R-NET CJSM2
USER GUIDE

SUNRISE MEDICAL | FAMILY OF BRANDS

Contents

About this manual

The User Guide introduces the R-net CJSM2 Joystick Module, it should be read in conjunction with the R-net Control System User Guide.

Throughout the manual icons are used to draw the reader's attention.

The icons used are:

NOTE: **A general point for best practice.**

CAUTION: **A point of safety which if ignored could result in damage to the Control System or the vehicle.**

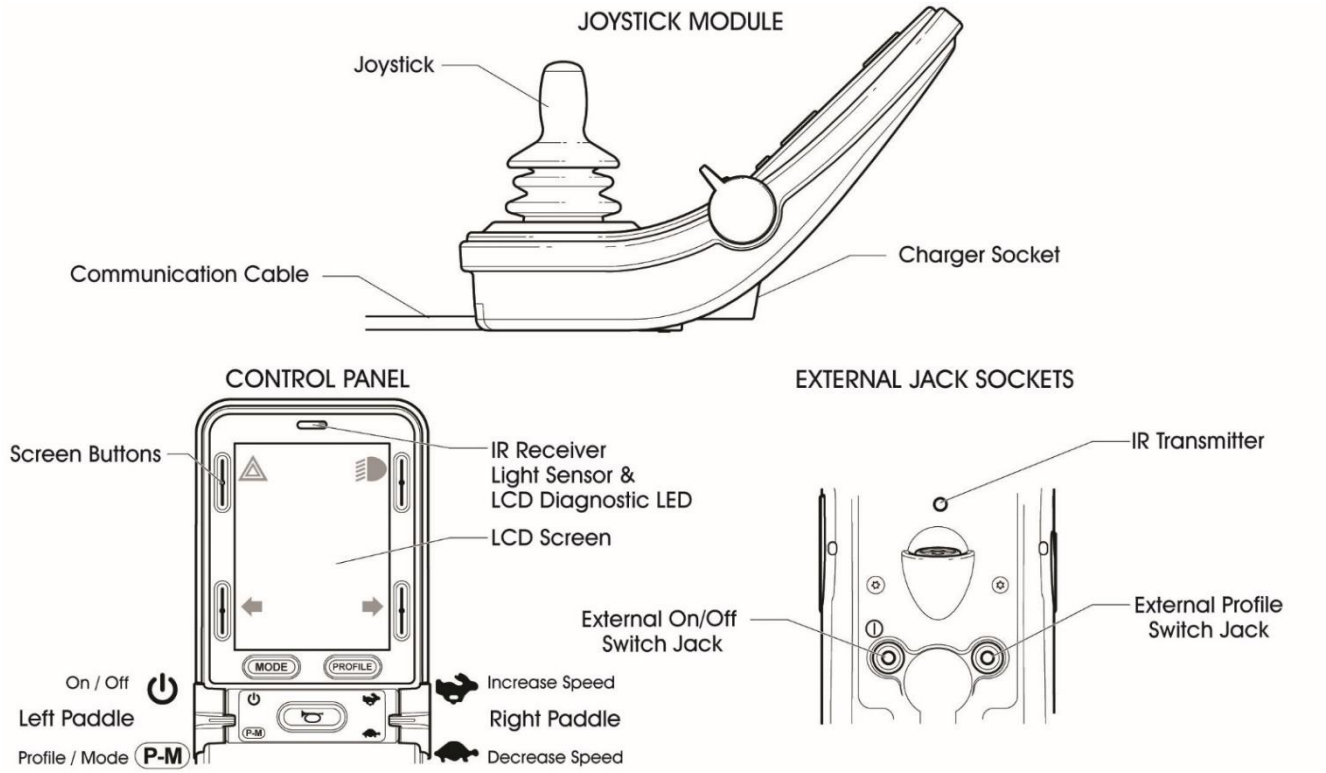
WARNING: **A point of safety which if ignored could cause injury to the individual.**

Magic Mobility accepts no liability for any losses of any kind if the cautions and warnings are not followed.

Chapter 1 – Operation

1 CONTROLS

The Joystick Module is available with and without lighting control. The controls are common to both; however, the lighting buttons symbols only appear on the lighting control version.



1.1 Joystick

The primary function of the joystick is to control the speed and direction of the wheelchair. The further you push the joystick from the centre position the faster the wheelchair will move. When you release the joystick the brakes are automatically applied.

1.2 External jack sockets

1.2.1 EXTERNAL ON/OFF SWITCH JACK

This allows the user to turn the control system on and off using an external switch, such as a Buddy-Button.

1.2.2 EXTERNAL PROFILE/MODE SWITCH JACK

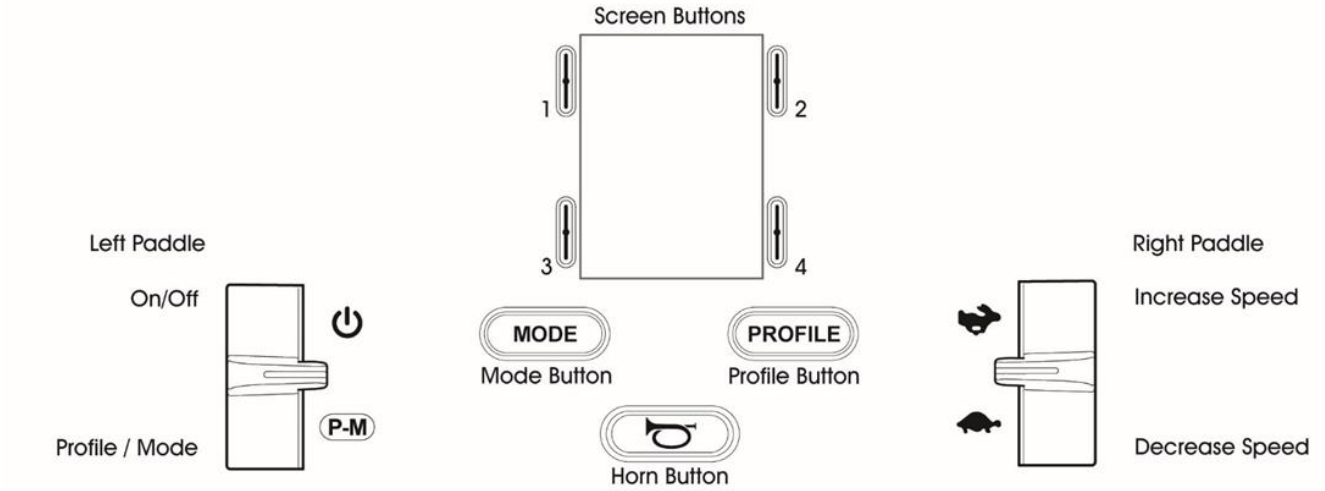
This allows the user to perform the function of the Profile/Mode paddle using an external switch, such as a Buddy-Button.

Alternative functions for this input are available via programming as described below:

CAUTION

The Joystick Module is supplied with rubber bungs that must be inserted into the Jack Socket when no external device is connected.

1.3 Paddle switches and buttons



1.3.1 ON/OFF PADDLE SWITCH

The On/Off paddle switch is operated via forward deflections of the left paddle.

1.3.2 PROFILE/MODE PADDLE SWITCH

The Profile/Mode paddle switch allows the user to select the available drive Profiles and operating Modes for the control system. The selection sequence is through each of the available Profiles and then each of the available Modes.

Depending on the way the control system has been programmed a momentary screen may be displayed when a new Profile is selected. Refer to section Momentary Screens for details.

The available Profiles and Modes are dependent on how the control system has been programmed and the output devices that are connected.

The Profile/Mode paddle switch is operated via reverse deflections of the left paddle.

1.3.3 SPEED PADDLE

The Speed Paddle allows adjustment of the control system's speed setting.

Depending on the way the control system has been programmed a momentary screen may be displayed when the paddle is operated. Refer to section Momentary Screens for details.

The default operation of the Speed paddle is momentary, i.e. the speed setting will be increased upon forward deflections of the paddle and decreased upon reverse deflections of the paddle.

Alternative programming to set the timing and operation of the Speed paddle, as well as changing it to operate continuously, i.e. in a similar way to a rotary potentiometer, is available. This programming is effected via the following parameters: Speed Paddle Operation, Speed Step Size, Speed Step Rate, Speed Wrap Time, Speed Wrap Delay and Speed Wrap Beep.

1.4 Horn button

The Horn will sound while this button is depressed.

