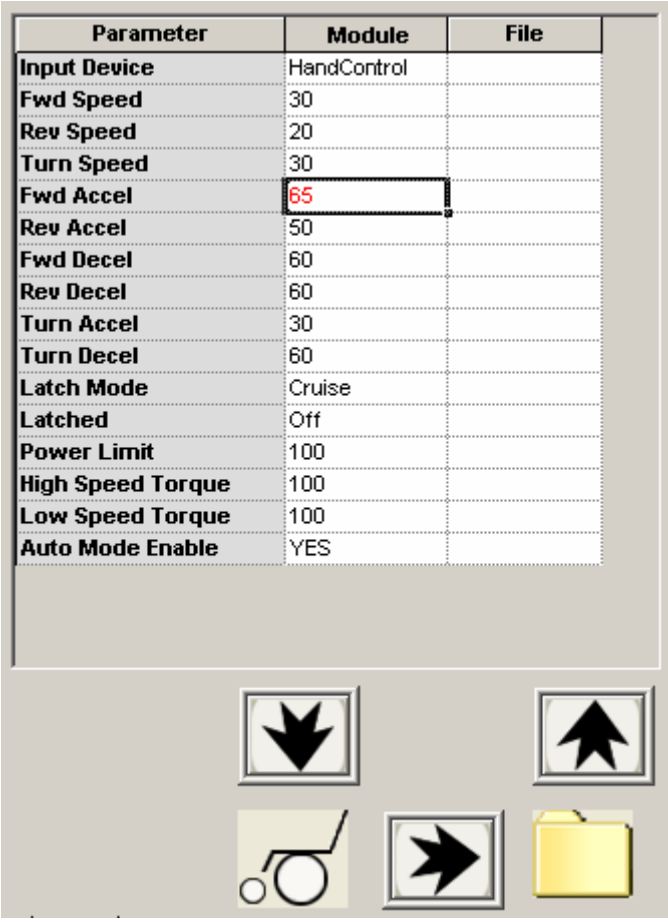


Parameters may be changed by typing in a new value here

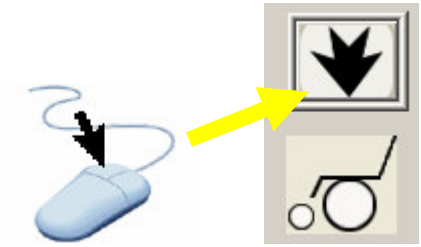


3.5.4 Saving Parameter Changes

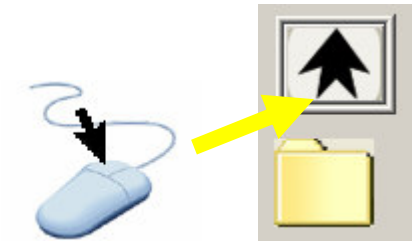
When a parameter is altered it will change color to red.



Parameter	Module	File
Input Device	HandControl	
Fwd Speed	30	
Rev Speed	20	
Turn Speed	30	
Fwd Accel	65	
Rev Accel	50	
Fwd Decel	60	
Rev Decel	60	
Turn Accel	30	
Turn Decel	60	
Latch Mode	Cruise	
Latched	Off	
Power Limit	100	
High Speed Torque	100	
Low Speed Torque	100	
Auto Mode Enable	YES	

To write this new value to the chair 

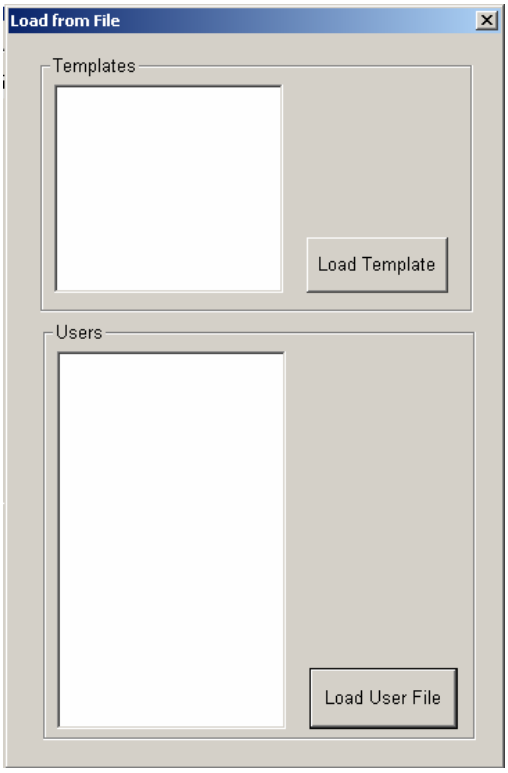
3.5.5 Loading File Stored Data



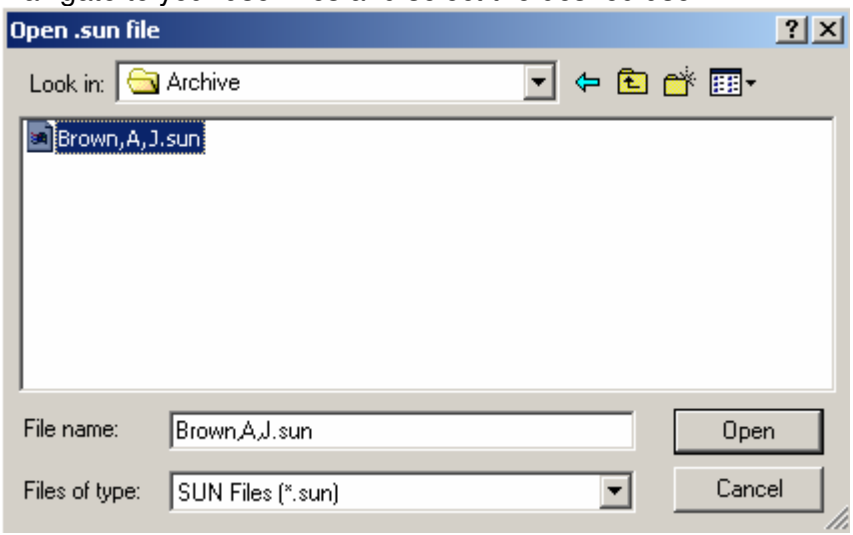
You are now presented with the option of loading file data from a Template or a User File. The file data type in each location is a **.sun** file.

Templates are **.sun** files used when reconfiguring a chair, **.sun** files are obtained from the CD that came with the Quickie iQ kit

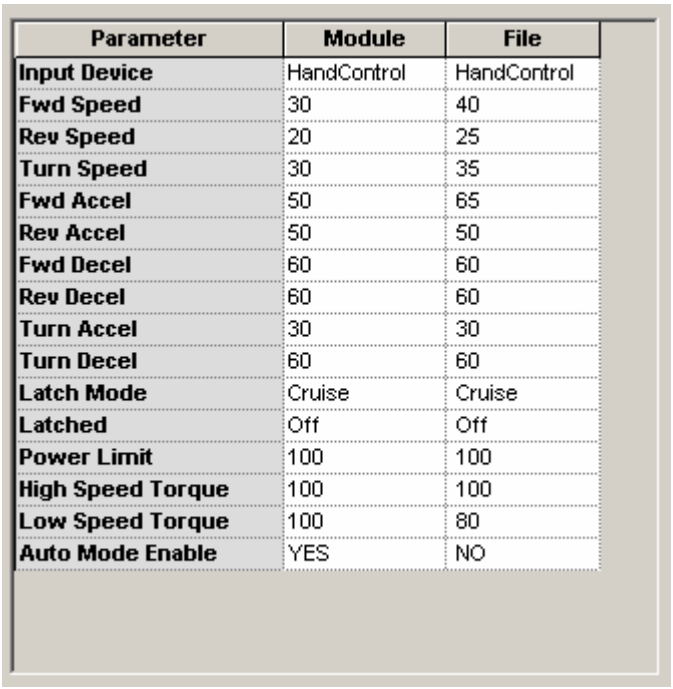
User Files are **.sun** files used when configuring a chair to a specific user or were stored before flash upgrading firmware. These files contain the personal settings that you have set for each individual user.



Navigate to your user files and select the desired user



File parameters are loaded side-by-side to the module parameters for comparison.

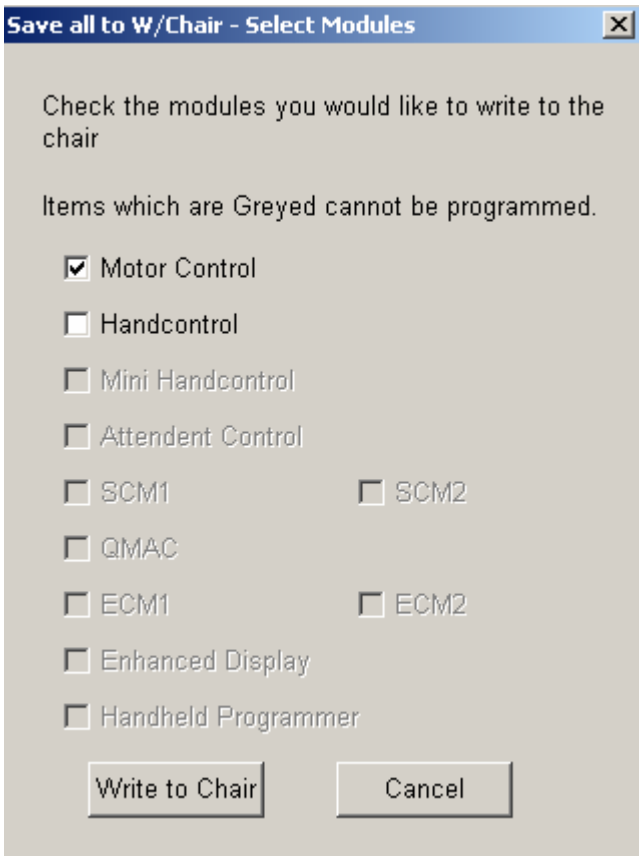


Parameter	Module	File
Input Device	HandControl	HandControl
Fwd Speed	30	40
Rev Speed	20	25
Turn Speed	30	35
Fwd Accel	50	65
Rev Accel	50	50
Fwd Decel	60	60
Rev Decel	60	60
Turn Accel	30	30
Turn Decel	60	60
Latch Mode	Cruise	Cruise
Latched	Off	Off
Power Limit	100	100
High Speed Torque	100	100
Low Speed Torque	100	80
Auto Mode Enable	YES	NO

Any changes to parameters should be made in the **Module** column then saved to the chair.

3.5.6 Saving File Data to the Chair

If all of the **File** parameters are required to be written to the chair then

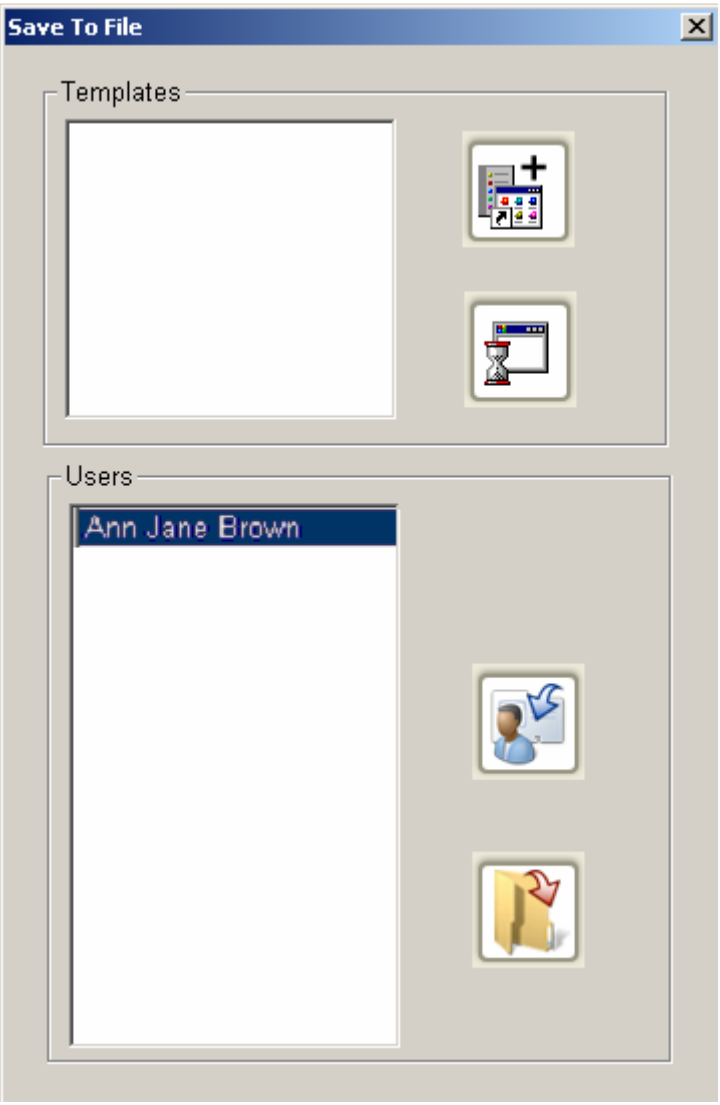


*****WARNING*****

This operation will overwrite all of the parameters in the Motor Control with the parameter settings that were loaded from file.

This feature is most useful for cloning a new chair from an existing identical chair

3.5.7 Saving chair parameters directly to .sun files



At this stage the chair parameters can be saved to a **.sun** file for an existing user or a new user.

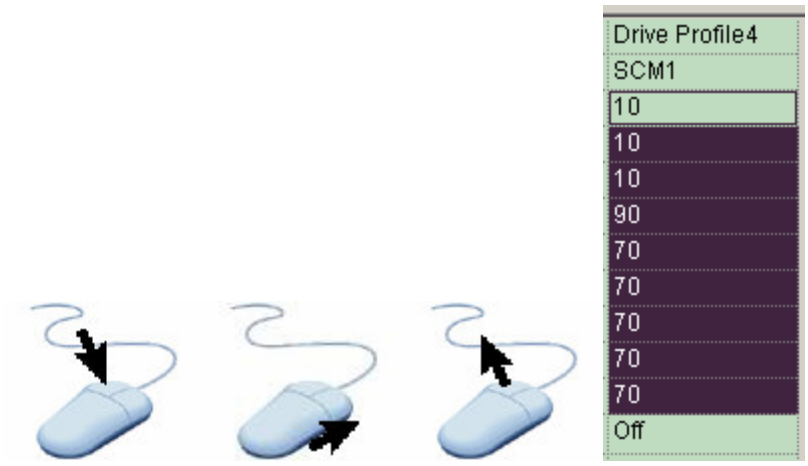
3.5.8 Copying and Pasting Drive Profiles

Drive Profiles

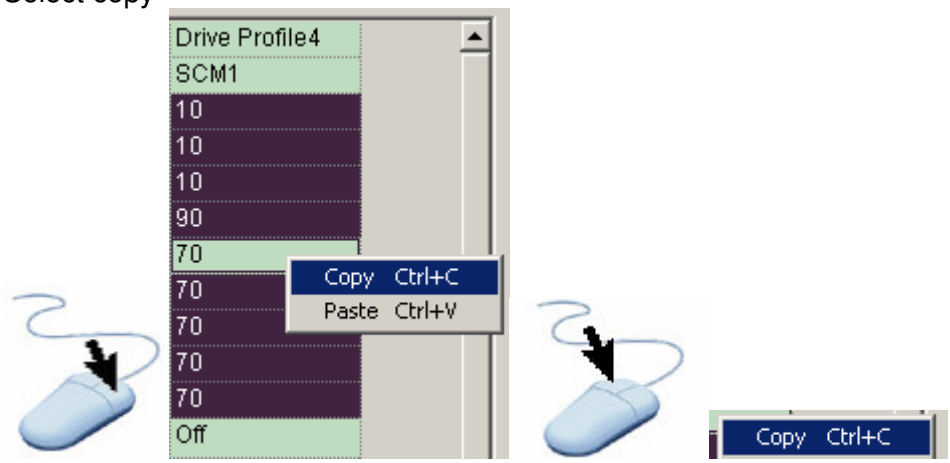
Normal Drive

Parameter	Drive Profile1	Drive Profile2	Drive Profile3	Drive Profile4
Input Device	SCM1	SCM1	SCM1	SCM1
Fwd Speed	25	65	100	10
Rev Speed	20	25	50	10
Turn Speed	18	35	50	10
Fwd Acel	10	25	35	90
Rev Acel	10	20	20	70
Fwd Decel	40	70	75	70
Rev Decel	40	10	75	70
Turn Acel	10	20	50	70
Turn Decel	40	60	75	70
Latched	Off	Off	Off	Off
Latch Mode	Single speed	Single speed	Single speed	Single speed
Power Limit	100	100	100	100
High Speed Torqu	100	100	100	100
Low Speed Torqu	100	100	100	100
Auto Mode Enable	No	No	No	No

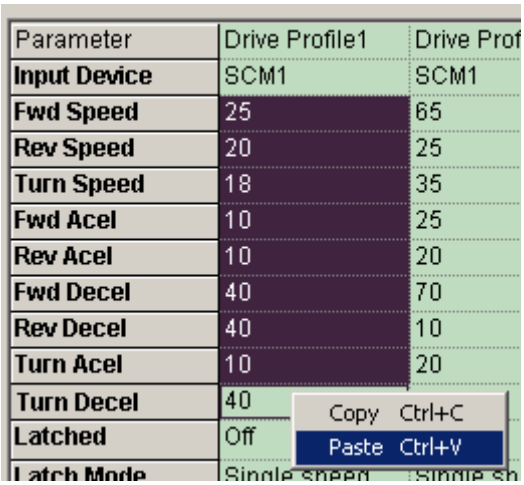
Highlight the required parameters



Select copy



Then highlight a destination of the same number of cells

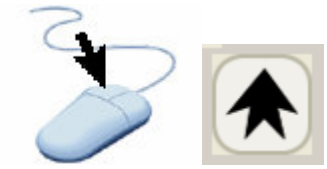


and 

.

