



**R-NET BLUETOOTH
MODULES**

TECHNICAL MANUAL

SK79614-05

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ABOUT THIS MANUAL

The Technical Manual gives an introduction to the R-net Bluetooth Modules .

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.

PG Drives Technology accepts no liability for any losses of any kind if the points are not followed.

CHAPTER 1 - OPERATION

1 INTRODUCTION

The R-net Bluetooth Modules allow a wheelchair user to control a Bluetooth enabled device through the R-net Control System, either through a Joystick or via a Specialty Input Device (SID) connected to the R-net Omni. Typical applications include PC mouse control or operation of a Smart device.

Up to two Mouse Modules and one iDevice Module may be connected into an R-net Control System, so enabling simultaneous control of three Bluetooth devices, one being an iOS device. However, the Mouse Modules must be of different PGDT part numbers – D51111 and D51523; and the iDevice Module must be D51580. If two Mouse Modules or two iDevice Modules of the same part number are connected, then the system will not function correctly. If only one Mouse Module is required, then any of the Mouse Module part numbers may be used. Here is a summary of the current part numbers:

- D51111 – Mouse Module – Can be used with PC or Android Smart devices
- D51523 – Mouse Module – Can be used with PC or Android Smart devices
- D51580 – iDevice Module – Can only be used with iDevices

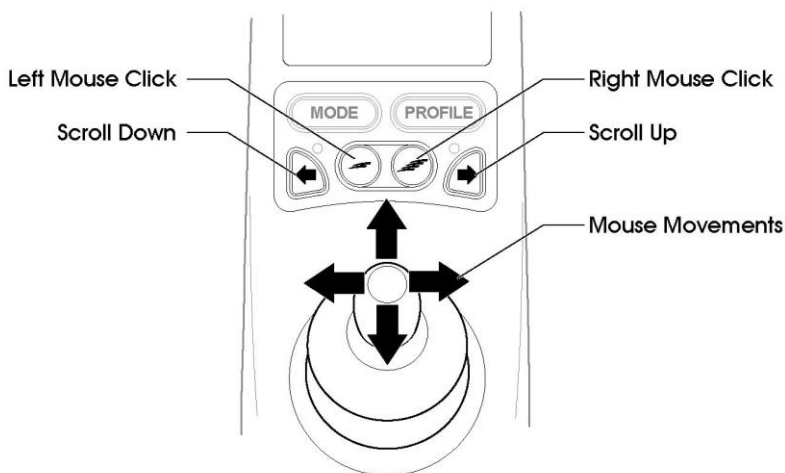
Collectively, the above are referred to as Bluetooth Modules.



Operation of the R-net Control System will vary depending on what Input Devices are connected. Refer to wheelchair manufacturer's documentation to establish the correct setup requirements for the wheelchair.

2 CONTROLS

The default programming relates to the operation of a Joystick Module fitted with lighting controls. See the following diagram.



Any Input Device can be used to control a Bluetooth Module, as well as External Switches connected to a Bluetooth Module via SW1 and SW2 Connectors, but programming of the R-net will be required. Refer to Chapter 3 for details.



Operation of the R-net Control System will vary depending on what Input Devices are connected. Refer to wheelchair manufacturer's documentation to establish the correct setup requirements for the wheelchair.



The Bluetooth Modules do not support scanner functionality.

3 OPERATIONAL RULES

The Bluetooth Modules have the following requirements and restrictions.

The Bluetooth Modules have an operational range of 10m, except for the iDevice module, which only has an operation range of 5m.

The Bluetooth Modules can retain IDs for up to four Bluetooth Devices.

The Bluetooth Modules and target Bluetooth devices will remain paired unless they are disconnected by the target device.