1.5 Profile button

The Profile button allows the user to navigate through the available Profiles for the control system. The number of available Profiles is dependent on how the control system is programmed.

Depending on the way the control system has been programmed a momentary screen may be displayed when the button is pressed. Refer to section Momentary Screens for details.

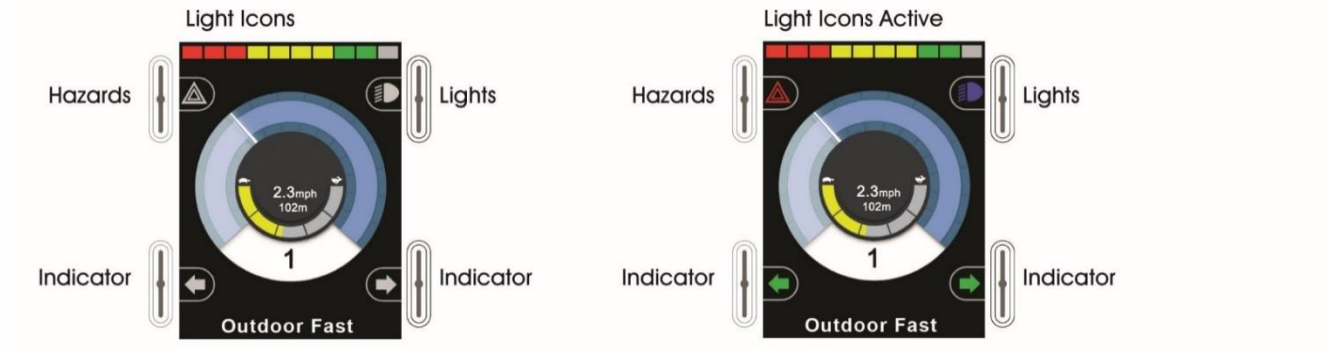
1.6 Mode button

The Mode button allows the user to navigate through the available Modes for the control system. The number of available Modes is dependent on how the control system is programmed.

1.7 Screen buttons

These buttons operate the lighting functions: Hazards, Lights, Left Indicator and Right Indicator.

The function of each button is illustrated by an icon displayed on the LCD screen next to the button.



Pressing the relative button activates and deactivates its function.

Once the function is activated, the icon on the LCD will illuminate or flash depending on the function.

NOTE

If no lighting system is fitted to the wheelchair, these buttons will be inactive.

In all instances, the top left button, when held for a short time, will open the Settings Menu. Refer to section Settings Menu for more details.

1.8 Light sensor

The Joystick Module contains an ambient light sensor which automatically adjusts screen brightness. Refer to Settings Menu for programming options.

1.9 LCD Diagnostic LED

The purpose of this LED is to indicate the control system is switched on in the event of an LCD screen failure.

1.10 LCD screen

The status of the control system can be understood by observing the LCD screen. The control system is on when the screen is backlit. Refer to section Momentary Screens for details.

1.11 IR Transmitter & receiver

The CJSM2 includes an IR transmitter and receiver that allows the CJSM2 to replicate commonly used IR devices, such as remote controls for TV's, DVD's, Cable/Satellite or environmental controls such as

automatic door openers. Once correctly configured IR Control can be performed using the Joystick (or other Input Device) or from a Specialty Input Device that is connected to the system.

1.12 Charger socket

This socket should only be used for charging or locking the wheelchair. Do not connect any type of programming cable into this socket.

Refer to R-net Technical Manual SK77981- Operation for details on charging.

This socket should not be used as a power supply for any other electrical device. Connection of other electrical devices may damage the control system or affect the E.M.C. performance of the wheelchair.

WARNING

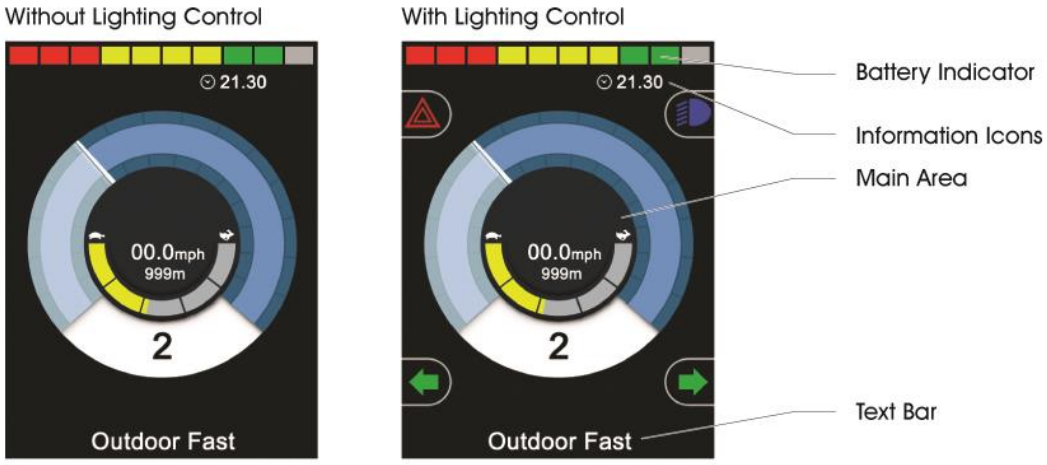
The control system's warranty will be void if any device other than the battery charger supplied with the wheelchair or the lock key is connected into this socket.

2 LCD SCREEN

The status of the control system can be understood by observing the LCD screen.

The screen for the R-net CJSM2 has common components, which will always appear, and components that will only appear under certain conditions. Below is a view of a typical Drive screen, with and without lights.

The screen is split into four areas of information: Battery Indicator, Information Bar, Main Area and Text Bar. Each area is detailed separately in the following sections.



2.1 Battery indicator

This displays the charge available in the battery and can be used to alert the user to the status of the battery.

Steady: This indicates that all is well.

Flashing Slowly: The control system is functioning correctly, but you should charge the battery as soon as possible.

Stepping Up: The wheelchair batteries are being charged. You will not be able to drive the wheelchair until the charger is disconnected and you have switched the control system off and on again.

If the battery gauge shows red, yellow and green, the batteries are charged. (Bars 1-10)

If the battery gauge shows just red and yellow, then you should charge the batteries as soon as you can. (Bars 1-7)

If the battery gauge shows just red, either steady or flashing slowly, then you should charge the batteries immediately. (Bars 1-3)

WARNING:

Do not operate the control system is the battery is nearly discharged. Failure to comply with this condition may leave the user stranded in an unsafe position, such as in the middle of a road.

2.2 Information bar

This area contains information and warning symbols, as well as clock.

2.2.1 FOCUS

When the control system contains more than one method of direct control, such as a secondary Joystick Module or a Dual Attendant Module, then the Module that has control of the wheelchair will display the Focus symbol.

2.2.2 BLUETOOTH SIGNAL ICON

This symbol appears when Bluetooth is enabled. If the symbol is white, the system is not paired to an external Bluetooth device. If the symbol is blue, the system is paired to an external Bluetooth device. When the system has been placed into Discovery Mode, the icon will flash blue.

2.2.3 MOTOR TEMPERATURE

This symbol is displayed when the control system has intentionally reduced the power to the motors, in order to protect them against heat damage.

2.2.4 CONTROL SYSTEM TEMPERATURE

This symbol is displayed when the control system has intentionally reduced its own power, in order to protect itself against heat damage.

2.2.5 CLOCK

This displays the current time in a numeric format.

The clock is user adjustable. Adjustable options are:

- Visibility, whether the clock is displayed on screen.
- The display format, 12 or 24 hour.
- The time, the user can adjust the time.

These adjustments are made within the Settings Menu. Refer to section Settings Menu for more details.

2.3 Text bar

This area of the screen displays text relevant to the operating condition of the control system. Example text strings would be Profile Name, Mode Name or Axis Name.

2.4 Main screen area

This area will contain different information dependent on the current operating Mode of the control system. The area is also used to display general system information, when necessary.

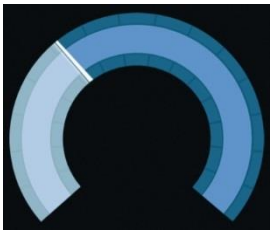
2.4.1 DRIVE MODE SCREEN

Displays symbols relevant to the drive control of the wheelchair.

2.4.1.1 CURRENT PROFILE

This denotes the currently selected Profile, shown in numeric form.