NOTE: *Input Device*, *Latched*, *Latch Mode* and *Auto Mode Enable* parameters can not be copied in this way.

Finally save the changes back to the chair

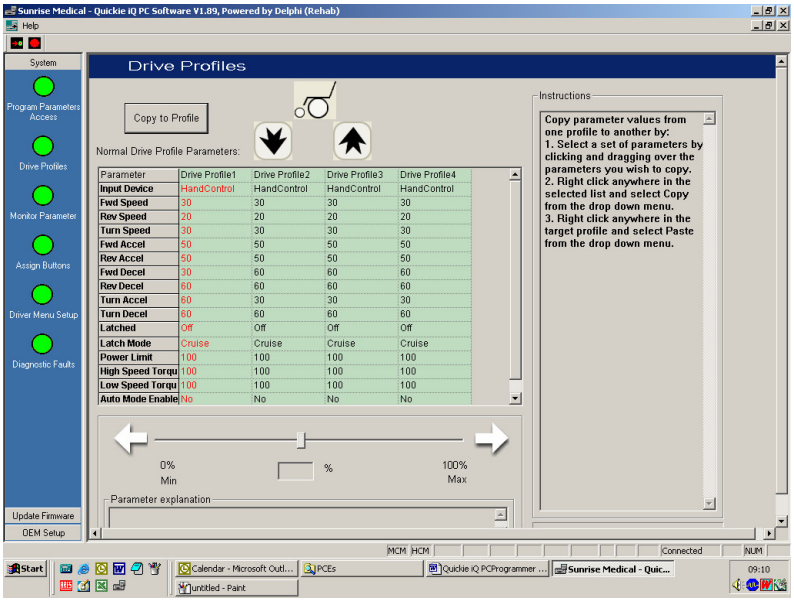


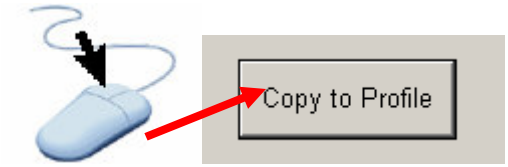
3.5.9 Drive Templates

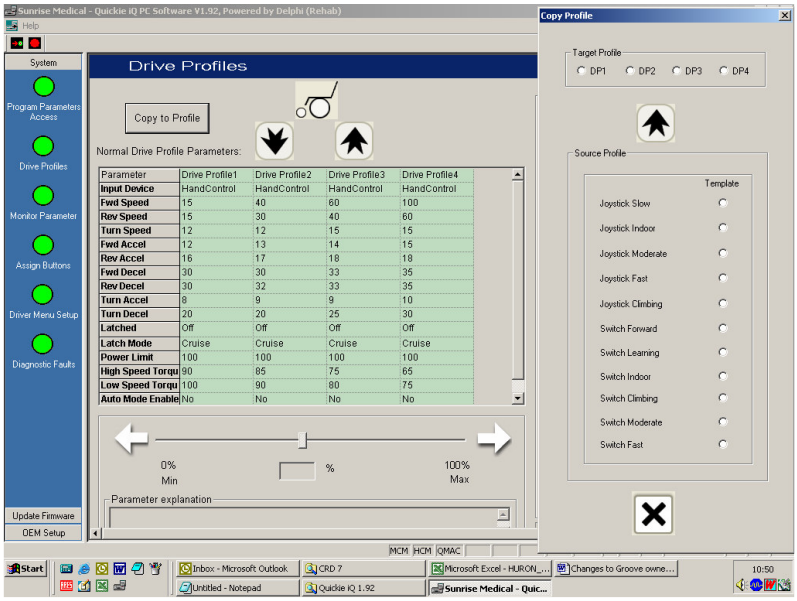
Drive templates provide a rapid way of configuring the drive characteristics of a chair. The template comprises of drive parameters, predefined by Sunrise, that are written to the chair and then copied to a Drive Profile using Quickie iQ or the HHP.

3.5.9.1 Using Drive templates

Drive templates are access through the **Drive Profiles** screen





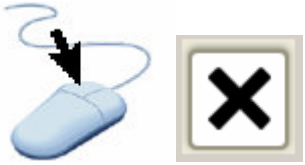


Copying a drive template to a Drive Profile

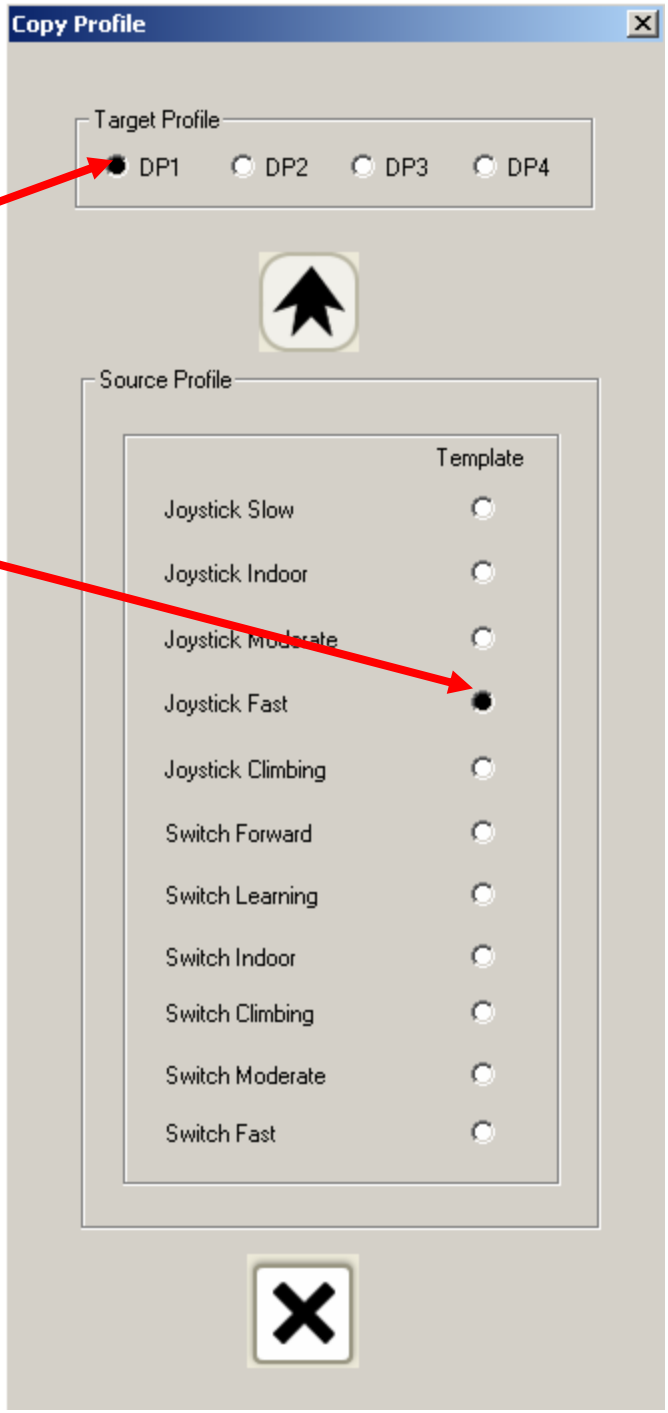
1/ the target Drive Profile.

2/ the type of input device and style of driving by checking an option in the Template column.

3/ to copy the template to the selected Drive Profile then repeat for other profiles.

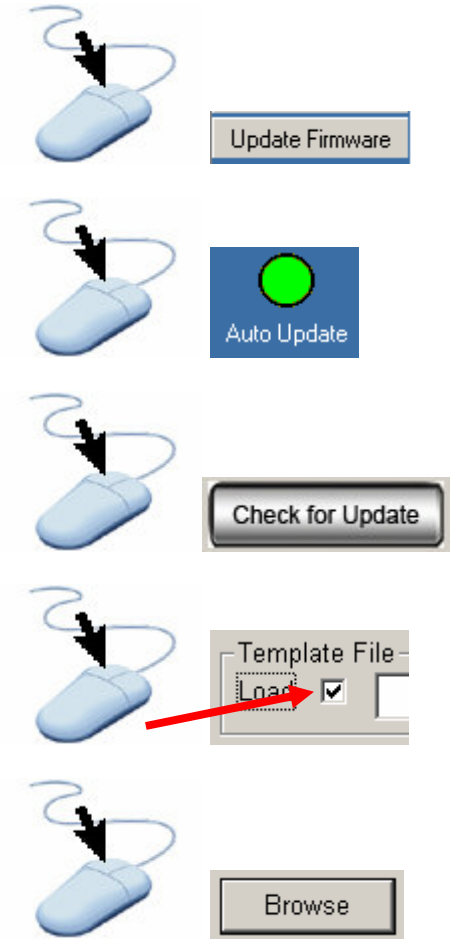


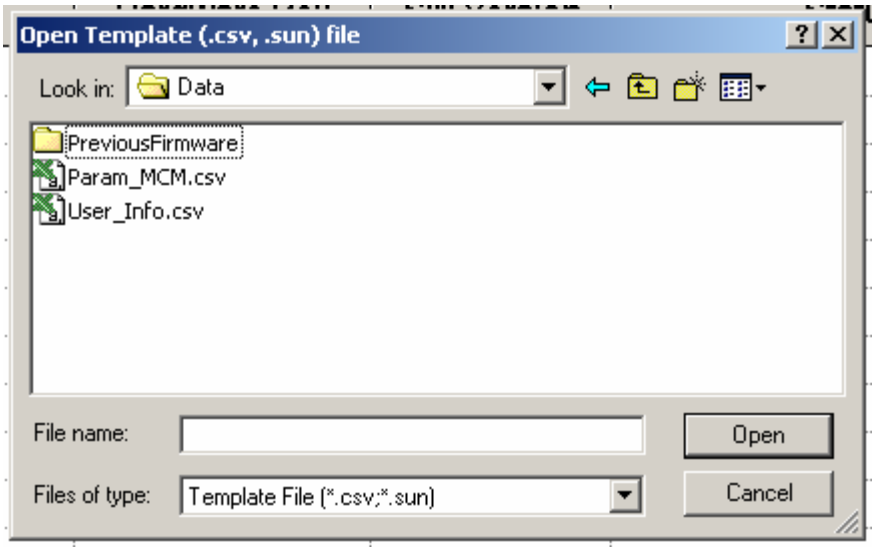
When complete.



3.5.9.2 Loading alternative template files

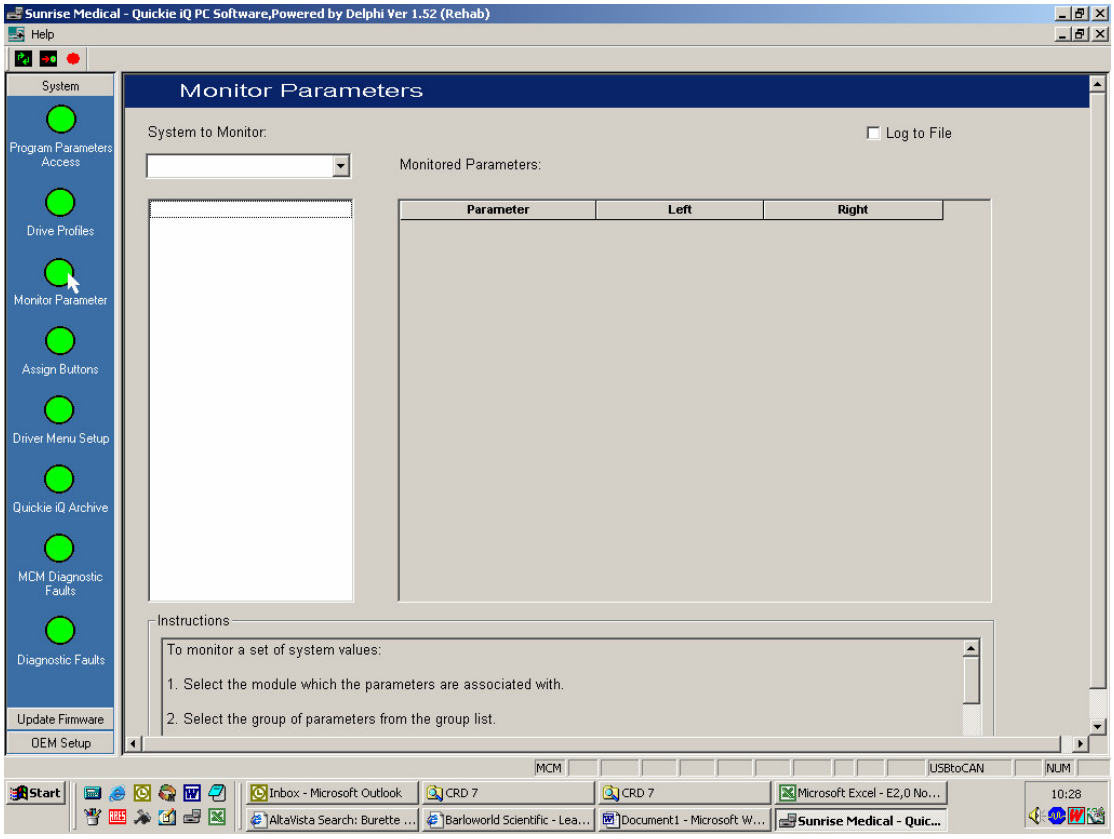
At manufacture a template file that accords with the chair configuration is loaded to the motor control. If you reconfigure your chair, i.e. rear wheel drive to front wheel drive, it will be necessary to load a matching set of templates. Template files may be downloaded from the Sunrise Medical web site.