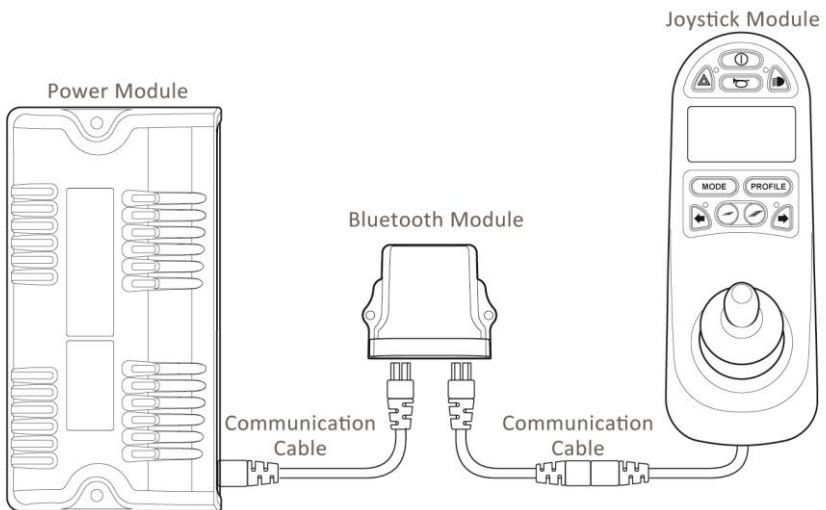
Once a Bluetooth Module has successfully been paired with a Bluetooth device, the module remembers the device's ID. This means the wheelchair user can drive outside the operating range, turn off the control system or the Bluetooth device, and upon returning within range of the switched on device, the Bluetooth connection will be automatically reinstated.

To pair a Bluetooth Module with multiple devices, see the Pairing section in Chapter 2 of this manual.

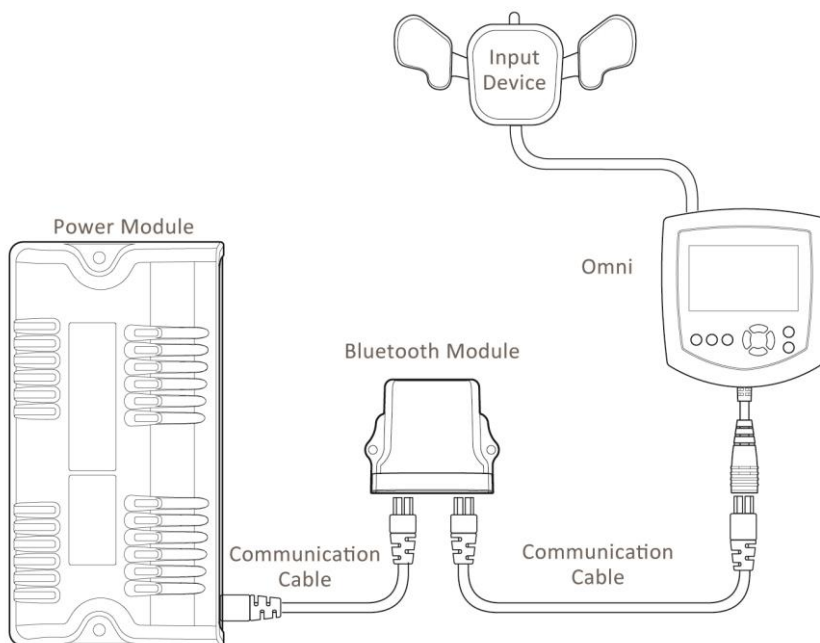
CHAPTER 2 - INSTALLATION

1 SYSTEM INTEGRATION

A Bluetooth Module can be fitted at any point within a R-net Control System. See following diagrams.