2.4.1.2 SPEED INDICATOR



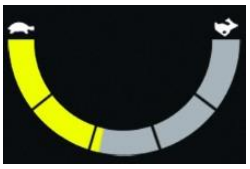
This gives a graphical display of the wheelchairs speed. As the speed increases, the needle will move around the arc, covering the background with the white highlight.

The display is scaled between zero speed and the speed corresponding to the programmable parameter, Max Displayed Speed.

2.4.1.3 DIGITAL SPEED DISPLAY

This displays the actual speed of the wheelchair in digital form.

2.4.1.3 MAX SPEED INDICATOR



This displays the current maximum speed setting.

When the left-hand segment is illuminated, then the speed setting corresponds to the programmed minimum forward, reverse and turning speeds. The indicator will never show a lower setting, i.e. the left-hand segment will always be fully illuminated.

When all segments are fully illuminated, then the speed setting corresponds to the programmed maximum forward, reverse and turning speeds.

2.4.1.4 ODOMETER

This displays the total distance the wheelchair has travelled or the trip distance since the last reset. This selection is made in the Settings Menu. Refer to Settings Menu further in this section of the manual.

2.4.1.5 INHIBIT

If the wheelchair is being inhibited from driving, then this red symbol will be flashing.

If the speed of the wheelchair is being limited, for example, by a raised seat, then this orange symbol will be displayed.

2.4.1.6 LATCHED DRIVE

This symbol will be displayed if the control system is set for latched drive operation.

2.4.1.7 MOMENTARY SCREENS

If the momentary screens are programmed to be displayed then pressing the Speed or Profile Buttons will display screens such as below.

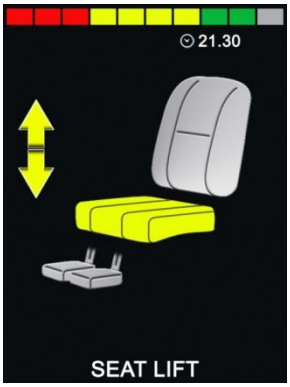
Speed Momentary Screen

Profile Momentary Screen

2.4.2 SEATING MODE SCREEN

Displays symbols relevant to the seating control of the wheelchair.

Displays the sections of the chair currently selected for movement, the name given to the selection and a direction arrow showing what sort of movement is available.



Seating adjustment is achieved as follows.

- Move the joystick left or right to select the desired axis.
- Move the joystick forwards or backwards to move the seat.

2.4.2.1 LATCHED SEATING CONTROL

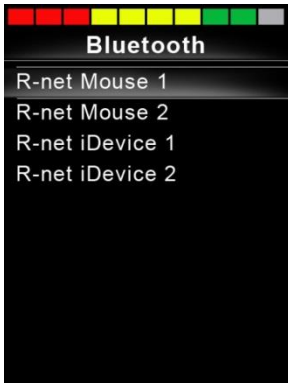
This symbol will be displayed if the control system is set for latched seating control operation.

2.5 Bluetooth mode screens

The initial Bluetooth Mode screen will be dependent on whether the CJSM2 has been set up to control one or more devices.

If set up to control just one device, a screen such as below will appear.

If set up to control more than one device, a screen such as below will appear.



The joystick should then be used to navigate the menu and select the device to control. Forward and reverse deflections navigate the menu, while a right deflection selects the highlighted device. For further details of Bluetooth operation and programming options, refer to the Bluetooth chapter.

2.5.1 BLUETOOTH SCREEN PROGRAMMING

The text to describe each device can be set via the programmable parameter, Device Name.

The screen symbol for each device can be set via the programmable parameter, Screen Graphic.

Refer to chapter Bluetooth Programming for more details.

2.5.2 DISCONNECTING A BLUETOOTH DEVICE

Enter the Settings Menu and select Bluetooth. Set the device you wish to disconnect from to Off.

2.5.3 FLIGHT-SAFE MODE

It is common practice to disable wireless transmissions while on an aircraft. Enter the Settings Menu and select Bluetooth. Set all the devices to Off.

2.6 General information symbols

2.6.1 LIMP

This message is displayed if a user switch has become disconnected and the control system is programmed to still allow drive, at a reduced rate.

2.6.2 TIMER

This symbol is displayed when the control system is changing between different states. An example would be entering into module re-configuration.

2.6.3 RESTART

When the control system requires a reboot; for example, after a module re-configuration, symbol will be flashed.

2.6.4 SLEEP

This symbol will be displayed for a short time before the R-net enters into a sleep state.

2.6.5 CROSS & TICK

These symbols will be displayed during configuration procedures.

Process completed correctly

Process not completed correctly

2.6.6 E-STOP

If the control system is programmed for latched drive or seating control operation, then it is normal for an Emergency Stop Switch to be connected into the External Profile/Mode Switch Jack.

If the Emergency Stop Switch is operated or disconnected, this symbol will be displayed.

2.6.7 JOYSTICK DISPLACED

If the joystick is operated before or just after you switch the control system on, the screen will flash the joystick displaced screen.

You must release and centre the joystick to resume normal operation. If you do not release the joystick within five seconds the wheelchair will not be able to move, even if you release the joystick and operate it again. The screen will display a diagnostic screen at this time. You can reset this condition by switching the control system off and on again.

2.6.8 CONTROL SYSTEM LOCKED

This symbol is displayed if the control system is locked. Refer to R-net Technical Manual SK77981 - Operation for details of locking and unlocking.

2.6.9 DIAGNOSTIC SCREEN

When the control system safety circuits have operated and the control system has been prevented from moving the wheelchair a diagnostics screen will be displayed.

This indicates a system trip, i.e. the R-net has detected a problem somewhere in the wheelchair's electrical system. If the error is in a non-active module, for example in the ISM but Drive Mode is selected, then drive will still be possible, however, the diagnostic screen will appear intermittently.

2.7 Settings menu

The Settings Menu allows access to user-related adjustments. The menu is accessed by depressing and holding the top left-hand Screen Button for 1 second. A typical Settings Menu display would be as above.

Each of the menu items are described in the following sections.

Joystick forward and reverse movements are used to navigate up and down the screen.

2.7.1 TIME

A right joystick deflection will enter a sub-menu with the following Time related function options:

Set Time Allows the user to set the current time.

Display Time This sets the format of the time display or turns it off. The options are 12hr, 24hr or Off.

2.7.2 DISTANCE

A right joystick deflection will enter a sub-menu with the following odometer data and function options:

Total Distance	This is a value held in the Power Module and relates to the total distance driven using that Power Module.
Trip Distance	This is a value held in the Joystick Module and relates to the total distance driven since the last reset.
Display Distance	Sets whether Total Distance or Trip Distance appears as the odometer display on the Joystick Module.
Clear Trip Distance	A right joystick deflection will clear the Trip Distance value.

2.7.3 BACKLIGHT

A right joystick deflection will enter a sub-menu with the following Backlight related function options:

Backlight	This sets the intensity of the LCD backlight, adjustable range is 0% to 100%.
Auto Backlight	The Joystick Module contains an ambient light sensor to automatically adjust screen brightness. The programmable options are On or Off. If set to On, the display adjusts the screen brightness based on the light sensor reading. If set to Off the screen brightness will not change with changes in light intensity.
Backlight Timeout	This adjusts the period of time the backlight will remain active once no further instructions are received from an input device, adjustable between 0 and 240 seconds.

2.7.4 BLUETOOTH

A right deflection of the joystick will enter a sub-menu to configure the Bluetooth Mode screen.

Refer to chapter Bluetooth Set-up & Operation for more details.

2.7.5 IR SETUP

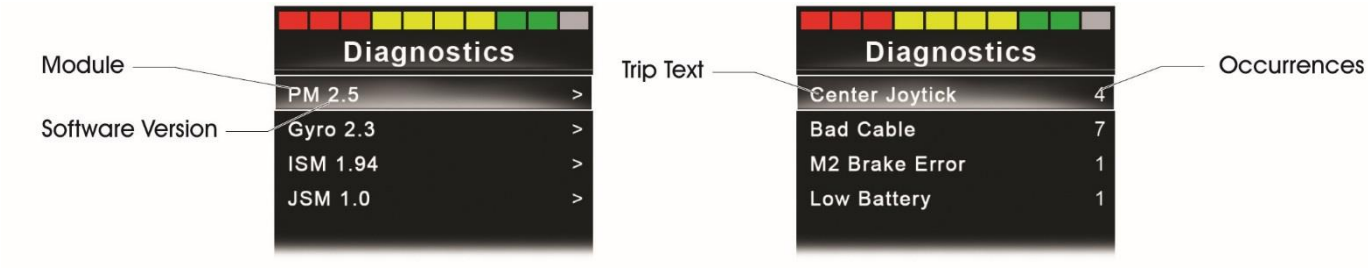
A right deflection of the joystick will enter a sub-menu for learning and deleting IR codes.