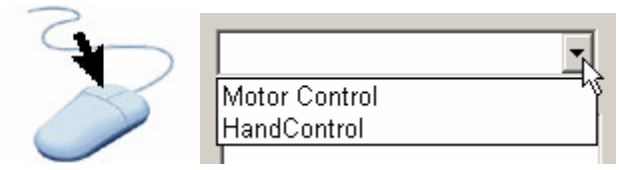


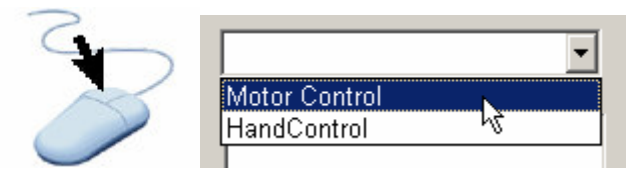


3.6 Monitor

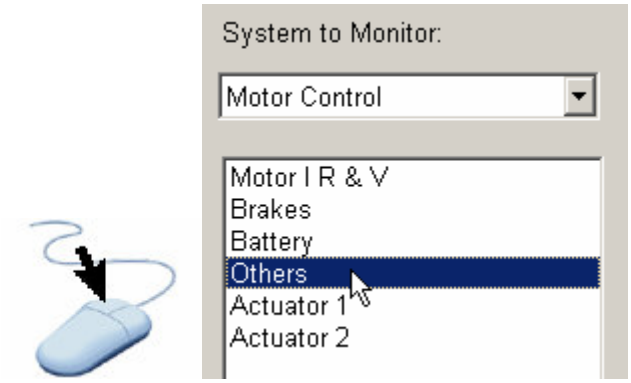
The monitor screen allows the user to view various technical measurements and data within the control system





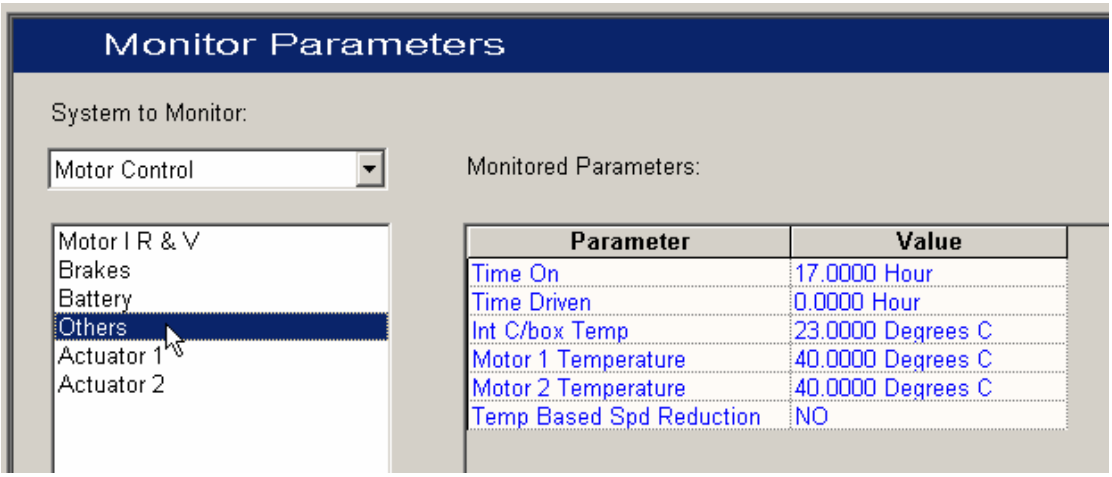


the module to be monitored

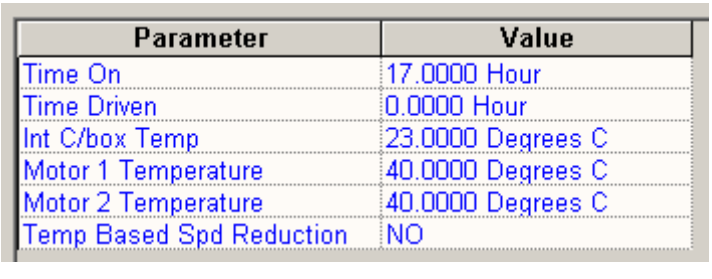


a function in the motor control

In this example data for motor control can be viewed.



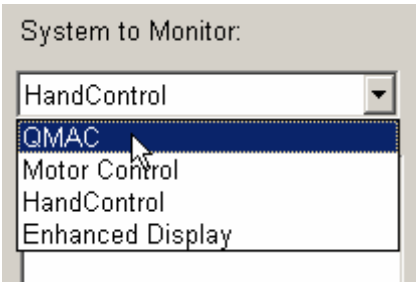
The displayed data is real time and will change as the chair is operated.

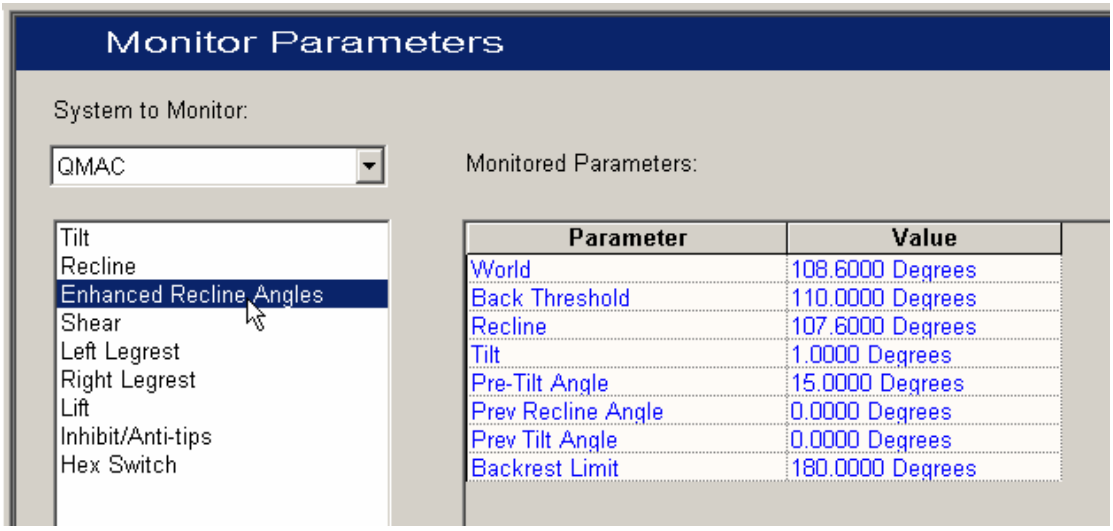


Parameter	Value
Time On	17.0000 Hour
Time Driven	0.0000 Hour
Int C/box Temp	23.0000 Degrees C
Motor 1 Temperature	40.0000 Degrees C
Motor 2 Temperature	40.0000 Degrees C
Temp Based Spd Reduction	NO

*NOTE: The minimum temperature for the motors is fixed at 40 ºC (104 ºF)

To view data for another module repeat the steps above. In the next example the angles for Enhanced Recline in the QR-MAC are displayed.





NOTE: on actuators

When using a QMAC the position of an actuator is displayed as an angle to the horizontal.

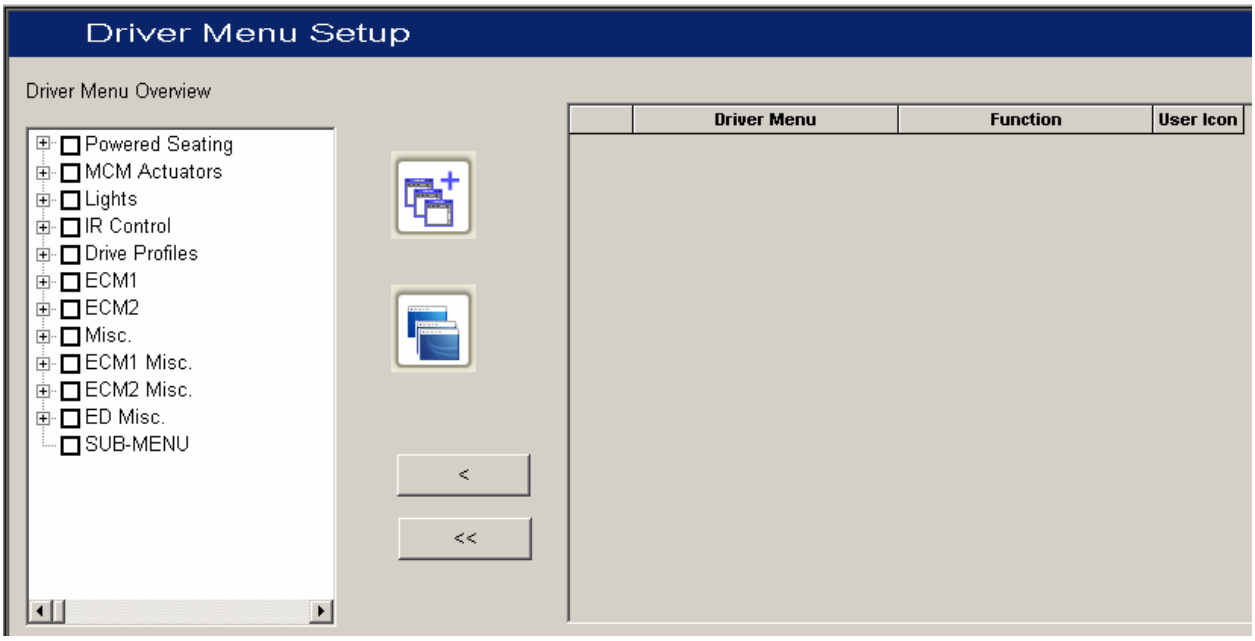
The position of an actuator when using the motor control module [MCM] is displayed as actuator counts were the actuator's position is represented as a numerical value

To set an actuator limit, move the actuator to the desired position, determine the angle or count value using the monitor function then enter this value for the limit.

3.7 Driver's Menu Set-up

The Drivers Menu Set-Up feature allows you to construct the Driver's Menu that is displayed on the Enhanced Display

3.7.1 Constructing a Driver's Menu



3.7.1.1 Adding powered seating

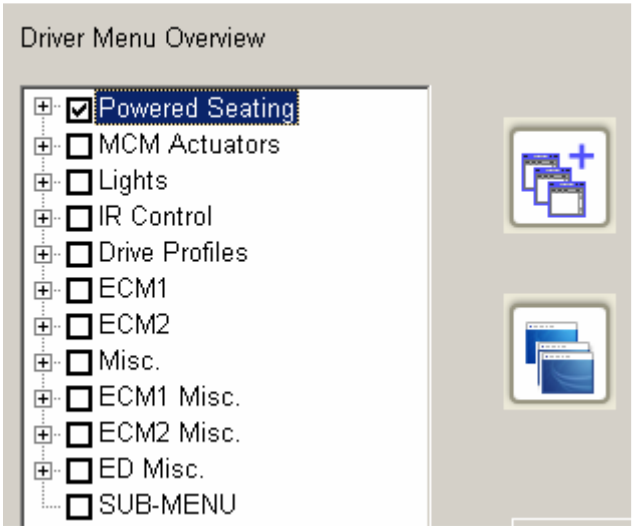
There are several options for adding powered seating that affects the method of operation and mode of display.

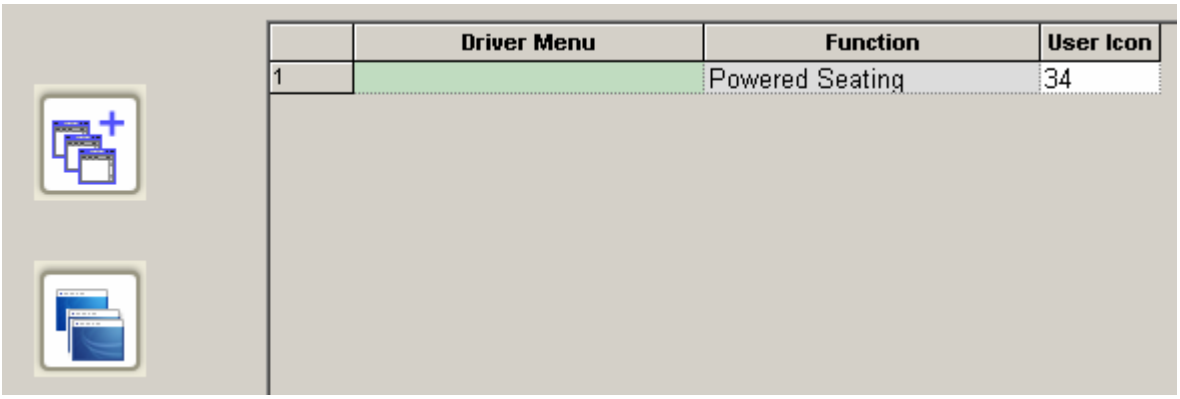
When **one** or **two** powered seating functions are fitted to the chair these will be operated from the motor control module (MCM). With this configuration powered seating is added to the Driver's Menu by checking the boxes – **MCM Actuators**.

When **more** than two powered seating functions are fitted to the chair these will be operated from the QR-MAC. With this configuration powered seating is added to the Driver's Menu by checking the boxes – **Powered Seating**.

Option 1 – Multiple menu line entries

Check the Powered Seating box.

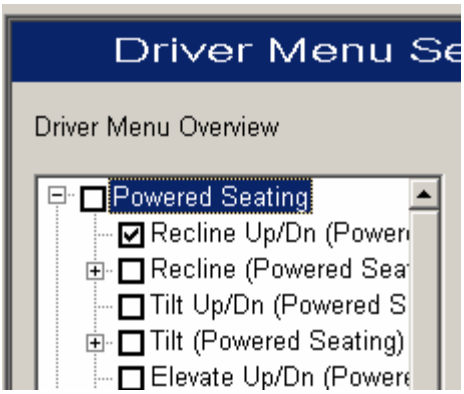


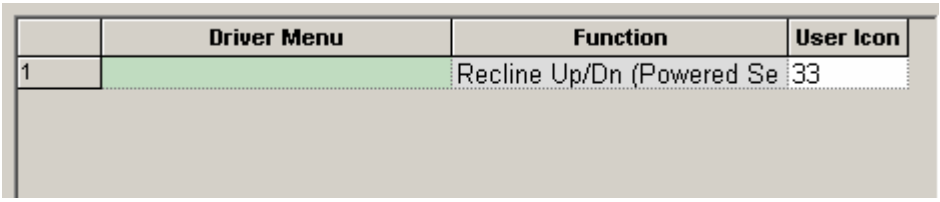


The entire power seating menu is added to the right column. On the Enhanced Display this will be displayed as a menu line entry “Powered Seating” which must be opened to display several menu line entries, one for each axis of the seat. Each menu line must be opened individually to display and operate each axis.

Option 2 – Single menu line entry

Expand the Powered seating branch and check the Recline Up/Dn box



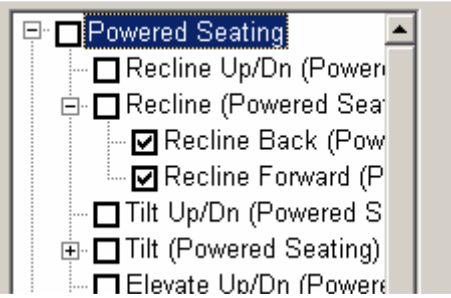


	Driver Menu	Function	User Icon
1		Recline Up/Dn (Powered Se	33

With this option only the Recline axis is added to Enhanced Display this will be displayed as a menu line entry “Recline Up/Dn” This menu line permits direct operation of the seat Recline in toggle mode, i.e. A right direction input from the active user device will operate the seat recline back and a second right direction input will operate the seat recline forward.

Option 3 – Two line menu entry

Expand the Powered seating branch and check the Recline Back and Forward boxes

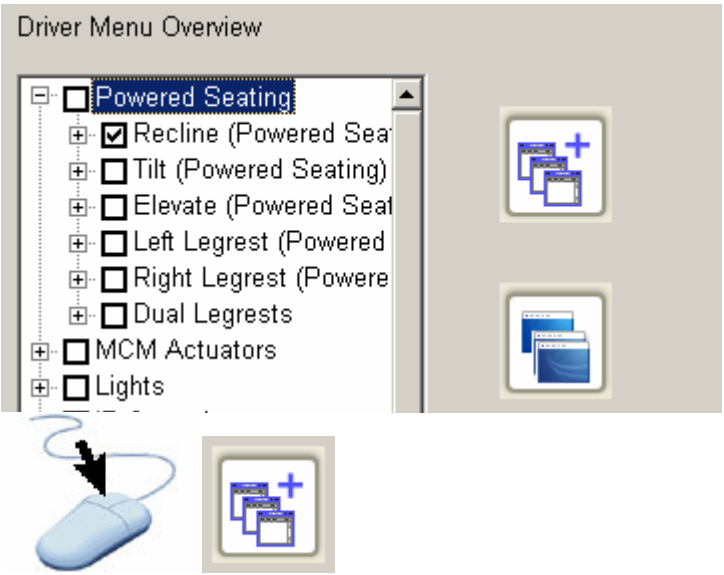


	Driver Menu	Function	User Icon
1		Recline Back (Powered Sea	32
2		Recline Forward (Powered S	31

With this option Recline Back and Recline Forward menu lines are added to the Enhanced Display These menu lines permits direct operation of the seat Recline in Forward and Back directions.