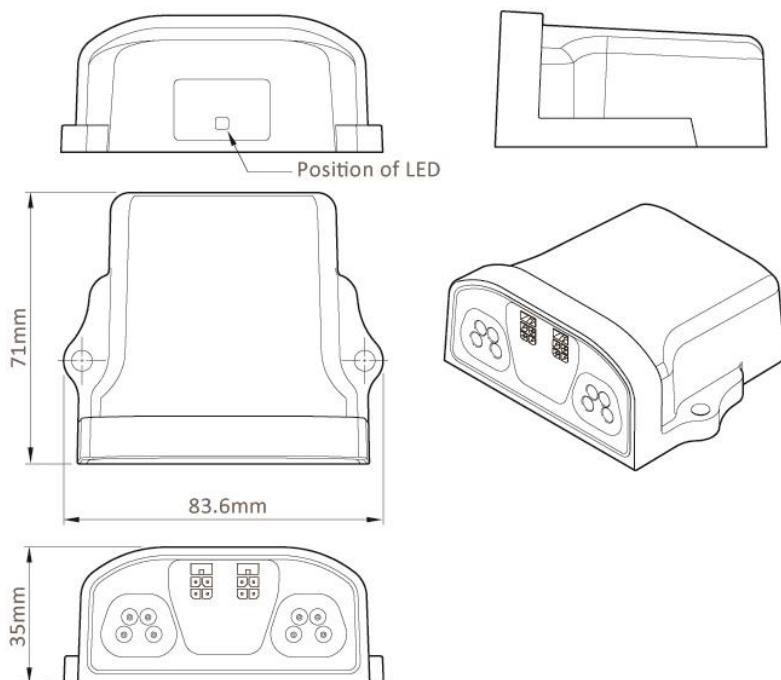


It is possible to set up a Control System so that it is unsuitable for some users or even some vehicles. For all of the above reasons it is important that you contact PG Drives Technology if you have the slightest doubts or if you need any advice on programming.



Programming and diagnostics should only be conducted by healthcare professionals with in-depth knowledge of PG Drives Technology electronic Control Systems. Incorrect programming could result in an unsafe setup of a vehicle for a user. PG Drives Technology accepts no liability for any losses of any kind if the programming of the Control System is altered from the factory-preset values.

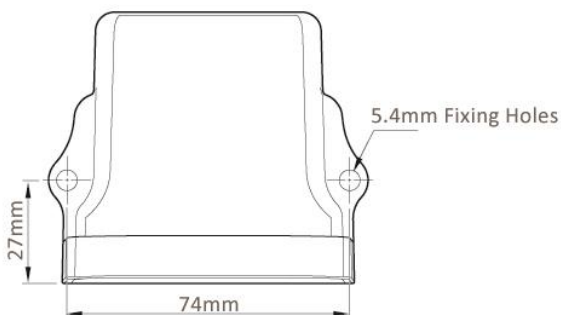
2 DIMENSIONS



3 MOUNTING

3.1 ORIENTATION

A Bluetooth Module should be mounted so that water cannot enter and remain in the connector recesses. The recommended mounting orientation is such that the Module is lying flat. The function of a Bluetooth Module is not sensitive to mounting orientation. The electronics compartment of the controller has an IPx4 dust and water rating.



3.2 POSITION

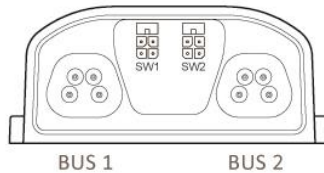
A Bluetooth Module must be mounted in a position where it is not exposed to levels of water, dust, shock or vibration above those expected on a mobility application. The Bluetooth Modules have been tested in accordance with ISO7176/14 with respect to these conditions. Contact PGDT if you need further advice.

3.3 CABLES

The cables to a Bluetooth Module must be routed and secured in such a way as to prevent damage to them, for example by cutting or crushing.

4 CONNECTIONS

The Bluetooth Modules have the following connections:



Bus 1 – R-net Communication Cable Connector

Bus 2 – R-net Control System Cable Connector

SW1 – External Switch Connector

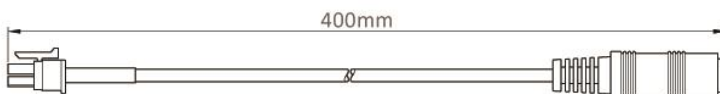
SW2 – External Switch Connector



The Bus connections can only be used to connect a Bluetooth Module to an R-net Control System using PG Drives Technology supplied R-net Communication Cables. PG Drives Technology accepts no liability for any losses of any kind if an incorrect cable is used.

4.1 ADAPTOR CABLE

An adaptor cable is required to connect a Bluetooth Module to an external switch with a jack plug. This cable is available through PG, part number SA80756.



The adaptor cable should be connected to a normally open switch with a 3.5mm mono plug.

5 BLUETOOTH RECEIVER DONGLE

To make a Bluetooth Module operate with a PC you will need a Bluetooth receiver dongle connected and with drivers installed.

PG Drives Technology recommends use of the following Bluetooth Dongles:

Trust BT-2400

Linksys USBT100-UK

Belkin F8T012uk1 Version 1000

6 PAIRING

Pairing is the term used to describe the initial set up of a Bluetooth Module and a Bluetooth device.

Pairing involves carrying out a sequence of steps on the R-net Control System and the Bluetooth device to be used.