Refer to chapter IR Set-up & Operation for more details.

2.7.6 PROGRAMMING

A right deflection of the joystick will enter a sub-menu for programming user experience functions as follows:

Sleep	Sets the time after which the control system will go to sleep if an Input Device command is not received.
Sounder Volume	Sets the volume of the sounder used to indicate button presses.
Horn Volume	Sets the volume of the horn when used.
Start-up Beep	Sets whether a short beep occurs when the controller is turned on.
Momentary Screens	Sets whether programmed Momentary Screens are displayed.
Display Speed	Sets how the wheelchairs speed is displayed; options are mph, km/h or off.
Displays	Sets the format of the digital drive display; options are odometer, speed or both
Diagnostics	Allows the user to read diagnostic information from the control system.



Timers Enables the user to view how many hours the chair has been driven for.

2.7.7 EXIT

Exits the Settings Menu.

3 GETTING READY TO DRIVE

Operate the On/Off paddle. The screen will go through an initializing process then show the base screen as follows

- Check that the Speed Setting is at a level that suits you.
- Push the joystick to control the speed and direction of the wheelchair.

NOTE

If you push the joystick before or just after you switch the control system on, the screen will flash the joystick displaced screen. You must release and centre the joystick to resume normal operation. If you do not release the joystick within five seconds the wheelchair will not be able to move, even if you release the joystick and push it again. The screen will display the diagnostic screen at this time. You can reset this condition by switching the control system off and on again.

If you do not push the joystick as you switch the wheelchair on and the diagnostic screen is displayed, as in the following diagram, then the R-net has detected a problem somewhere in the wheelchair's electrical system.

Chapter 2 – IR Set-up & Operation

1 INTRODUCTION

The CJSM2 includes an IR transmitter and receiver to replicate commonly used IR devices, such as remote controls for TV's, DVD's, Cable/Satellite or environmental controls such as automatic door openers.

1.1 CJSM2 operation in conjunction with an Omni-IR

If there are two devices with IR connected into a system, for example a CJSM2 and an Omni-IR, only one of the devices can have IR codes stored in it. If there are IR codes in both devices, then IR Mode will not be accessible.

If a CJSM2 and an Omni-IR are connected into a system, the Omni-IR's learning function is disabled and IR codes must be learnt through the CJSM2.

On entering IR Mode the user will be presented with a list of available IR Appliances, such as below.

When a CJSM2 is dispatched, it will contain a default menu. If required, the IR Configuration tool can be used to change this default menu.

Navigate the User Menu as below:

- Forward joystick deflections will highlight the Appliance above.
- Reverse joystick deflections will highlight the Appliance below.
- Left or Right joystick deflections will enter the highlighted Appliance's sub-menu, which will contain all the IR Commands for that Appliance
- Left or Right joystick deflections will then activate the highlighted IR Command.

For each Appliance there is a list of associated IR Commands. Using the TV example, Commands such as: TV – ON, TV – OFF, Channel Up, Channel Down, Volume Up and Volume Down may be displayed. When the CJSM2 is transmitting the selected Command, it is highlighted with a red background.

2 IR SET UP

2.1 ACCESSING THE IR SET-UP MENU

You can access the IR Set-up Menu on the CJSM2 via the settings menu. Refer to the Operation chapter.

2.2 IR SET-UP MENU

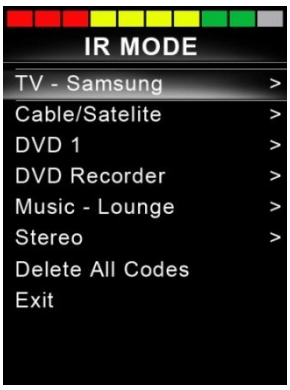
On entering the IR Set-up Menu, the default Appliances will appear. By selecting an Appliance, then its Commands will be shown.

If a Command is checked, this means it has a stored IR Code. If there is not a check, then there is no stored IR Code for that Command. IR Codes can be stored or deleted as detailed in the following sections.

3 LEARNING AN IR CODE

Enter the IR Set-up Menu.

Select an Appliance. E.g. TV – Samsung



The Commands for the Appliance will appear on the screen as below.

Select the Command to be learnt, via a right deflection of the joystick. In this example, TV > Channel Up.

Select Learn Code, via a right deflection of the joystick while the Command is highlighted.

Point the TV remote control at the CJSM2 Receiver LED and press the Channel Up button twice.

A check denotes a successful learn operation.

A cross denotes an unsuccessful learn operation, please retry.

After the code is learnt highlight Exit and deflect the joystick to the left. This will return the system to the Appliance level of the IR Set-up Menu.

NOTE

The first time an IR Code has been learnt, it is necessary to cycle the power to the CJSM2. If other IR Codes are already learnt, then this is not necessary.

3.1 Learning an IR code - Sequence

Multiple IR Codes can be learnt against one Command in the CJSM2 IR set up menu. This enables multiple IR Codes to be transmitted through one Command in the CJSM2 when in IR mode.

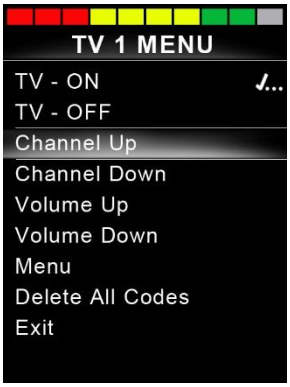
Examples of use:

1. The on/off function for multiple appliances (the TV and the DVD for example) can be learnt against one entry in the IR Set up menu. The CJSM2 will then transmit the Codes for the learnt Command in one burst. In this case turning the TV and the DVD recorder on or off effectively simultaneously.
2. Previously selecting a TV channel required the user to select the individual channel's digits from a list. This could be quite cumbersome when trying to select a TV channel with multiple digits e.g. Channel 143. Now the individual Codes for "1", "4" and "3" can be learnt against one Command in the CJSM2 IR Set-up Menu. When this Command is selected the IR Codes are transmitted in the correct sequence.

To create a Sequence, relating to example 1 above:

- Select the Command to use as the Sequence initiator. In this example, TV > On/Off.

- Select Learn Code, by deflecting the joystick to the right while the Command is highlighted.
- Point the TV remote control at the CJSM2's Receiver LED and press the On/Off button twice.
- After each successful learn operation a check momentarily appears on the screen, select Learn Code again.
- Point the DVD remote control at the CJSM2's Receiver LED and press the On/Off button twice.
- After each successful learn operation a check momentarily appears on the screen, select Learn Code again.
- Complete the sequence by highlighting Exit and deflecting the joystick to the left.
- This time the On/Off Command will have a Tick and 3 Dots beside it, showing a Learnt Sequence. As displayed below.



4 ENABLING AND DISABLING IR CODES

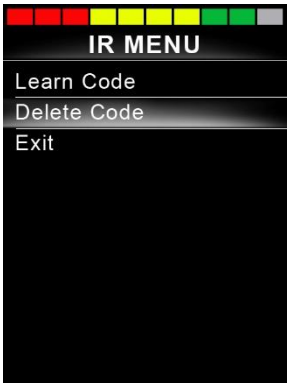
IR Codes can be enabled or disabled in the IR Set-up Menu. If a Code is disabled it will not transmit and will not appear in IR Mode.

To disable an IR Code, deflect the speed paddle of the CJSM2 up or down. A disabled IR Code appears with an X against the highlighted Command.

To enable an IR Code, deflect the speed paddles on the CJSM2 up or down. An enabled Code appears with a check against the highlighted Command.

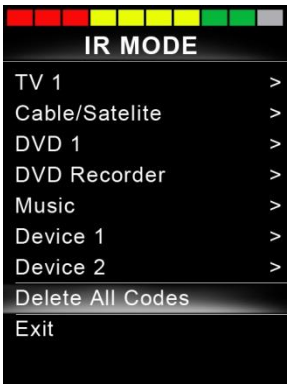
5 DELETING IR CODES

To delete an IR Code for a specific Command, highlight the specific Command in the Appliance menu and deflect the joystick to the right. Then select the Delete Code option.



To delete all IR Codes for an Appliance select Delete All Codes within that Appliance's sub-menu.