Option 4 – Modal screen

Expand the Powered seating branch and check the Recline box



	Driver Menu	Function	User Icon
1		Recline (Powered Seating)	30

With this option only the Recline axis is added to Enhanced Display this will be displayed as a menu line entry “Recline” This menu must be opened to display a graphic screen for operation of the seat recline.

3.7.2 Adding more menu lines to the Enhanced Display

In the same method that was used for the powered seating example above, multiple lines can be added to the Driver’s Menu by checking the appropriate boxes.

	Driver Menu	Function	User Icon
1		Elevate up (Powered Seatin	56
2		Elevate down (Powered Seat	57
3		Lights	19
4		Drive Profiles	10
5		Recline Back (Powered Sea	32
6		Recline Forward (Powered S	31
7		Tilt up (Powered Seating)	36
8		Tilt down (Powered Seating)	37

The order shown in this column is the order that will be shown on the Enhanced Display.

If a specific order is required in the menu structure then the  button must be pressed after checking each box.

3.7.3 Removing menu lines from the Driver's Menu set-up

Highlight the offending entry by 

	Driver Menu	Function	User Icon
1		Elevate up (Powered Seatin	56
2		Elevate down (Powered Seat	57
3 ➡		Lights	19
4		Drive Profiles	10
5		Recline Back (Powered Sea	32
6		Recline Forward (Powered S	31
7		Tilt up (Powered Seating)	36
8		Tilt down (Powered Seating)	37

then  

to remove all entries  

3.7.4 Adding menu lines to the Driver's Menu set-up

If you want to insert a line between two existing lines, highlight the line **below** where you want the new line to go.

	Driver Menu	Function	User Icon
1		Elevate up (Powered Seatin	56
2		Elevate down (Powered Seat	57
3 ➡		Lights	19
4		Drive Profiles	10
5		Recline Back (Powered Sea	32
6		Recline Forward (Powered S	31
7		Tilt up (Powered Seating)	36
8		Tilt down (Powered Seating)	37

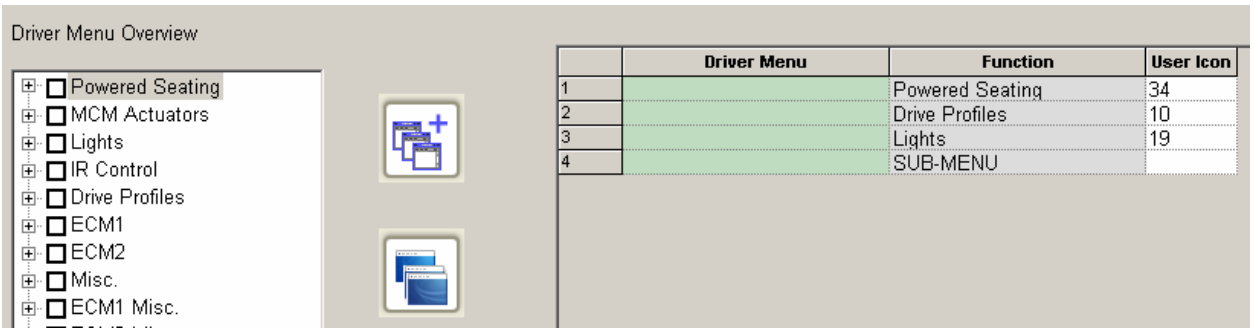
Check the box for the line to be added and

The new line entry will be added above ‘Lights’

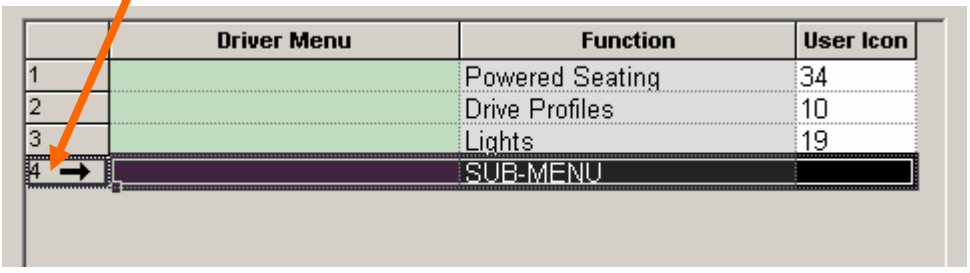
3.7.5 Adding Sub-Menus to the Driver’s Menu set-up

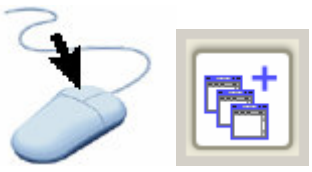
The addition of a Sub-Menu allows the user to partition functions into lower level menus. This is useful when adding audio visual and environmental function to the menu structure.

Check the Sub-Menu box and 



then highlight the sub-menu

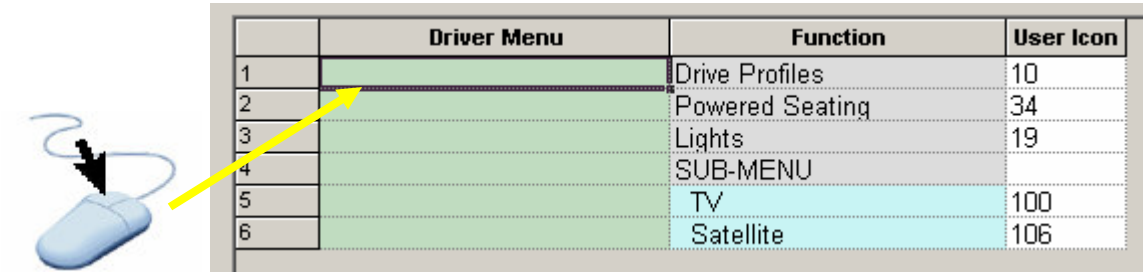


Then add functions into the Sub Menu 

Sub-menus can also be nested by highlighting each new sub-menu and adding functions into it.

3.7.6 Renaming Menu lines

The Driver's set-up menu allows renaming of any menu line item. This is useful for adding a name that is more meaningful to the user. If the renaming text field is left blank then the default "Function" name will appear on the Enhanced Display.



	Driver Menu	Function	User Icon
1		Drive Profiles	10
2		Powered Seating	34
3		Lights	19
4		SUB-MENU	
5		TV	100
6		Satellite	106

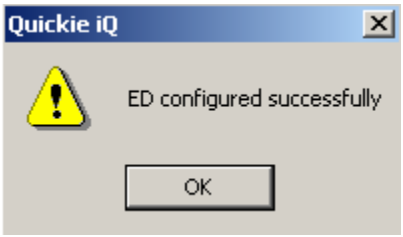
Type in the required text and repeat this for each text field you wish to change

	Driver Menu	Function	User Icon
1	Drive Speed	Drive Profiles	10
2	Lift, Tilt, Recline	Powered Seating	34
3		Lights	19
4	Video functions	SUB-MENU	
5		TV	100
6		Satellite	106

In this example the names of the Drive Profiles, Powered Seating and Sub-Menu have been changed.

3.7.7 Configuring the Driver's Menu into the Enhanced Display

When you have constructed the Driver's Menu with all the line entries you require, double check that they are in the correct order and the names are correct for each entry



Record of Driver's Menu

When a Driver's Menu is made, record it on this sheet and print.

Wheelchair Model	
Wheelchair serial number	
Users Name	
Date	

	Driver Menu	Function	User Icon
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

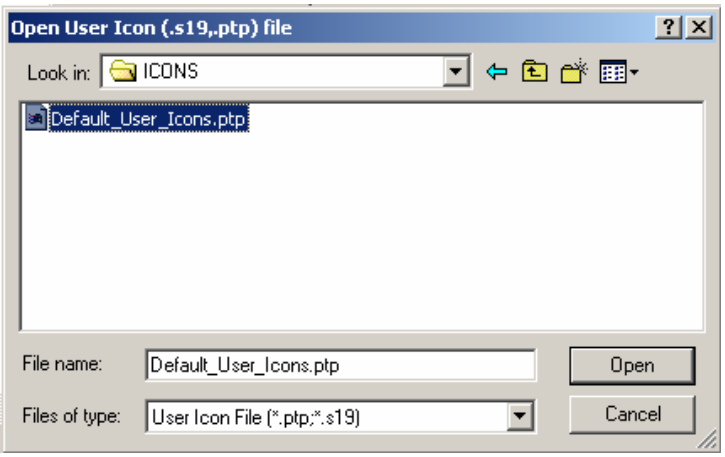
3.7.8 Icon display

The Enhanced Display has the ability to display functions as icons for non-text readers, these are enabled in the Enhanced Display module. The icons that appear are defined by an icon data file, this file is loaded into the Enhanced Display at manufacture and automatically when the firmware is flashed.
The Enhanced Display can also display custom made icons that have been designed with 'Quickie iQ Icon Maker' software.

3.7.8.1 Loading Icon Data files

To load a custom icon data file use the following sequence.

And then navigate to the icon data files on your computer.



By default these are stored at:-

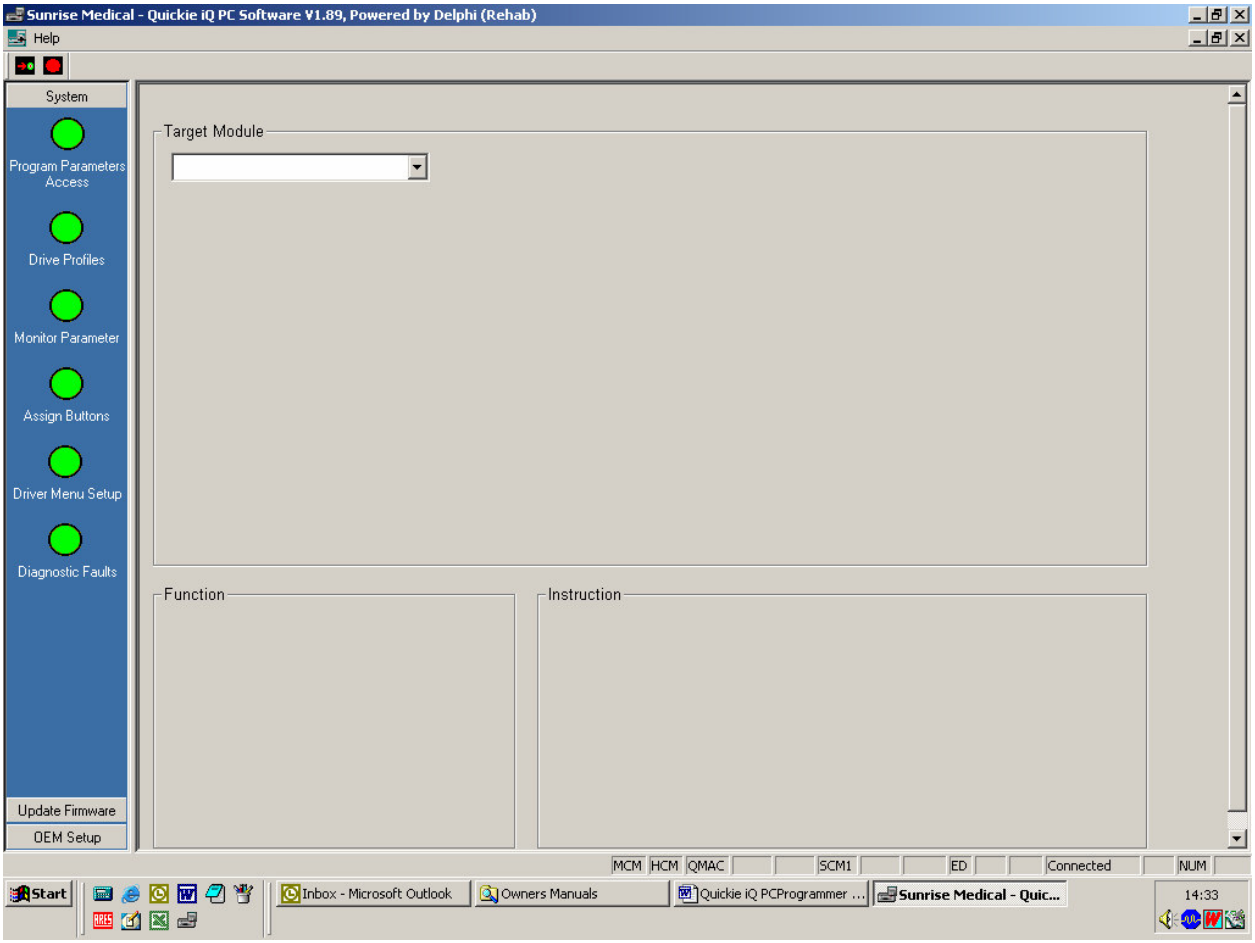
C:\Program Files\Sunrise Medical\Quickie iQ\Firmware\EDM\ICONS.

If you install your iQ software in an alternate drive or directory then you will have to perform a search to find the Icon files. Custom made icons can be produced to your specific needs with 'Quickie iQ Icon Maker'.

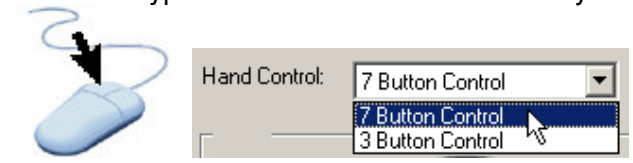
To write the icon file into the Enhanced Display

3.8 Assignable buttons

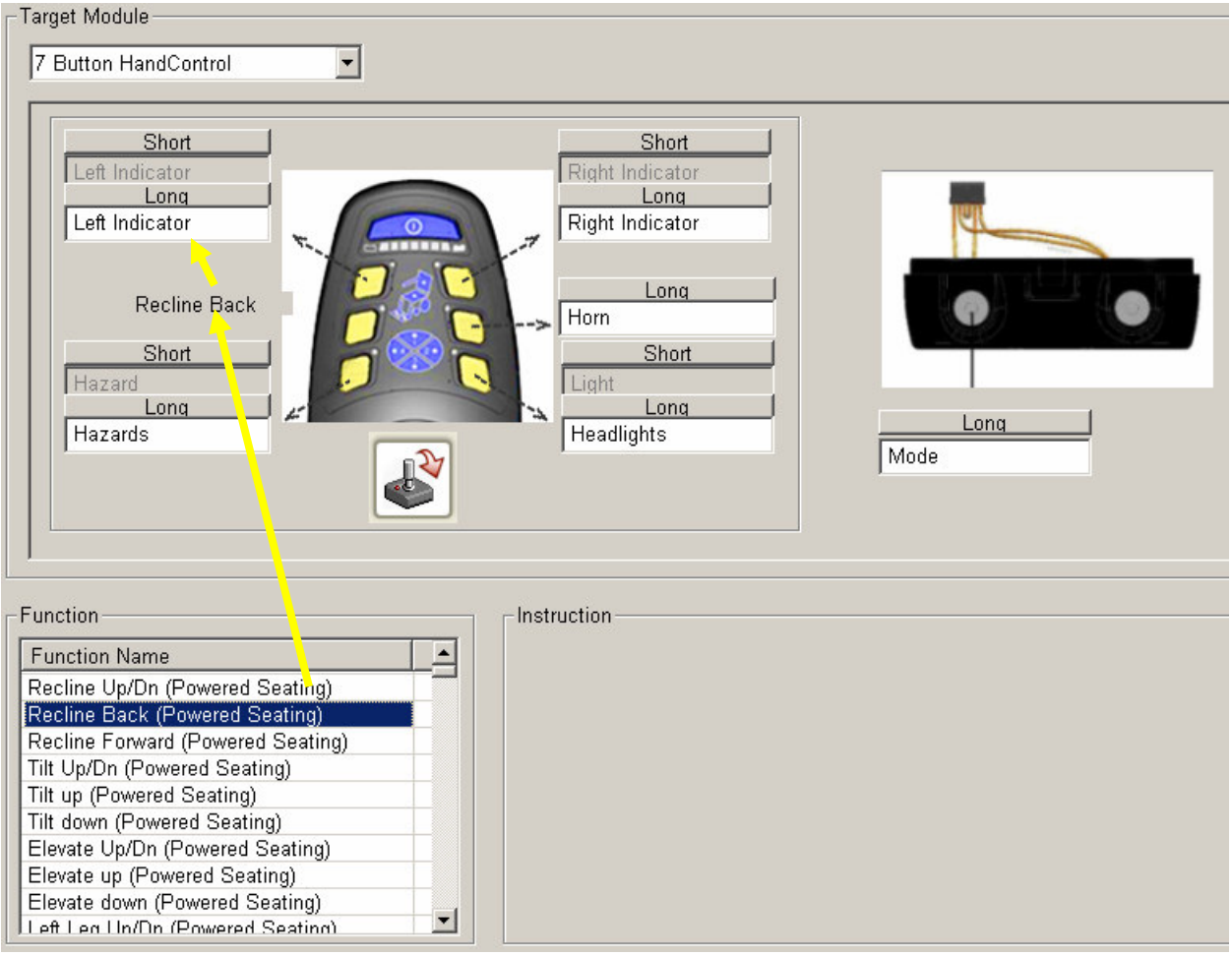
NOTE: Assignable buttons are not available in firmware versions before 2.x
The Assign Buttons screen allows the user to assign a wheelchair function to a button on the handcontrol or SCIM.