6.1 R-NET CONTROL SYSTEM CONFIGURATION

You will need a Power Module, Bluetooth Module and an input Device e.g. Joystick Module or Omni with some type of Specialty Input Device (SID) e.g. a Head-Array. See Section 1 – System Integration.




When a new module is connected to an R-net Control System for the first time the system will go through an automatic configuration and ask to be turned Off and On again.

To enable your R-net Control System to use a Bluetooth Module to interact with a Bluetooth device, Mouse must be set as an Output Mode in the Configuration menu of the PC programmer. The default Mode for Mouse is Mode 3.





For the purposes of this manual, the name of Mode 3 has been programmed to Bluetooth.

The above applies to Bluetooth Module part number D51111. If you are working with Bluetooth Module part number D51523, then you must ensure

that Mouse 2 has been set as an Output Mode for the system. The default Mode for Mouse 2 is Mode 4.

 Configuration	Mode 1	Mode 2	Mode 3	Mode 4	
	Mode Name	Drive	Seating	Mouse	Mouse 2
	Input	Drive	Seating	Raw	Raw
	Output	Drive	Seating	Mouse	Mouse 2

To enable your R-net Control System to use a Bluetooth Module to interact with a Bluetooth iOS device, iDevice must be set as an Output Mode in the Configuration menu of the PC programmer. The default Mode for iDevice Module is Mode 5.

 Configuration	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	
	 Mode Name	Drive	Seating	Mouse	Mouse 2	iDevice
	 Input	Drive	Seating	Raw	Raw	Raw
	 Output	Drive	Seating	Mouse 1	Mouse 2	iDevice

6.2 DISCOVERING BLUETOOTH DEVICES

Once the Control System has been re-configured enter Bluetooth Mode. Bluetooth Mode is represented on a Mono JSM or CJSM by the Bluetooth Mode Screen being displayed on the LCD.



If you are working with more than one Bluetooth Module, then this process must be carried out with only one Module connected at a time.

The Bluetooth Module must be put into Discovery Mode. Use the following procedure:

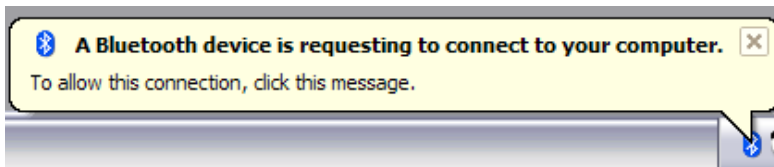
- Operate your Input Device in the forward direction and hold until it beeps. This will take approximately 10 seconds, then release.
- Operate your Input Device in the reverse direction and hold until it beeps. This will take approximately 10 seconds, then release. (A short beep may be heard as the directions are changed).
- The Bluetooth Module is now in Discovery Mode and ready to be paired with a Bluetooth device.



The Discovery process will only be required once per Bluetooth device.

6.3 PC PAIRING

If at any time during this process a message such as below appears, ignore it by clicking on the X.

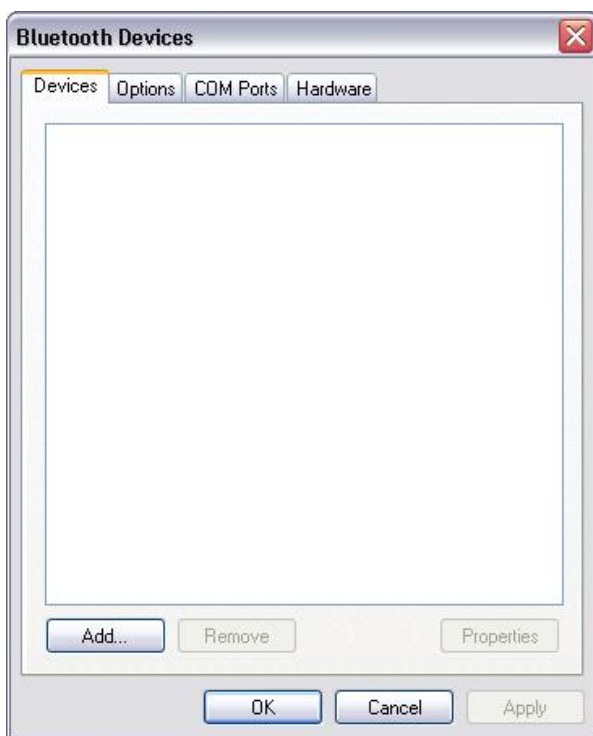


Enter my Bluetooth Devices on your PC.