To delete all IR Codes stored in the CJSM2, select Delete All Codes within the IR Set-up Menu.



Chapter 3 – Bluetooth Set-up & Operation

1 INTRODUCTION

The R-net CJSM2-BT allows a wheelchair user to control multiple Bluetooth-enabled devices. Typical applications include PC mouse control or operation of a Smart device.

Up to four devices can be controlled. Two of which can be Apple iOS devices and two of which can be Windows or Android devices.

1.1 Operational rules

Bluetooth Mode will only be available if one or more devices are set to On in the Settings Menu. See section Bluetooth Mode Screen Configuration for more details.

The CJSM2-BT and target Bluetooth devices will remain paired until they are disconnected by the target device.

Once a CJSM2-BT has been paired with a Bluetooth device, the module remembers the device's unique identifier. This means the wheelchair can be driven outside the operating range of the Bluetooth connection and upon returning within range the connection will be automatically reinstated.

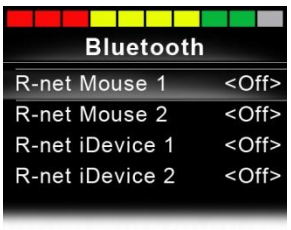
1.2 Bluetooth mode screen configuration

This is a two-stage process. Firstly, a device or devices must be set to On from the Settings Menu. Secondly, for each device a screen graphic and a name can be set via PC Programming. The following two sections describe each process.

1.2.1 SETTINGS MENU

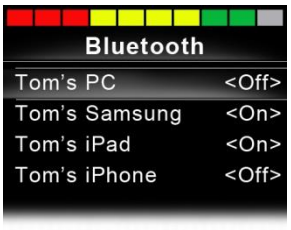
Enter the Settings Menu, as described in the Operation chapter, and select Bluetooth.

A screen as below will appear.



Set one or more of the devices to On. The R-net system must now be switched off and on again.

For the remainder of this section, it will be assumed the Device Name parameters have been set per the following screen.



2 PAIRING WITH A BLUETOOTH DEVICE

The CJSM2-BT must first be put into Discovery Mode via the sequence below.

- Enter Bluetooth Mode and select the device you wish to pair with.
- Deflect the joystick in the forward direction and hold until there is a beep. This will take approximately 10 seconds, then release.
- Deflect the joystick in the reverse direction and hold until there is a beep. This will take approximately 10 seconds, then release.

A screen such as below will appear – the flashing blue icon confirming the CJSM2-BT is in Discovery Mode.

Tom's PC

Depending on which type of device is being paired with – a Windows PC, an Android device or an iDevice – refer to one of the following three sections.

2.1 Pairing with a Windows PC

If the PC does not have integrated Bluetooth, then a receiver dongle must be used and its drivers installed.

PG Drives Technology recommends use of the following Bluetooth dongles:

- Trust BT-2400
- Linksys USBBT100-UK
- Belkin F8T012uk1 Version 1000

Once a Bluetooth connection is confirmed, the following process should be undertaken on the PC:

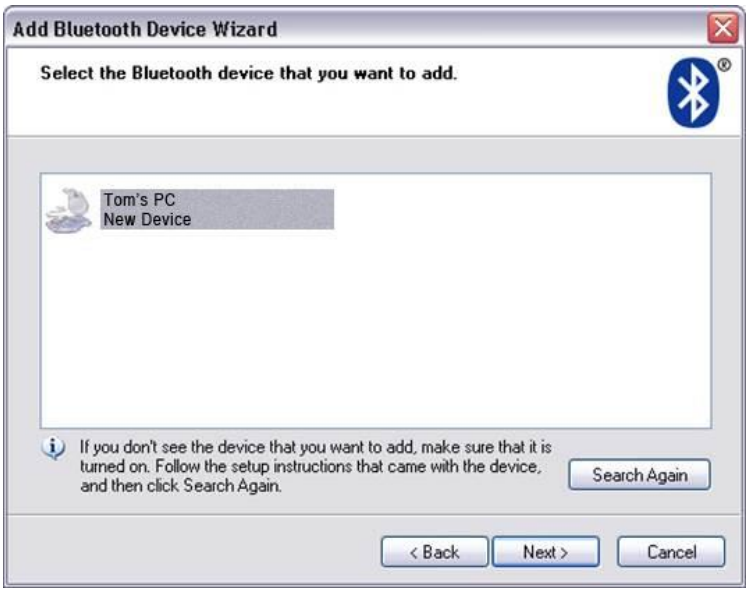
Enter My Bluetooth Devices and a screen such as below should appear.

Click 'Add' to open the Bluetooth Device Wizard and a screen such as below should appear.

Check the box marked 'My device is set up and ready to be found'

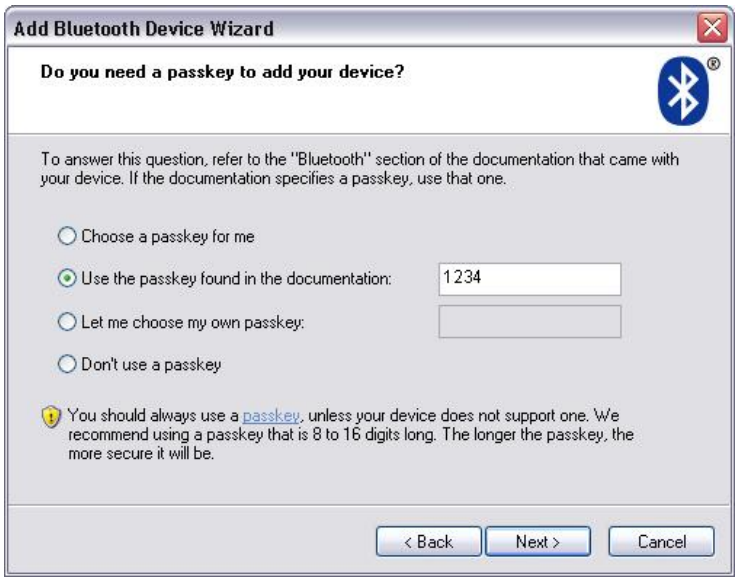
Click 'Next', the PC will now search for local Bluetooth devices.

A screen such as below should appear.



Click on 'Tom's PC' and then click on 'Next'.

A screen such as below should appear. If a passkey is requested use 1234.



The PC will commence connection with the CJSM2-BT and a screen such as below should appear.

When the connection is completed a screen such as below should appear.

Click 'Finish', the blue icon on the CJSM2-BT should stop flashing.

A screen such as below should appear.

If the process fails, click on 'Tom's PC', then 'Remove' and repeat the process.

2.2 Pairing with an Android device

The following process should be undertaken on the Android device:

- Select System Settings and set Bluetooth to On.
- Select 'Tom's Samsung' from the list available devices.
- Enter the password 'PGDT' (this is only required the first time the device is connected) when prompted on the screen.
- Open the R-net for Android App and select 'Connect'. This will present a list of available Bluetooth devices.
- Select 'Tom's Samsung' from the list of available devices.
- Enter the password '1234' when prompted on the screen.
- Tom's Samsung should appear as a paired device. In addition, the blue icon on the CJSM2-BT should stop flashing.

2.3 Pairing with an iDevice

The following process should be undertaken on the iDevice:

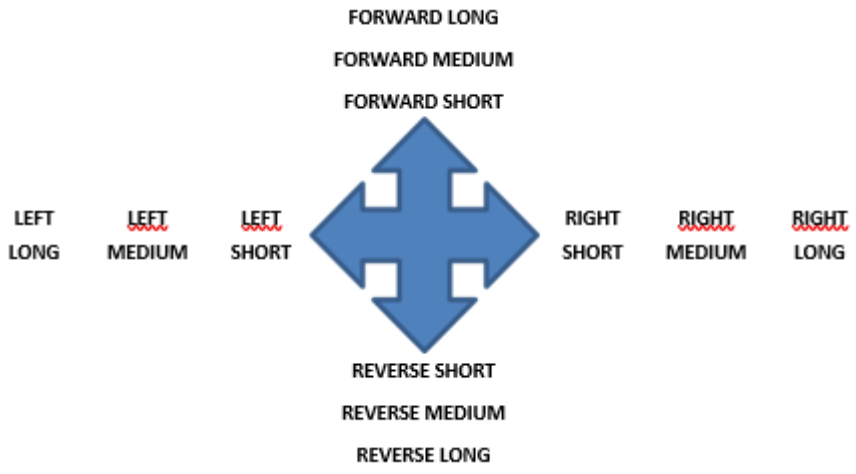
- Select Settings and set Bluetooth to On.
- Select 'Tom's iPad' from the list of available devices.
- Tom's iPad should appear as a paired device. In addition, the blue icon on the CJSM2-BT should stop flashing.