Select the type of handcontrol connected to your chair



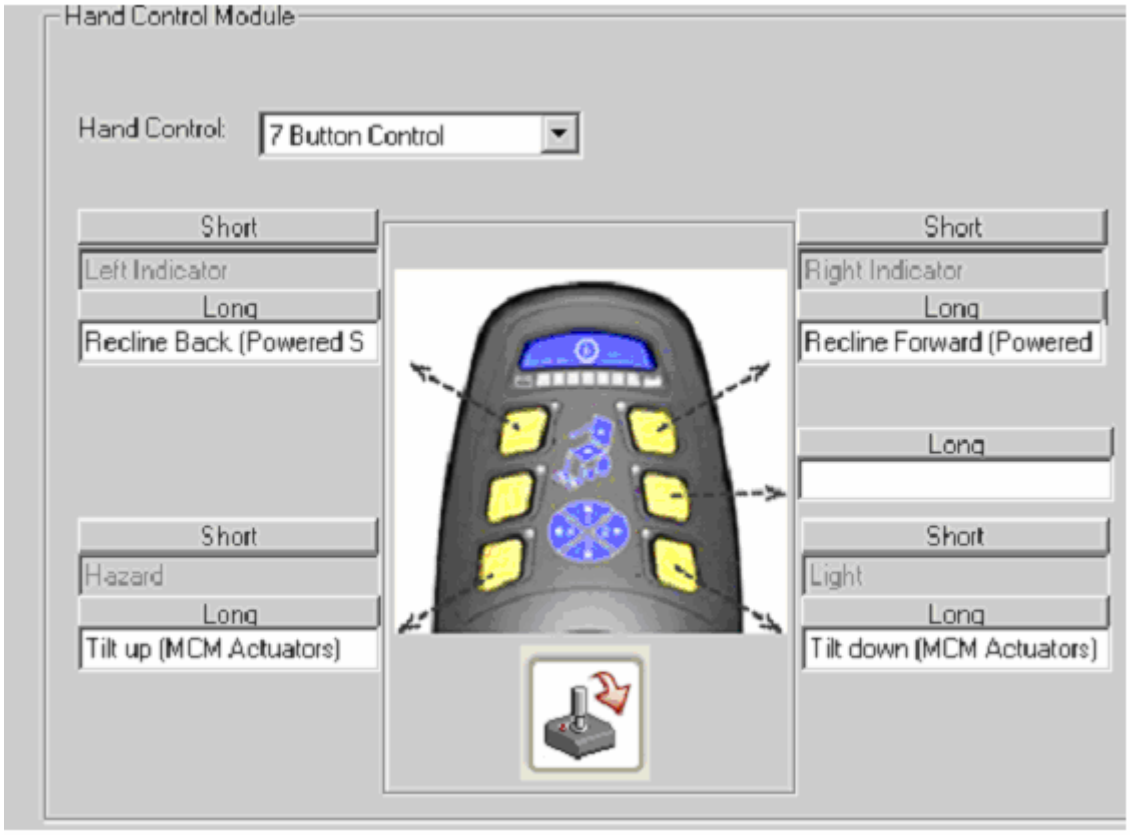
Drag and drop a function to a button



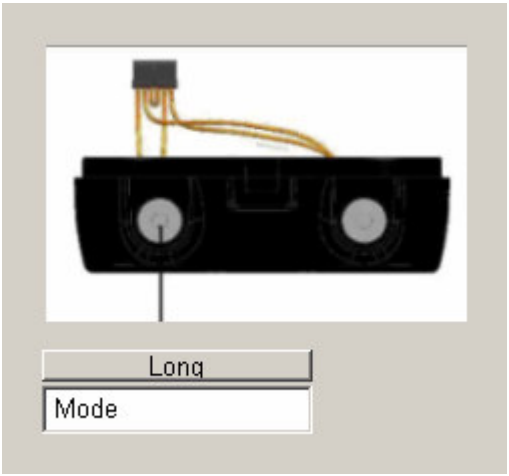
Assign all the buttons you require with functions.

3.8.1 WARNING Important considerations when assigning buttons.

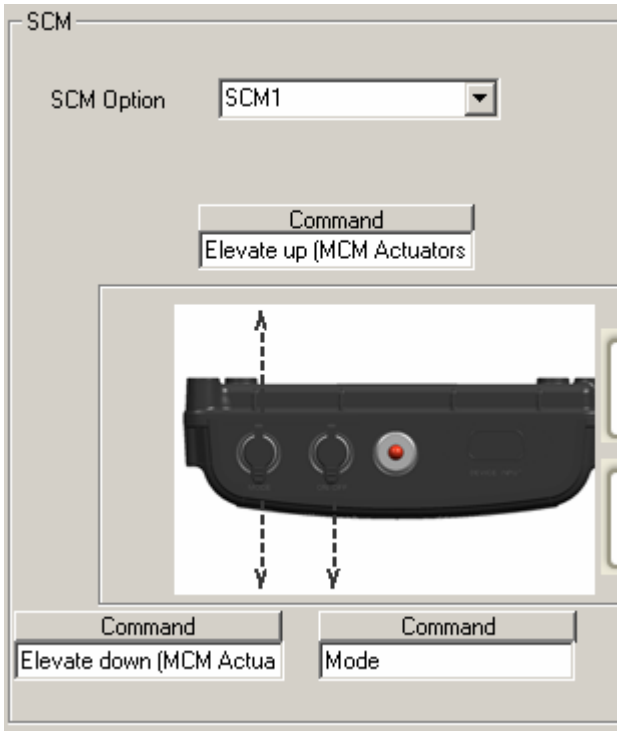
1. **Only assign a function to buttons that the user can operate safely. Do not assign all buttons unnecessarily, this may confuse the user as to the function of a button.**
2. **Reassigning the Horn button is not recommended as this removes the ability to warn others of the users approach and will cause the wheelchair to be non-compliant with the Medical Devices Directive.**
3. **The On/Off and handcontroller Mode button can not be reassigned.**



Repeat the drag-and-drop assignment for the heel jack where fitted



Repeat the drag-and-drop assignment for QR-SCM 1/2 and Mini Handcontrol (QR-2) where fitted



When done, write your new assigned buttons to the chair

  for a handcontrol and QR-2  for SCM 1 or 2.

To clear the button assignments use; Program Parameter Access/Handcontrol/Manufacturing Detail/Set Default Values/Restore Factory Settings.

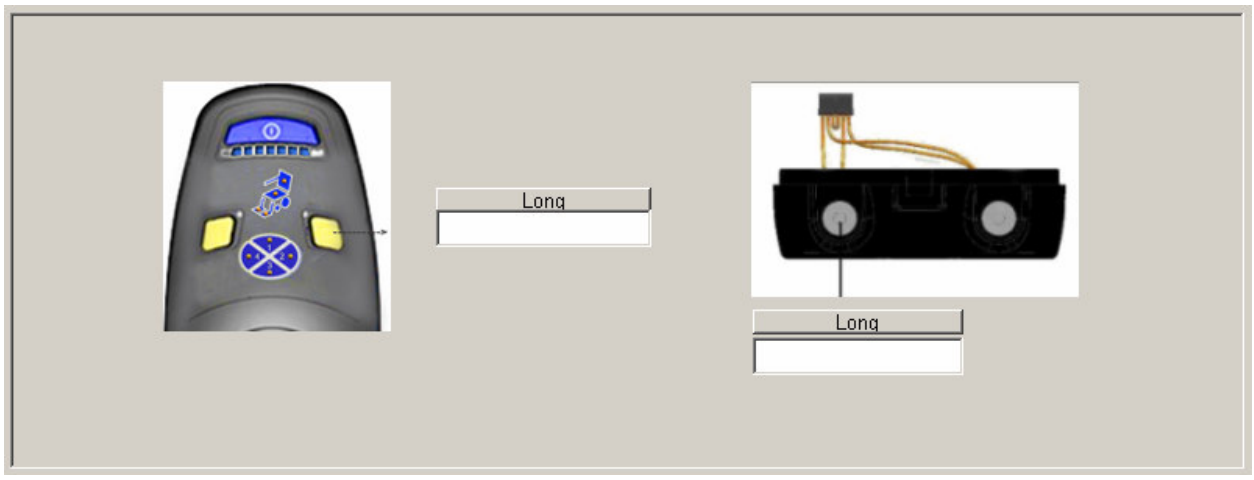
When you have completed the assignments, record these in the table below and upload the .sun file to Sunrise Medical Web iQ.

3.8.2 Record of Assigned Functions

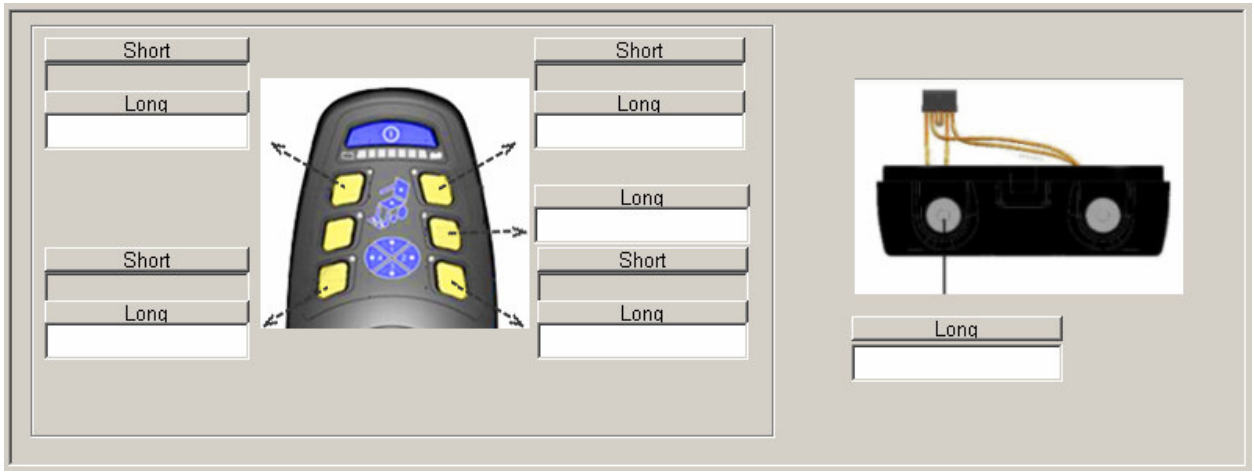
When assigned functions are made, record them on these sheets and print.