The PC being used must have Bluetooth connectivity.

- The following window should appear. Click on 'Add'.



- The Bluetooth Device Wizard will open.



- Tick the box marked 'My device is set up and ready to be found'.
- When highlighted, click 'Next'.
- The PC will now search for local Bluetooth Devices.

- The following screen will then appear and display all the locally connectable Bluetooth devices.



- Click on 'R-net Bluetooth Mouse Module' and then click on 'Next'.

- Click "Use the passkey found in the documentation".



- Enter a passkey of '0000' then click 'Next'.

- The PC will connect with the Mouse Module

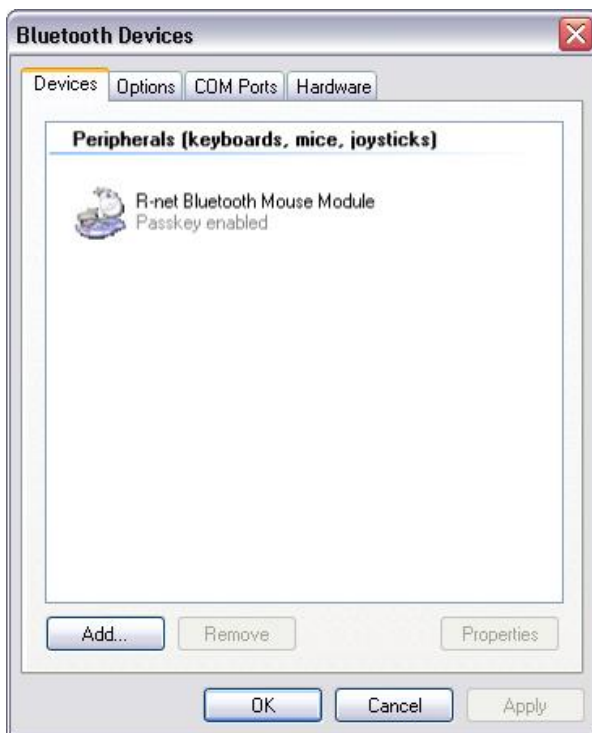


- Once Connection is complete the Finish screen will be displayed.



- Click on 'Finish'.

- The following window will be shown and the blue LED on the Mouse Module should be lit.



- If the process fails, click on 'R-net Bluetooth Mouse Module' and then 'Remove'. Repeat the procedure.

6.3.1 PAIRING WITH MULTIPLE PCS

It is possible to pair a Mouse Module with multiple PCs - for example, an office computer and a home computer. A maximum of four PCs may be paired with one Mouse Module, but these PCs should not be within 25m of each other.

If it is required to pair with PCs within 25m of each other, then a second Mouse Module must be used.



The R-net Mouse Module should only be paired with one PC stationed within a 25m range. Where multiple pairings take place within a 25m range PG Drives Technology accept no liability for any losses of any kind due to the effectiveness of the R-net Mouse Module.

6.4 WORKING WITH ANDROID DEVICES

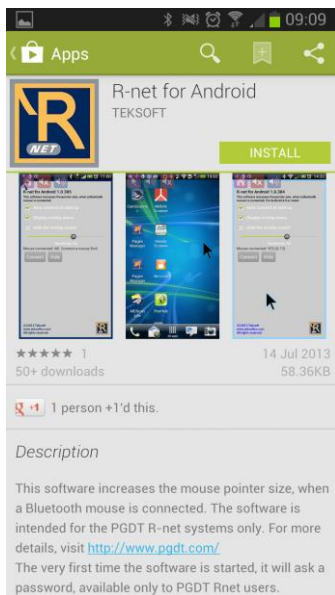
If the R-net for Android App is installed, R-net Mouse Modules can be paired with Smart devices, a list of which is available at www.pgdt.com/smartdevices. Once pairing is completed a large cursor overlay appears on the device screen above the native cursor (the standard Smart device cursor); then in a similar way to operating a PC, moving an R-net Input Device moves the cursor around the device screen. Device functions such as making phone calls, launching the internet or sending text messages can be selected by hovering the cursor over the required function. The Joystick Module Speed Up/Down buttons or nudges of the Input Device can then be used to control the function.