2.4 Updating the list of devices

- The CJSM2 will remember the Bluetooth ID of up to four devices. To replace an entry on the list of devices, one of the existing pairings must be terminated. This process is initiated from the paired device and will vary dependent on the type of device.
- Once the device is unpaired a new device can be added.

3 OPERATING A WINDOWS PC

The default programming relates to the operations shown below.



There are programmable options for the timings and sensitivity of the operations, refer to the Bluetooth Programming chapter for more information.

External switches connected to the External Profile jack socket can also be used to control devices, but programming of the R-net will be required. Refer to chapter Bluetooth Programming for more details.

4 OPERATING AN ANDROID DEVICE

The operating method is similar to that of a Windows PC and the same programmable options apply. Refer to the Bluetooth Programming chapter for more details.

4.1 Considerations

The CJSM-BT cannot switch an Android device on or off.

The Sleep function of the Android device must be disabled.

If the device does 'go to sleep', then a manual wake-up process will be needed.

5 OPERATING AN IDEVICE

The CJSM2-BT can control an iDevice in two ways:

- Using the iDevice's Switch Control functionality
- Using the iDevices Switch Control functionality in conjunction with the iDevices VoiceOver functionality

These two methods will be referred to as Switch Control and VoiceOver respectively, and each is explained in the following sections.

5.1 Switch control

The principle of Switch Control is that certain iDevice commands, such as the Home button or tapping the screen, can be assigned to commands received via Bluetooth from an external device such as the CJSM2-BT.

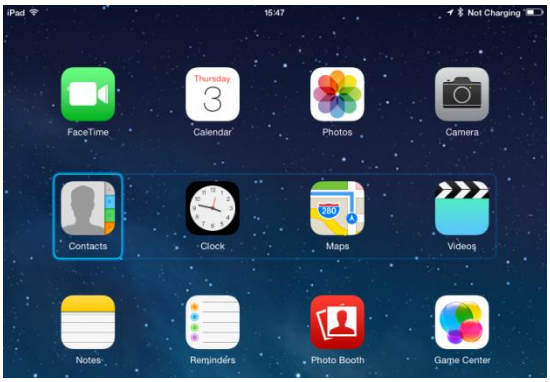
The process for assigning CJSM2-BT commands to the iDevice commands is covered in section Switch Control Set-Up.

An example of Switch Control is given below. Please note, the screen navigation sequences are defined by the iDevice and not the CJSM2-BT.

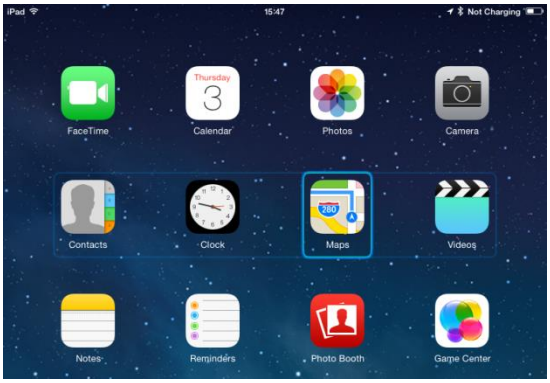
Switch Control operates by highlighting sections within the application window. Various commands are then used to navigate the sections and to select individual applications.

iDevice command Next Item selects another highlighted area.

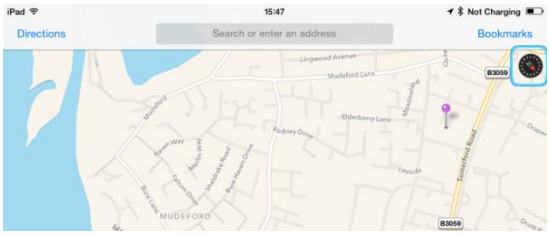
iDevice command Select Item enters the highlighted area.



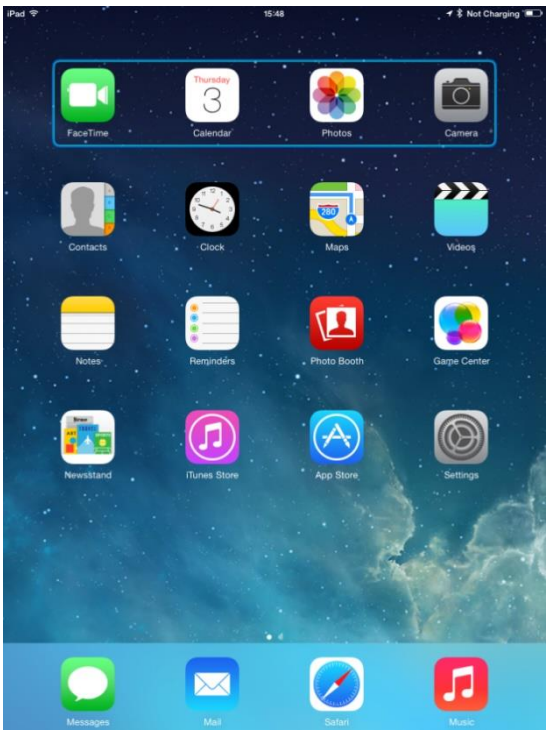
iDevice commands Next Item and Previous Item are used to select individual icons within the highlighted area.



iDevice command Select Item opens the highlighted item. Depending on the nature of the application, areas of the screen will be highlighted and similar commands to the above can be used to navigate it.



iDevice command Home returns to the Home screen.



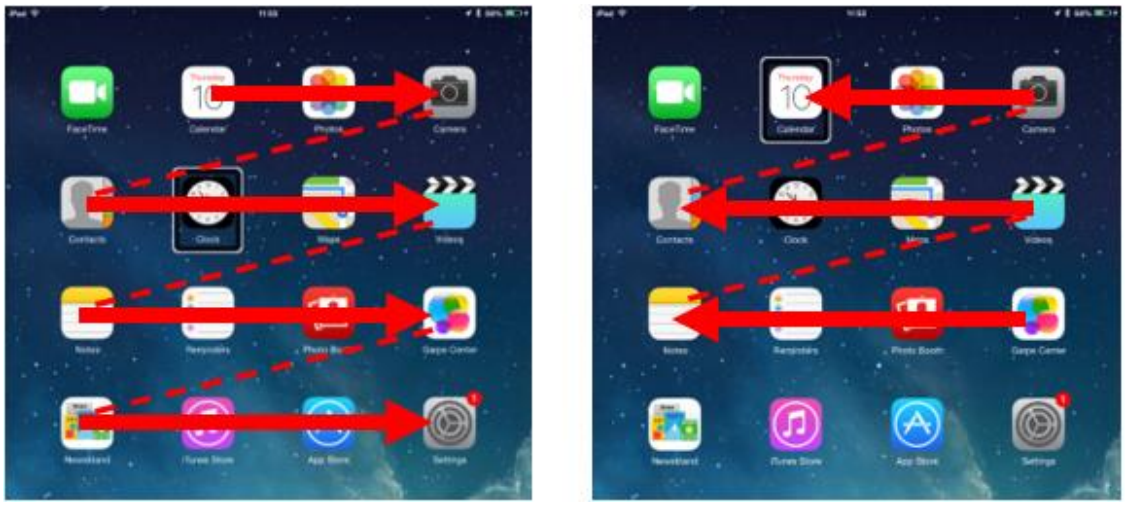
5.2 VoiceOver

VoiceOver operates in conjunction with Switch Control, but offers an alternative method of screen navigation.

An example is given below. Please note, the screen navigation sequences are defined by the iDevice and not the CJSM2-BT.

iDevice commands Cursor Right and Cursor Left select individual icons within a row.

The same iDevice commands also navigate the rows.



Opening items and returning to the Home screen are effected in the same way as Switch Control.

5.3 Switch control set-up

Certain CJSM2-BT commands can be assigned to iDevice commands. The CJSM2-BT commands are detailed below.

Time-related deflections (nudges) of the joystick in each of the four directions.