Wheelchair Model	
Wheelchair serial number	
Users Name	
Date	

3 Button Handcontrol

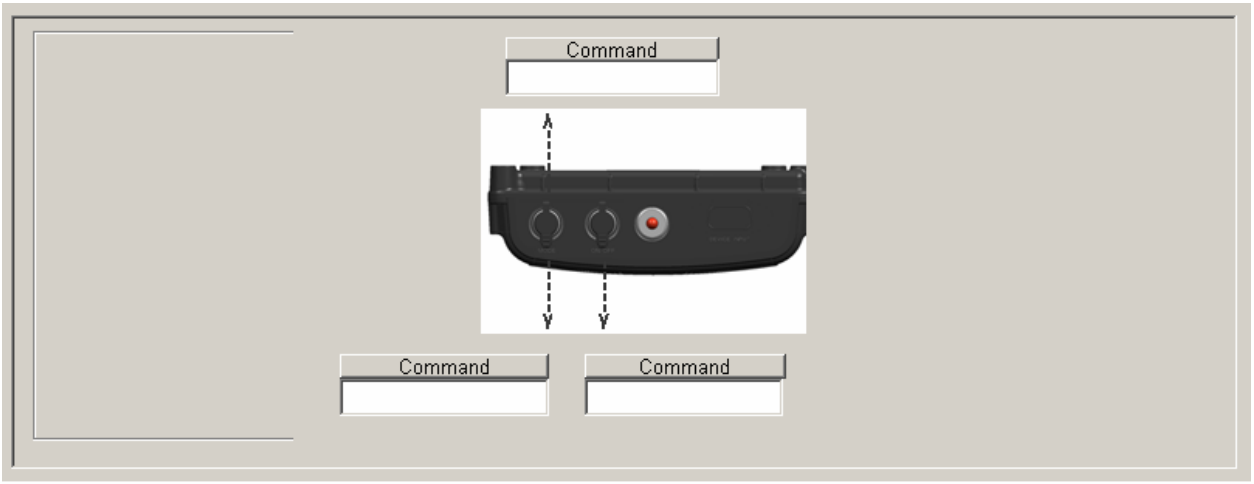


7 Button Handcontrol

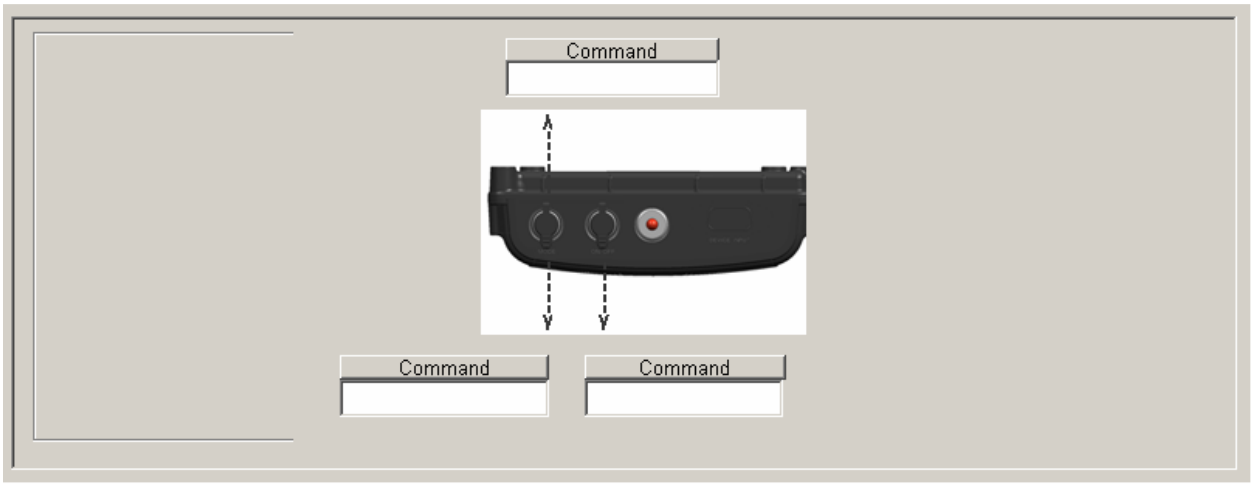


QR-2 Mini Handcontrol

QR-SCM 1



QR-SCM 2



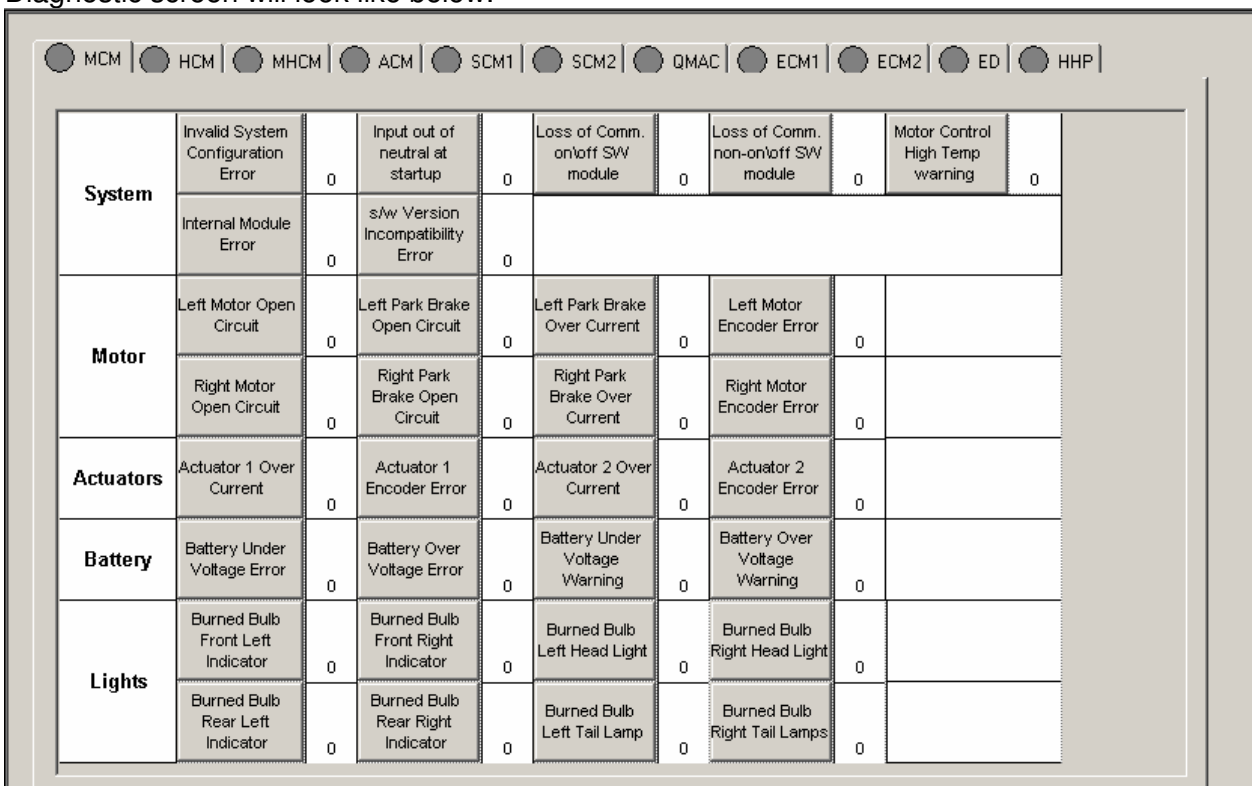
3.9 Diagnostics

The diagnostic screens allow the user to quickly diagnose faults in the wheelchair control system.

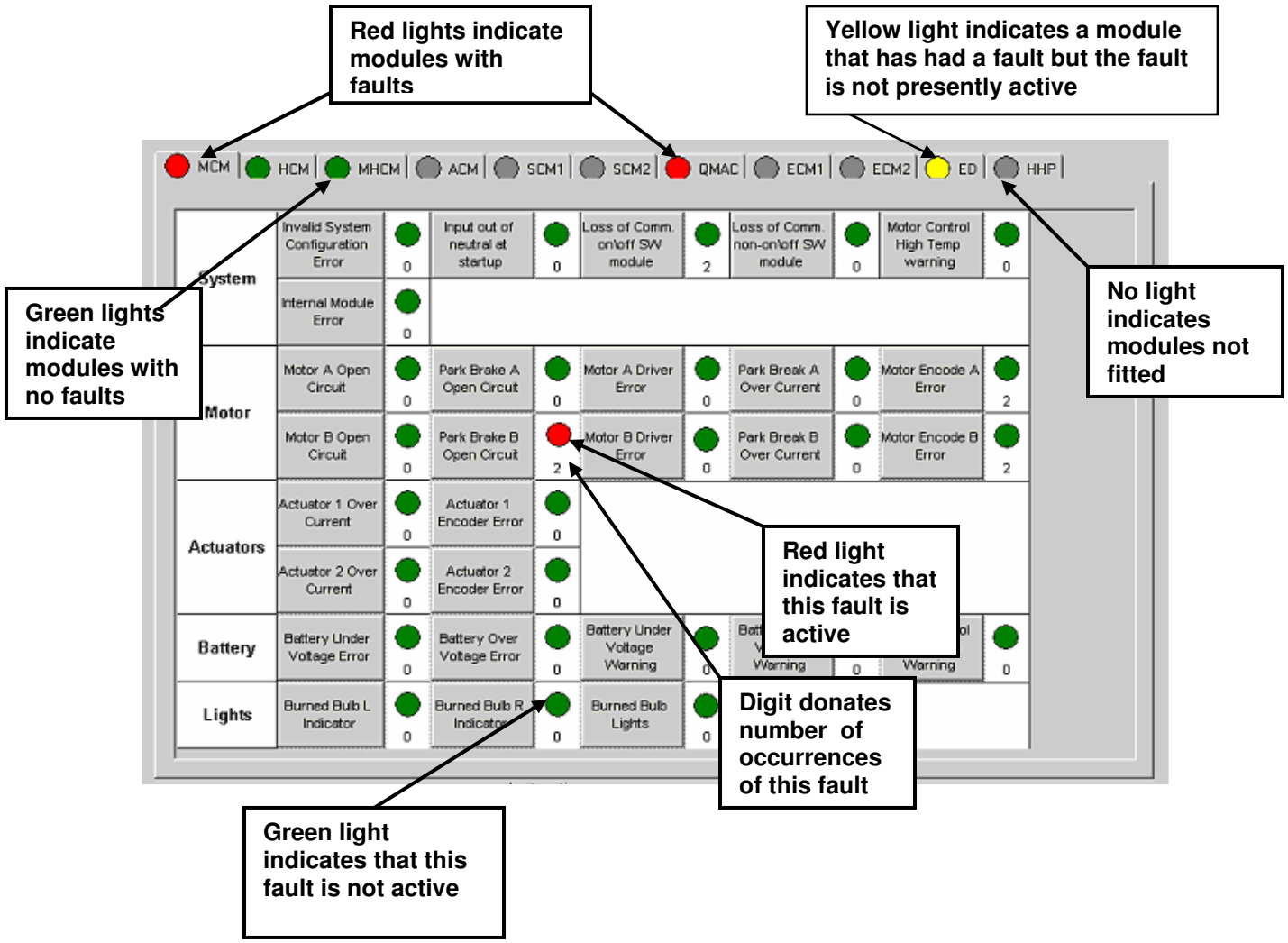
3.9.1 Diagnostic screen for all iQ electronic components installed on chair

Click on the “Diagnostic Faults” icon from the System Menu Screen:

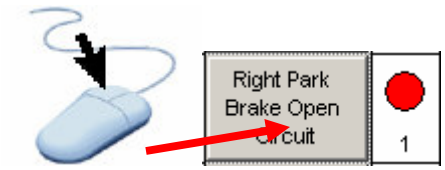
Diagnostic screen will look like below:

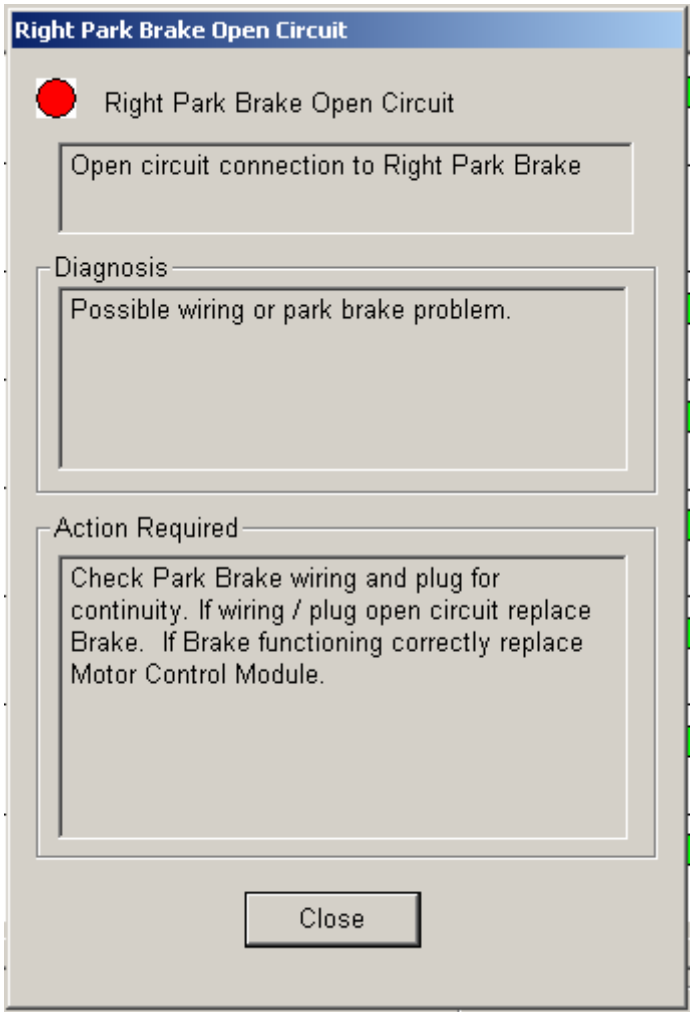


If a fault is currently active on the chair click on the icon to read the fault(s)":



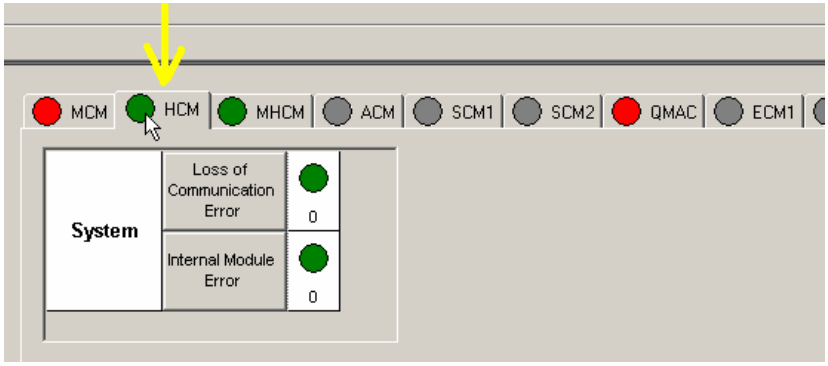
This motor control is displaying a 'Park Brake Open Circuit' open circuit fault





Also refer to the Rhythm and Groove Technical Service Manual for additional information.

Selecting a tab allows faults in other modules to be displayed



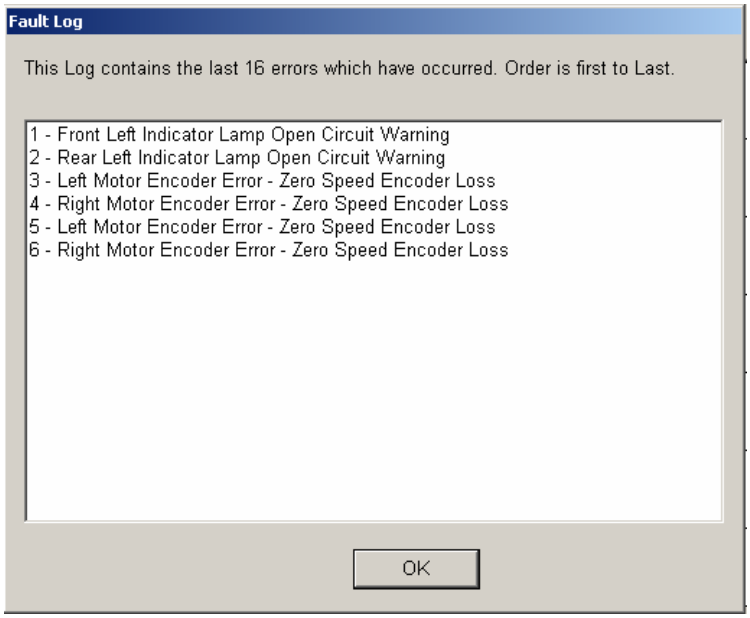
Clear the fault in an individual module by:-.

  or   to clear all modules

3.9.2 Diagnostic fault history

The fault log will display up to 16 of the most recent faults



3.9.3 Exporting diagnostic fault history

  Saves all fault occurrences to a users file

This allows the fault history of a users chair to be recorded and shared with other parties.

3.10 Update Firmware

*****IMPORTANT*****

UPDATING FIRMWARE WILL OVERWRITE ALL THE CURRENT WHEELCHAIR SETTINGS, YOU MUST SAVE ALL USER INFORMATION BEFORE PROCEEDING:-

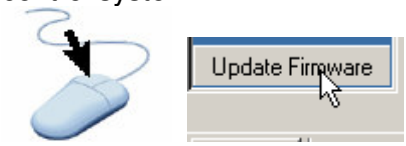
DRIVE PARAMETERS - REFER TO SECTION 3.4.7 *Saving chair parameters*

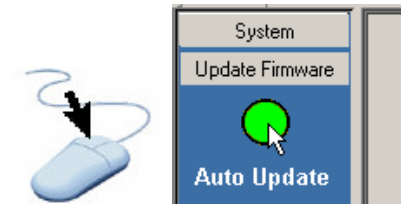
ENHANCED DISPLAY DRIVER'S MENU - REFER TO SECTION 3.6

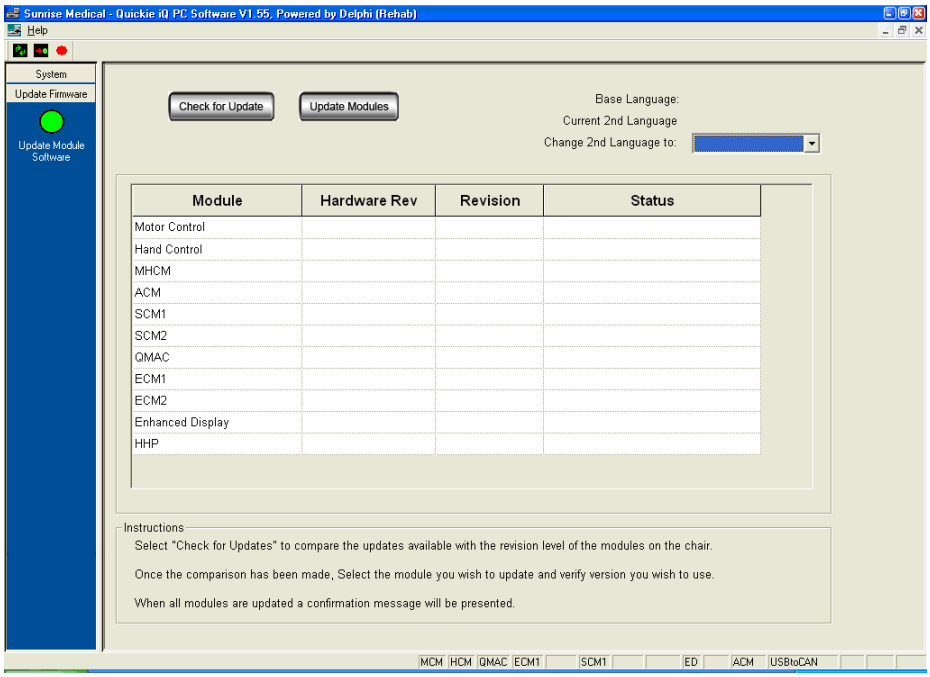
ALL ASSIGNED SWITCH FUNCTIONS - REFER TO SECTION 3.7

FAILURE TO DO THIS WILL RESULT IN A LOSS OF ALL PARAMETERS

The update firmware screen allows the user to upgrade firmware within the modules of the control system

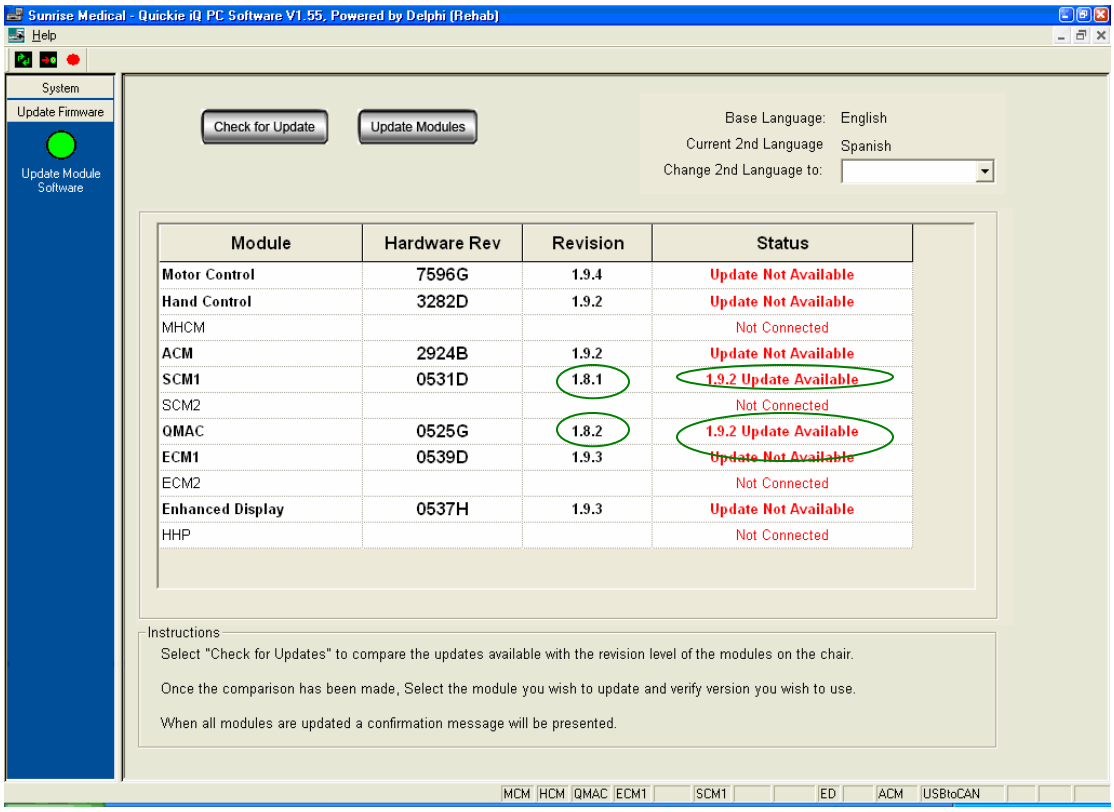




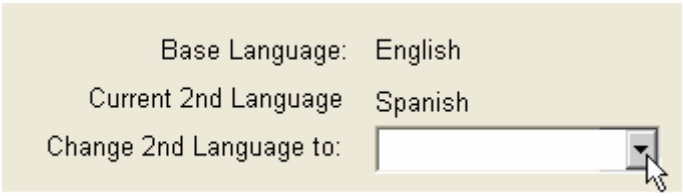


check for available firmware updates

Available updates are displayed.

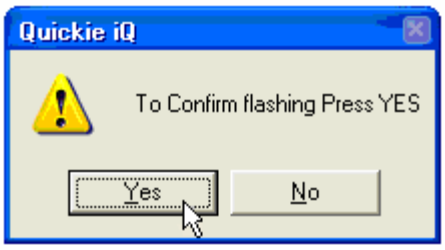


IMPORTANT



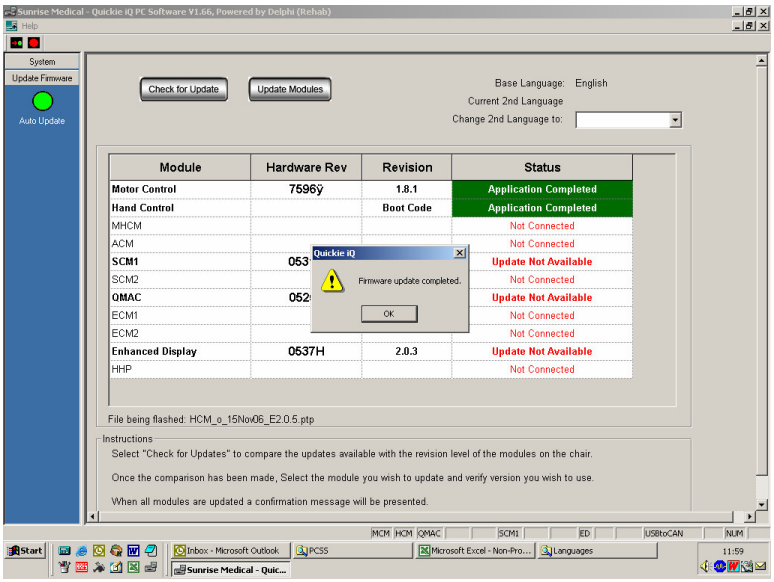
<u>Do not</u> select a 2nd language at this stage. Languages are matched to firmware versions therefore the firmware must be installed first.

update firmware



Confirm to begin flashing firmware

*****IMPORTANT*****
DO NOT INTERRUPT FIRMWARE UPDATE PROCEDURE UNTIL THIS SCREEN IS DISPLAYED



After a firmware update it is now necessary to restore the drive profile parameters that you saved, refer to section *3.5.5 Loading File Stored Data*

3.10.1 Troubleshooting firmware upgrades

When modules are upgraded software incompatibility problems may arise depending upon the previous software revision level. This incompatibility is caused by later versions of software having more functions than earlier versions and a corresponding mismatch of calibration parameters.

If you are experiencing problems with the system after flashing it may be necessary to perform one or all of the following recalibration routines.

Loading of a valid sun file. Sun files can be downloaded from the Sunrise Medical web site "Web iQ" or on the CD supplied in the Quickie iQ kit.

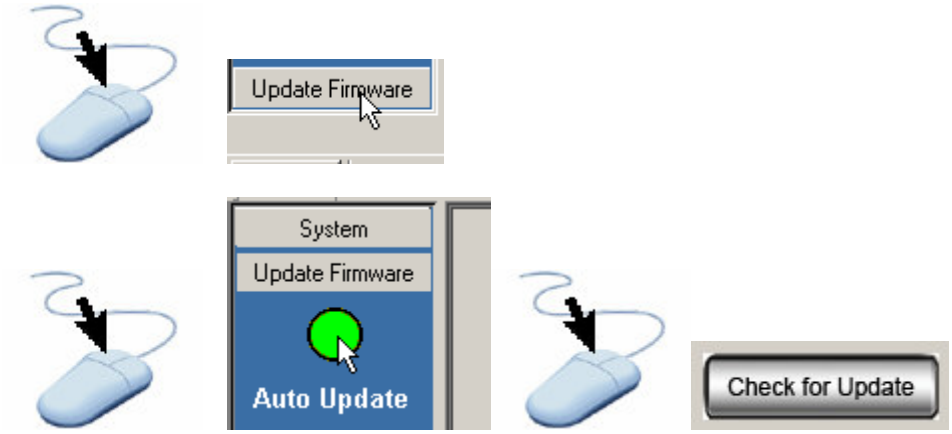
Perform a module reset by **restoring factory settings**. This is accessed through:- Program Parameter Access/Motor Control/Manufacturing Detail/Set Default Values – "Restore Factory Settings". This must be followed by the loading of a valid sun file. Sun files can be downloaded from the Sunrise Medical web site "Web iQ" or from the CD supplied in the Quickie iQ kit.

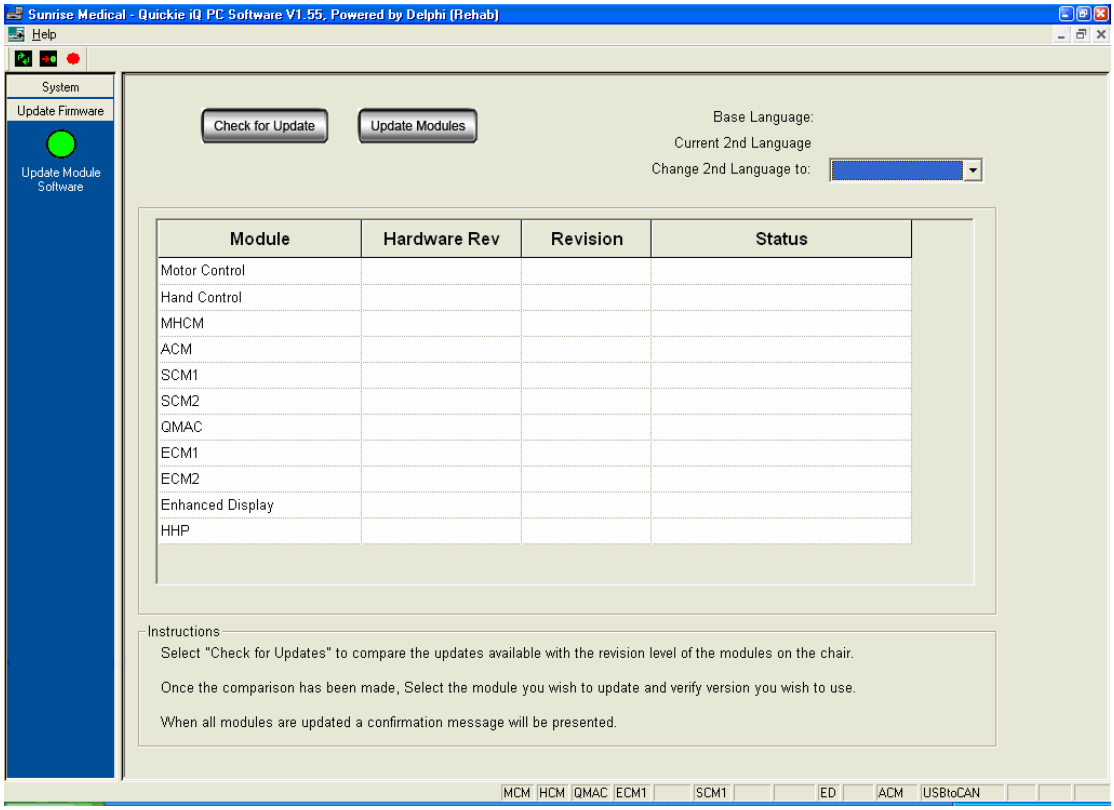
Re-homing the powered seating. This must be performed using the Hand Held Programmer (HHP)

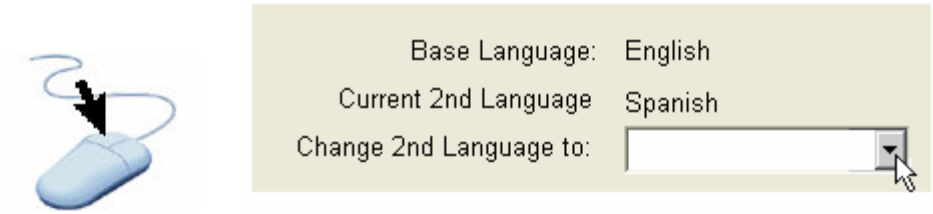
Re-calibrating the input device. This is accessed through:- Program Parameter Access/Handcontrol/Joystick Calibration
OR
Program Parameter Access/SCM/Joystick Calibration

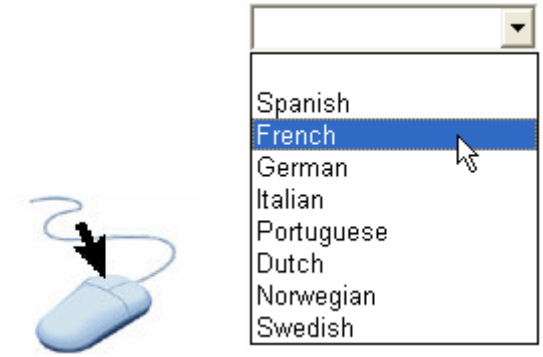
3.10.2 Changing language

If an alternate 2nd language is required this can only be added if the firmware version in the module is the same as the firmware version in iQ, i.e. the “Update not Available” message is shown for that module. If a version update is available then the firmware must be updated before a language can be installed.



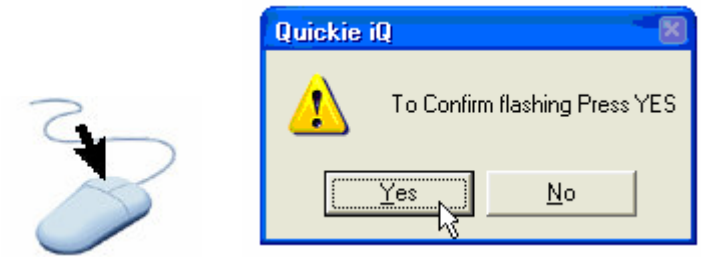






select the required 2nd language

update language



Confirm to begin flashing language

Appendix 1 Parameter Menu

System parameters common to all modules

Application Prom ID	Description: Defined States:	Manufacturers information Can not be modified
Boot Prom ID	Description: Defined States:	Manufacturers information Can not be modified
Manufacturing detail Set Default Values/Restore factory settings.	Description:	***WARNING*** **Erases** all stored parameters and menus and returns a module to the manufacturers default settings. If this command is used the module will be inoperable and must be reprogrammed with a valid .sun file from the Sunrise Medical website
Manufacturing info	OEM info Model number Serial number Manufacturing date Software version Hardware version	Manufacturers information Can not be modified Manufacturers information Can not be modified Serial number of module Can not be modified Date manufactured Can not be modified The version of software currently loaded in the module Identify the version number when adding new modules to the system Manufacturers information Can not be modified

Motor Control:

Device parameter	Parameter name	Description
Motor Drive Control Parameters	Enable Encoders	Enables the Intellidrive option for the drive wheel motors if present in the system.
	Veer Comp Fwd	Used to correct veering to left or right when driving straight forward
	Veer Comp Rev	Used to correct veering to left or right when driving straight reverse
Drive Fences	Min Fwd Speed Fence	Sets the minimum limit for adjustments to the forward speed parameter
	Min Rev Speed Fence	Sets the minimum limit for adjustments to the reverse speed parameter
	Min Turn Speed Fence	Sets the minimum limit for adjustments to the turn speed parameter
Number of DP	Number of DP	Sets the number of drive profiles available
Drive Profiles		
Drive Profile 1	Input Device	