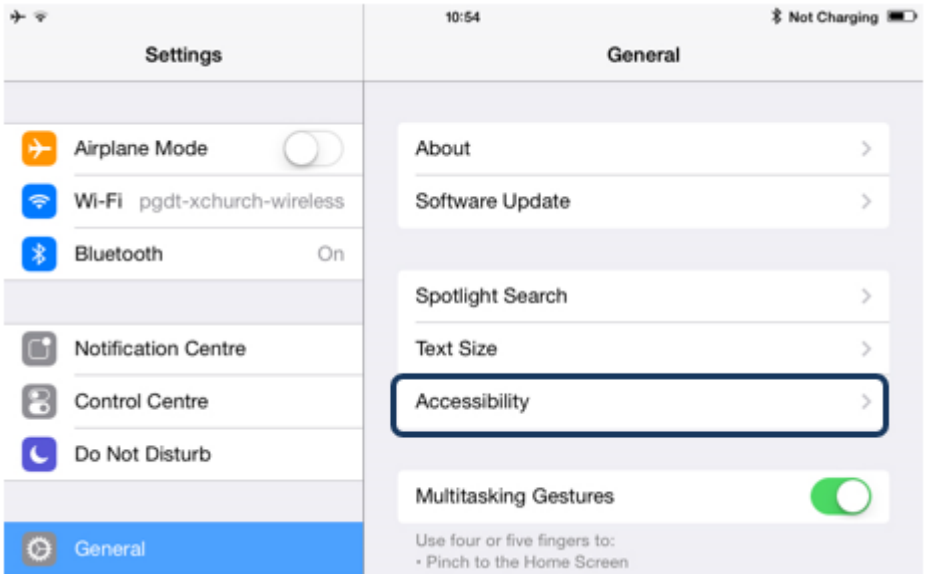
- Forward Short
- Reverse Short
- Left Short
- Right Short
- Forward Medium
- Reverse Medium
- Left Medium
- Right Medium
- Forward Long
- Reverse Long
- Left Long
- Right Long

The timings associated with the nudges are programmable. Refer to the Bluetooth Programming chapter for more information.

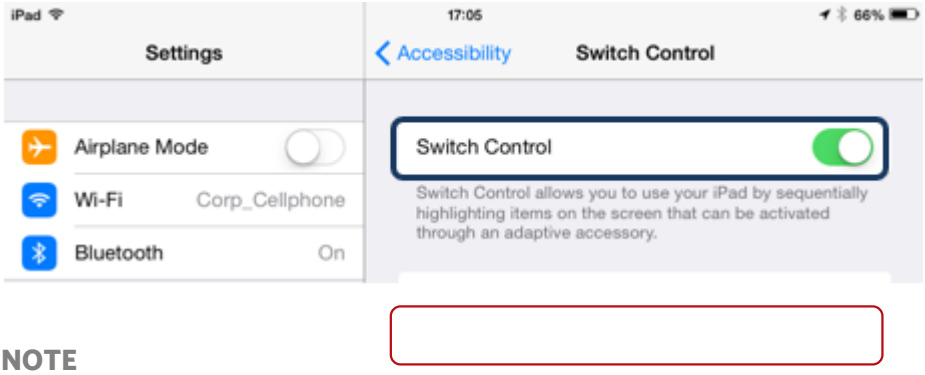
Set the R-net programmable parameter Mode to Switch Control. Refer to the Bluetooth Programming chapter for more information.

The procedure to enable Switch Control on the iDevice and assign commands is as follows.

From the iDevice Settings menu, select General > Accessibility.



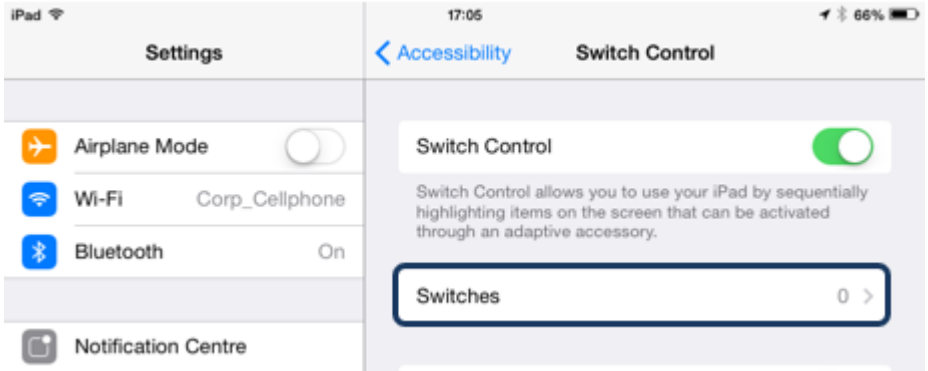
Set Switch Control to On.



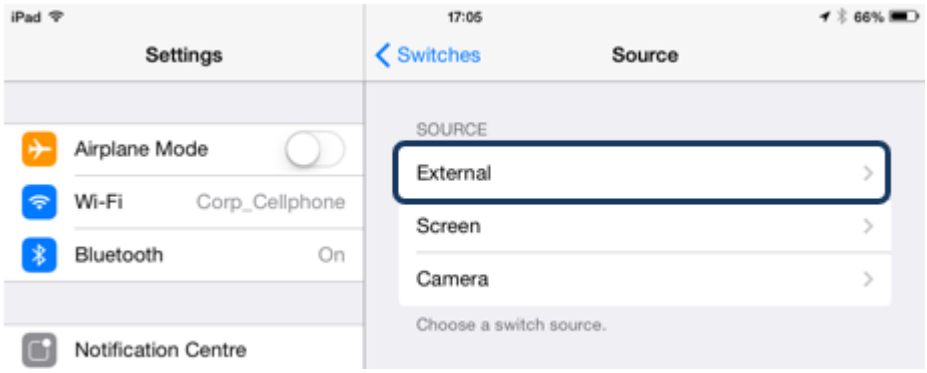
NOTE

Within Accessibility there are Auto Scanning and Auto Hide options. It is recommended that these options are turned off for the initial set up.

Select Switches.

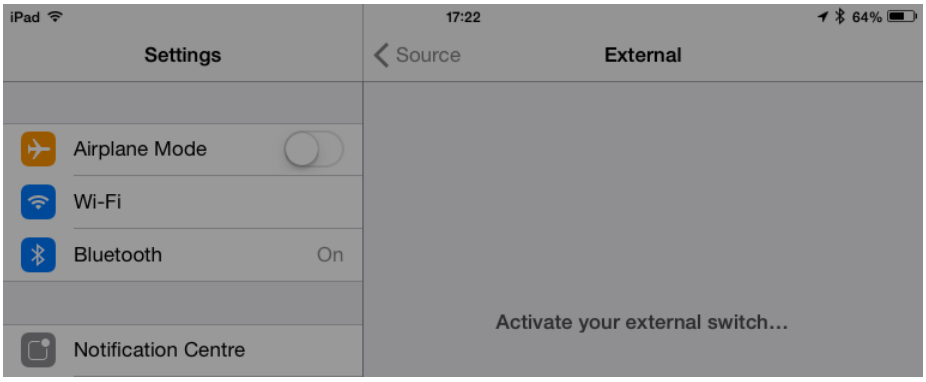


Select External.



Select Add New Switch

A screen such as below should appear.



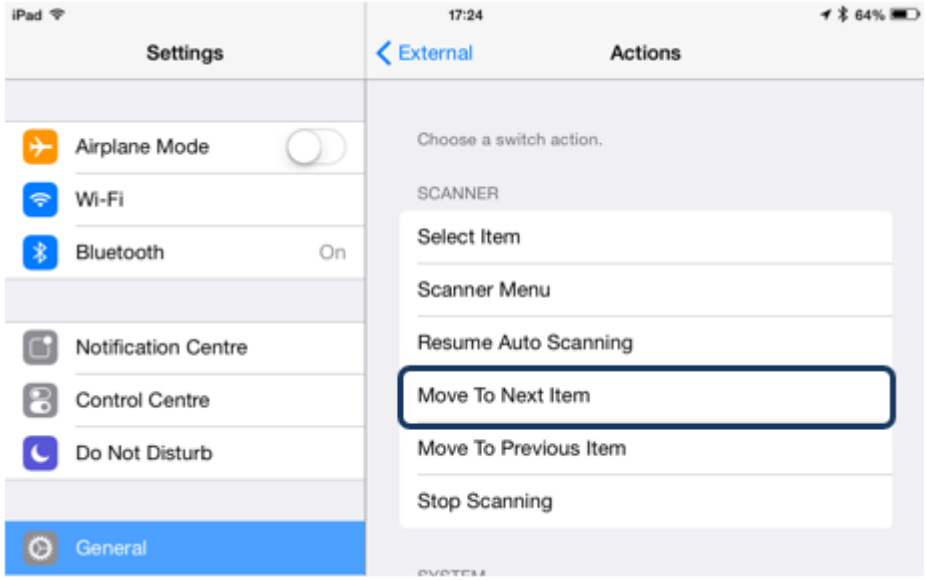
Activate the CJSM2-BT command you wish to assign to the iDevice; for example, a long reverse nudge.