	Fwd Speed	Determines the maximum allowable forward speed for a particular drive profile.
	Rev Speed	Determines the maximum allowable reverse speed for a particular drive profile.
	Turn Speed	Determines the maximum allowable turn rate for a particular drive profile.
	Fwd Accel	Determines the forward acceleration rate for a particular drive profile.
	Rev Accel	Determines the reverse acceleration rate for a particular drive profile.
	Fwd Decel	Determines the forward deceleration rate for a particular drive profile.
	Rev Decel	Determines the reverse deceleration rate for a particular drive profile.
	Turn Accel	Determines the turn acceleration rate for a particular drive profile.
	Turn Decel	Determines the turn deceleration rate for a particular drive profile.
	Latch Mode	Sets the operating mode when latched driving is enabled. Single Speed; the chair accelerates to a maximum speed set in the drive profile. Step; the speed increases in steps with every forward command from the input device. Step size is set with the Latch Speed-Step parameter. Cruise; the speed increases until the forward command from the input device is released.
	Latched	Enables latched mode driving
	Power Limit	Determines the drive motor current limit for the Drive Profile as a percentage of 100A
	High Speed Torque	Determines the amount of torque available at higher speeds in a particular drive profile
	Low Speed Torque	Determines the amount of torque available at lower speeds in a particular drive profile
	Auto Mode Enable	Enables the Auto Mode feature for a particular drive profile
Drive Profile 2	As Drive Profile 1	
Drive Profile 3	As Drive Profile 1	
Drive Profile 4	As Drive Profile 1	
Attendant Drive Profile	Sets the drive characteristics of the Attendant input device	Parameters as Drive Profile 1
Creep Drive Profile	Sets the drive characteristics of creep drive	Parameters as Drive Profile 1
Motor Overrides	Latch Timeout On	Enables a timer that disables latched driving after a preset period
	Latch Timeout	Determines the timeout period

	Latch Speed-Step	Sets the step speed size for latched mode driving
	Soft Stop	Determines how the chair comes to a halt when the On/Off button is depressed while driving. Enabled = Soft stop Disabled = Emergency stop
Lights	Enable Indicators	Enables the use of turn direction indicators for chairs fitted with this option
	Enable Lights	Enables the use of light for chairs fitted with this option
	Connector A Assign.	Assigns a lighting connector to a "corner" of the chair. This allows turn indicator left/right to be swapped without rerouting the electrical connectors.
	Connector B Assign.	
	Connector C Assign.	
	Connector D Assign.	
System	Horn Volume	Sets the volume of the horn
	Command Beep	Turns on a acknowledgement beep for operations of a button on the handcontrol
	Beep Volume	Sets the volume of the beep
	Backup Alarm	Enables a warning beep when the chair is reversing
	X Active Band	Sets how far the joystick must be moved before a function is activated in the X axis. **NOTE:** *This parameter only affects ECM selections and actuator selections.*
	Y Active Band	Sets how far the joystick must be moved before a function is activated in the Y axis. **NOTE:** *This parameter only affects ECM selections and actuator selections.*
	Keyless Lock	Enables operation of the keyless security device
	Sleep Time	Determines the time period before the chair goes into a power saving sleep mode
	Turn Off Time	Determines the time period after which the chair will power off. The turn off period runs sequentially to the Sleep period.
	Shutdown to Off Time	Determines the time period before the chair turns off when a fault has occurred
	Long Mode Cmd	Sets the time period that a Mode button must be depressed for before a "Long Mode" command is recognised
	Attendant Override	Determines which input device has control when the chair is turned on. Enables = Attendant control Disabled = The input device that was used to turn on the chair.
	Auto Mode Timeout	Sets the time period after which the chair enters Auto Mode and a mode command is requested
	Language	Sets the operating language of the chair

Actuators	Latched	Latches the motion of actuators. Actuators will drive full travel without maintaining an input command
	Auto Homing	Initiates the auto homing process to calibrate all actuators. The homing button must be held until actuator motion has ceased.
Actuator 1	Enable	Determines if the actuator function is enabled
	Assign Function	Assigns a seat function to an actuator
	Input Dir Swap	Changes the direction of the actuator
	Limit Count Up	Sets the maximum limit of actuator movement
	Limit Count Dwn	Sets the minimum limit of actuator movement
	Speed	Sets the maximum speed of the actuator
	Accel	Sets the acceleration rate to maximum speed
	Creep Count	Sets the count value at which the wheelchair speed will reduce to creep
	Lockout Count	Sets the count value at which the wheelchair drive will be disabled
Actuator 2	As Actuator 1	
Dir Act SW 1	Dir Act SW 1, Disabled	Disables the operation of the switch
	Dir Act SW 1, Direct Actuator Switch	Allows direct operation of a motor control actuator by an externally connected switch. Mode of operation depends on the number of actuators connected to the motor control. 1 actuator = direction extend/retract 2 actuators = direction toggle I switch for each actuator. **NOTE:** *When this switch is used in direct actuator mode Dir Act SW 2 must also be set to the Direct Actuator mode.*
	Dir Act SW 1, Ext Drive Lockout NO	Allows a normally open externally connected switch to inhibit chair drive
	Dir Act SW 1, Ext Drive Lockout NC	Allows a normally closed externally connected switch to inhibit chair drive
	Dir Act SW 1, Ext Creep NO	Allows a normally open externally connected switch to invoke creep drive
	Dir Act SW 1, Ext Creep NC	Allows a normally closed externally connected switch to invoke creep drive
Dir Act SW 2	Dir Act SW 2, Direct Actuator Switch	Allows direct operation of a motor control actuator by an externally connected switch. Mode of operation depends on the number of actuators connected to the motor control. 1 actuator = direction extend/retract 2 actuators = direction toggle I switch for each actuator. **NOTE:** *When this switch is used in direct actuator mode Dir Act SW 1 must also be set to the Direct Actuator mode.*
	As Dir Act SW 1	

Handcontrol

Second Function Cmd	Second Function Cmd	Determines the time threshold to discriminate a short and long button push for assigned functions
Sensitivity	Sensitivity	Determines the amount of filtering applied to the joystick. A 0% setting (min sensitivity) represents a 1.5 second filter time delay. A 100% setting (max sensitivity) represents no filtering.
Neutral Hor	Neutral Hor	Determines the percentage of mechanical travel the joystick must be moved off the mechanical center position in the X axis before drive commences
Neutral Vert	Neutral Vert	Determines the percentage of mechanical travel the joystick must be moved off the mechanical center position in the Y axis before drive commences
Switch Operation	Switch Operation	Changes the joystick from a proportional device to a switched device. Used in conjunction with latched driving
Assign Direction	Assign Direction	Allows the direction of the joystick relative to the direction of the chair to be changed
Adjust Throw	Adjust Throw	Allows the amount of joystick throw relative to chair speed to be changed
Joystick Calibration	Joystick Calibration	Used to calibrate the movement of the joystick, may be required after software update

QR-MAC

System	Latched	Latches the motion of actuators. Actuators will drive full travel without maintaining an input command
	Assign Hex Switch	Associates a Hex switch control with an actuator **NOTE:** Two controls can not be assigned to the same actuator
System/Inhibit Setup	Creep Angle	When stability angle is equal or greater than the creep angle, the chair is put into creep mode
	Lockout Angle	When stability angle is equal or greater than the Lockout angle, chair drive is inhibited
Recline	Enabled	Determines if the actuator function is enabled
	Input Dir Swap	Changes the direction of the actuator
	Speed	Sets the maximum speed of the actuator
	Accel	Sets the acceleration rate to maximum speed
	Max Limit	Sets the maximum limit of actuator movement
	Min Limit	Sets the minimum limit of actuator movement
	Backrest Limit	Defines the combined angle of recline and tilt above which recline can not be reclines back and tilt can not be tilted up
	Recline w/Legrests	Enables synchronized movement of the legrests as the backrest is reclined

Recline/Enhanced Recline	Enable ER	Enables the enhanced recline function. Seat tilt will automatically raise as the backrest is returned to the upright position
	Pre-Tilt Angle	The angle to which the tilt will raise during the 'Enhanced Recline' function
Tilt	Enabled	Determines if the actuator function is enabled
	Input Dir Swap	Changes the direction of the actuator
	Speed	Sets the maximum speed of the actuator
	Accel	Sets the acceleration rate to maximum speed
	Max Limit	Sets the maximum limit of actuator movement
	Min Limit	Sets the minimum limit of actuator movement
Lift	Enabled	Determines if the actuator function is enabled
	Input Dir Swap	Changes the direction of the actuator
	Speed	Sets the maximum speed of the actuator
	Accel	Sets the acceleration rate to maximum speed
	Max Limit	Sets the maximum limit of actuator movement
Left Legrest	Enabled	Determines if the actuator function is enabled
	Input Dir Swap	Changes the direction of the actuator
	Speed	Sets the maximum speed of the actuator
	Accel	Sets the acceleration rate to maximum speed
	Max Limit	Sets the maximum limit of actuator movement
	Min Limit	Sets the minimum limit of actuator movement
Right Legrest	As Left Legrest	
Shear	Enabled	Determines if the actuator function is enabled
	Tuning Factor	Used for synchronizing the shear speed with recline speed

Mini Handcontrol

Sensitivity	Sensitivity	Determines the amount of filtering applied to the joystick. A 0% setting (min sensitivity) represents a 1.5 second filter time delay. A 100% setting (max sensitivity) represents no filtering.
Neutral Hor	Neutral Hor	Determines the percentage of mechanical travel the joystick must be moved off the mechanical center position in the X axis before drive commences
Neutral Vert	Neutral Vert	Determines the percentage of mechanical travel the joystick must be moved off the mechanical center position in the Y axis before drive commences
Switch Operation	Switch Operation	Changes the joystick from a proportional device to a switched device. Used in conjunction with latched driving
Assign Direction	Assign Direction	Allows the direction of the joystick relative to the direction of the chair to be changed
Adjust Throw	Adjust Throw	Allows the amount of joystick throw relative to chair speed to be changed
Joystick Calibration	Joystick Calibration	Used to calibrate the movement of the joystick, may be required after software update
Manufacturing Detail	Module ID	Allows the identity of the QR-2 to be changed between mini joystick and attendant control

SCIM

Input Device	Input Device	Determines the primary input device 4-Directional Proportional, 3-Directional Proportional, 4-Switch, 3-Switch, 2-Switch, 1-Switch 4D Scanner, 1-Switch 8D Scanner, SnP 2-Pressure, SnP 4-Pressure, SnP with 2-Switch
RIM option	RIM option	Allows the toggling of the direction indicator by 1 short hit of the Mode command. To access a normal Mode change requires 2 short hits
Actuator L/R Ctrl	Actuator L/R Ctrl	Determines how actuator motion control functions in the system interpret directional user input commands provided by the SCIM. DISABLED: all 4 directional commands (Forward, Reverse, Left, Right) are used ENABLED: only Left and Right direction commands are used
Re-Assign Joystick	Re-Assign Joystick	Used to select which direction the joystick has to be moved for reverse/forward and right/left steering movements of the wheelchair.
Neutral Hor	Neutral Hor	Determines the percentage of mechanical travel the joystick must be moved off the mechanical center position in the X axis before drive commences
Neutral Vert	Neutral Vert	Determines the percentage of mechanical travel the joystick must be moved off the mechanical center position in the Y axis before drive commences
Sensitivity	Sensitivity	Determines the amount of filtering applied to the joystick. A 0% setting (min sensitivity) represents a 1.5 second filter time delay. A 100% setting (max sensitivity) represents no filtering.
Adjust Throw	Adjust Throw	Allows the amount of joystick throw relative to chair speed to be changed
Joystick Calibration	Joystick Calibration	Used to calibrate the movement of the joystick, may be required after software update

Step Sequence	Step Sequence	Determines the operating sequence of the 4 direction scanner used in single switch control. In 5_STEP mode all 4 directions and escape are visited once, in 7_STEP mode left & right are visited twice.
Scan Dwell Time	Scan Dwell Time	Determines the time interval each state in the scan sequence is present, before changing to the next.
Toggle Manual Option	Toggle Manual Option Proportional	Determines if a "Short" Forward joystick input toggles the Direction Indicator in a 3-direction proportional input configuration.
Toggle Manual Option	Toggle Manual Option Switch	Determines if a "Short" Forward switch input toggles the Direction Indicator in a 3-switch discrete input configuration.
Direction Toggle Time Param	Dir Toggle Time Proportional	Determines the time interval after a state change of the Direction Indicator, when the state of the Direction Indicator shall change state (or “toggle”) again. Applicable to 3-direction proportional input configuration only
Direction Toggle Time Param	Dir Toggle Time Switch	Determines the time interval after a state change of the Direction Indicator, when the state of the Direction Indicator shall change state (or “toggle”) again. Applicable to 3-switch discrete input configuration only.
Escape Double Option	Escape Double Click Option	Determines if a “double click” input is enabled as criteria for an Escape function. Specific to switch input device configurations.
Escape Double Option	Escape Double Sip Option	Determines if a “double sip” input is enabled as criteria for an Escape function. Specific to Sip and Puff input device configurations.
Swap Sip/Puff	Swap Sip/Puff	Determines the convention for assigning “sips” and “puffs” to directional commands. DISABLED: “puffs” assigned to Forward (and Right) ENABLED: “sips” assigned to Forward (and Right)
Short Cmd Time	Short Cmd Time	Determines the time threshold a command must be asserted before it is considered a “short” command.
Between Time	Between Time	Determines the time threshold between commands to discriminate between single and double commands.
SNP Cals	S/P Cmd Time	Determines the time threshold for Sip and Puff command to be recognized
Mode Switch Configuration	DB-9 Switch Type	Determines the contact configuration of the Mode switch on the DB-9 Pin 6 input. NO = normally open contact type NC = normally closed contact type
Mode Switch Configuration	Jack Switch Type	Determines the contact configuration of a Mode switch assigned to any jack input. NO = normally open contact type NC = normally closed contact type

ECM

ECM Voltage Output	ECM Voltage Output	Sets the output voltage of the ECM power supply Range: Off, 12V, Battery (nominally 24V)
Diagonal Option	Diagonal Option	Enables access to nine relays through diagonal input commands No = Diagonal option is off CH 2 = diagonal input commands cause relays in channel 2 to operate (channel 2 must be enabled) Mouse = diagonal input commands cause pairs of CH 1 relays to operate, i.e. FWD+Right relays
Enable Channel 1	Enable CH 1	Enables ECM Channel 1 Relays.
Enable Channel 1	Rel 1 Mode	Sets the operating mode of relay 1 Momentary = Relay contact closes for as long as input command is asserted Latched = Relay contact toggles on each input command. Relay will release when ECM mode is exited. Latched and Hold = Relay contact toggles on each input command. Relay will remain in its present state when ECM mode is exited.
Enable Channel 1	Rel 2 Mode	As for relay 1
Enable Channel 1	Rel 3 Mode	As for relay 1
Enable Channel 1	Rel 4 Mode	As for relay 1
Enable Channel 1	Rel 5 Mode	As for relay 1 Note: Relay 5 is operated from an assigned function, lower to buttons on a 7 button handcontrol, the Select jack on the ECM
Enable Channel 2	Relay contacts 6 thru 9, as for Relay 1	

Enhanced Display

Contrast	Contrast	Adjusts the contrast of the display
Back light	Back light	Enables illumination of the display for reading in low ambient light
Back light timer	Back light timer	The time period that elapses when before the back light is turned off if no input commands are issued
Units	Units	Defines the displayed units Options: Metric, English
Trip Reset	Trip Reset	Allows the trip odometer to be reset now or every time a charger is connected

Icons Menus	Icons Menus	Enables operation of the menus through text or icons Note: Icons and icon files are loaded in the Drivers Menu
Auto Scroll mode	Auto Scroll mode	Enables auto scrolling through the menus
Auto scroll speed	Auto scroll speed	Determines the time delay before scrolling to the next menu item
Attendant level	Attendant level	Determines the number of main menu items available to the attendant. NOTE: User Menu level overrides attendant level except when the ED is powered ON and the power button is held down for >5 seconds.
User level	User level	Determines the number of main menu items available to the user.
Proportional	Man. scroll start	Defines the time period that a command must be asserted before scrolling commences
Proportional	Man. scroll speed	Sets the scroll speed for manual scrolling
Manufacturing Detail	Set Default Values	***WARNING*** Erases all Driver's Menu, taught IR codes and returns the ED module to the manufacturers default settings. If this command is used the Diver's Menu will require rebuilding and IR remote controls will need to be re-learnt.
Manufacturing Detail	IR re-init	***WARNING*** Erases all taught IR codes and returns the ED module to the manufacturers default settings. If this command is used the IR remote controls will need to be re-learnt.

Handheld Programmer [HHP]

See Sunrise Medical HHP owners