When the command has been received, a screen such as below will appear.

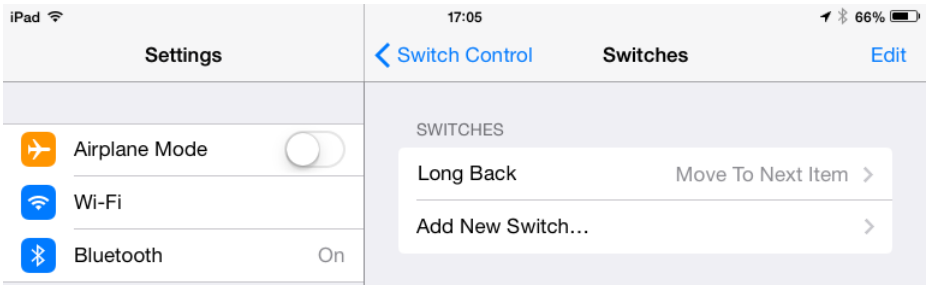
Enter a convenient name – for example, long reverse – and then Save.

A screen such as below should appear.

Select the iDevice command you wish to assign; for example, Move To Next Item.



A screen such as below should appear and the process can be repeated to assign further commands.



5.4 VoiceOver set-up

Certain CJSM2-BT commands can be assigned to iDevice commands. These are detailed below.

Time-related deflections (nudges) of the joystick in each of the four directions.

- Forward Short
- Reverse Short
- Left Short
- Right Short
- Left Medium
- Right Medium
- Forward Long
- Reverse Long

- Forward Medium
- Reverse Medium
- Left Long
- Right Long

The timings associated with the nudges are programmable. Refer to the Bluetooth Programming chapter for more information.

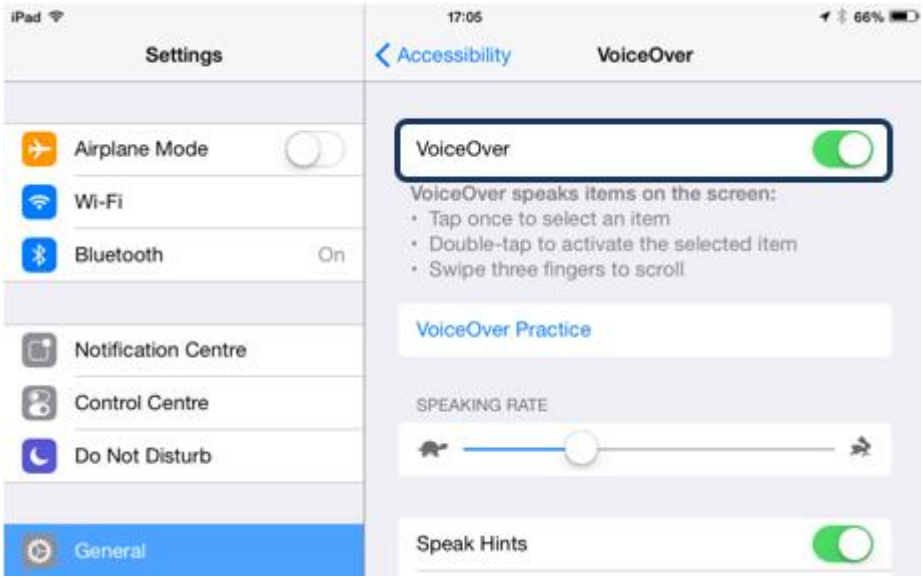
Time-related operations of two external profile jack switches.

The timings associated with the external switch operations are programmable. Refer to the Bluetooth Programming chapter for more information.

The Speed Down and Speed Up buttons.

The procedure to enable VoiceOver on the iDevice and assign commands is as follows.

From the iDevice Settings menu, select General > Accessibility and set VoiceOver to On.



The remainder of VoiceOver set up is via the R-net PC programmer.

Firstly, set the parameter VoiceOver and then use the relevant parameters to assign CJSM2-BT to iDevice commands. Refer to the Bluetooth Programming chapter for more information.

Chapter 4 – Specifications

1 ELECTRONIC SPECIFICATIONS

Supply Voltage:	24Vdc
Operating Voltage:	16Vdc to 35Vdc
Operating Range:	10 Meters
Charger Connector:	Use only Neutrik NC3MX
Battery Charging Current:	12Arms max.
Moisture Resistance:	Electronics to IPX4
Operating Temperature:	-10°C to 50°C
Storage Temperature:	-20°C to 65°C
EMC tested on sample wheelchair:	
Susceptibility:	Tested at 30V/m to EN12184 and ANSI/ RESNA requirements
Emissions:	To EN55022 Class B
ESD:	IEC801 part 2

2 BLUETOOTH REGULATORY REQUIREMENTS

This product contains a Class 2 Bluetooth transmitter device with a range of up to 10 meters

If the product is used in areas where mobile phones are required to operate in a flight-safe mode, then the Bluetooth transmitter should be temporarily disabled as described in the product technical manual.

The Bluetooth controller must only be used for the intended purpose as explained in the product technical manual. It must not be use in any safety-critical, life-supporting, or life-sustaining applications.

2.1 Risk assessment information

2.1.1 RSA 1.1:

The Bluetooth controller must only be used for the intended purpose as explained in the product technical manual. It must not be use in any safety-critical, life-supporting, or life-sustaining applications.

2.1.2 RSA 2.2 & RSA 4.2:

This product contains a Class 2 Bluetooth transmitter device with a range of up to 10 meters. If the product is used in areas where mobile phones are required to operate in a “flight safe” mode, then the Bluetooth transmitter should be temporarily disabled as described in the product technical manual.

2.1.3 DEVICE FUNCTIONALITY:

The R-net CJSM2-BT is a Joystick Module that includes a Bluetooth Module in order to allow a wheelchair user to control non-safety-critical functions of external equipment such as PCs and smart devices.

The R-net CJSM2-BT communicates with external equipment using a Class 2 Bluetooth HID transmitter.

2.1.4 OPERATING CHARACTERISTICS:

The operating characteristics of the wireless transmitter in the product are summarised in the table below.

Wireless technology	Bluetooth v2.1 + Enhanced Data Rate
Transfer Power	+4dBm, Class 2
Range	10m
Frequency range	2.402GHz - 2.48GHz
Modulation	GFSK
Max data rate	3.0Mbps
Bluetooth Profile (protocol)	HID (keyboard only)

2.1.5 QUALITY OF SERVICE (QOS):

The QoS risks for this product are negligible if used for the intended purpose. See trouble shooting section for advice in establishing a reliable connection.

2.1.6 WIRELESS SECURITY MEASURES:

Note: Bluetooth transfers are not encrypted. This should not pose a security risk to the if the product is used for the intended purpose.

2.1.7 ADDRESSING WIRELESS ISSUES:

See troubleshooting Bluetooth Set-up and Operation chapter.

2.1.8 COEXISTENCE ISSUES:

It is anticipated that the product will be used in the vicinity of other non-medical devices which share the 2.4GHz area of the radio spectrum. The Bluetooth protocol supports the Frequency Hopping Spread Spectrum (FHSS) technique, which will help to mitigate co-existence issues due to interference. The bluetooth transmitter in this product is approved for conformance to the Bluetooth protocols by the Bluetooth Special Interest Group (Bluetooth SIG). For further information see https://www.bluetooth.org/tpg/QLI_viewQDL.cfm?qid=30976.

Where the product is to be operated in the vicinity of medical devices which use a proprietary protocol in the 2.4GHz spectrum, refer to chapter Bluetooth Set-up & Operations for information about flight-safe mode operation.

2.1.9 EMC AND TELECOMMUNICATIONS STANDARDS:

Certifications for FCC, CE, Bluetooth SIG.

2.1.10 WARNING REGARDING USE IN THE VICINITY OF RF SOURCES:

Not Applicable. The wireless functionality in this product is neither life-sustaining or life-supporting.

Contact Magic Mobility if you require further information

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