Right-click commands from the Input Device act as a Back command on the Smart device.

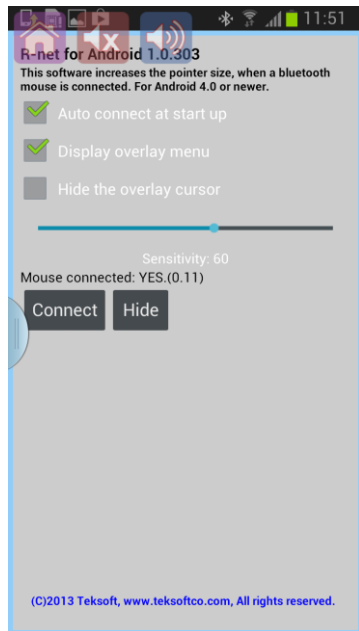
The R-net for Android App is available from the Play Store, simply search for “PGDT”, “R-net” or “R-net for Android” and download the App to the Smart device. A direct link to the App is available at:

<https://play.google.com/store/apps/details?id=com.teksoftco.android.pgdtovelay>



6.4.1 CONFIGURING THE R-NET FOR ANDROID APP

Select the R-net for Android App from the Smart device's Home screen.



There are three configuration options, all of which are enabled as a default.

Auto start - Sets the Smart device to automatically connect to the Mouse Module. In practice, this option should always be selected, else manual connection will be required each time the Mouse Module and Smart device come within range of each other.

Display Overlay Menu- Displays a semi-transparent overlay screen. This screen has three icons Home, Mute and Volume Up.

If the cursor is held over any of these icons for 3-seconds, it activates the associated function.

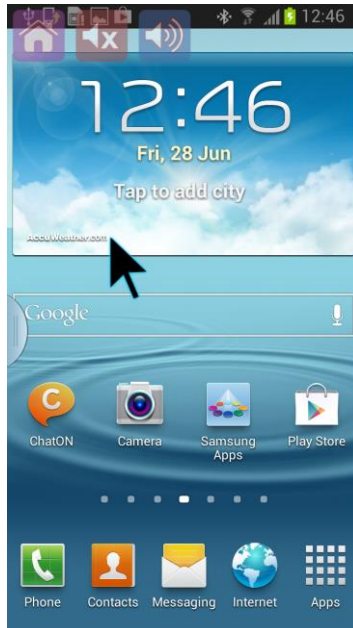
Hide the Overlay Cursor- For some users the overlay cursor may not be required. Disabling the overlay cursor means only the native cursor will be viewable on the device.

Sensitivity slider bar-The slider bar sets the level at which the overlay cursor tracks the native cursor. Lower setting slow the cursor movements across the screen (enabling close tracking of the overlay cursor to the native cursor), higher setting allow the cursor to move more quickly across the screen at the expense of close tracking.

6.4.2 PAIRING WITH AN ANDROID DEVICE.

- On the device select System Settings and set Bluetooth to On
- On the Home screen select the R-net for Android App.
- Enter the password 'PGDT' (only required the first time the device is connected) when prompted on the screen.
- Place the Mouse Module in Discovery Mode.
- In the R-net for Android App select Connect. This will present a list of available Bluetooth devices.
- Select 'R-net Bluetooth Mouse' from the list of available devices.
- Enter the password '0000' when prompted on the screen.
- R-net Bluetooth Mouse should appear as a paired device.

The Mouse Module and the Smart device should now be paired and the R-net Input Device will be able to control the cursor.



6.4.3 CONSIDERATIONS

- 1 The Smart device must be On for the R-net for Android App to be active. The R-net for Android App cannot turn the phone on or off.
- 2 The Sleep function of the Smart device must be disabled. If the device does 'go-to-sleep', then manual intervention to unlock the device is required, before the R-net for Android App becomes active.

- 3 When using some Android devices, turning the R-net off causes a loss of Bluetooth connection to the device. In this case, connection can be re-established by selecting the R-net for Android App.

To prevent this scenario, a list of recommended Android devices is available from PGDT.

- 4 The R-net for Android App cursor tracks the native cursor- to help with the tracking of the native cursor, it is recommended that pointer speed is set to a slow speed. Pointer speed is available in the Bluetooth branch of the R-net PC programmer.
- 5 On some occasions, the two cursors may separate. A small movement of the Input Device will quickly bring the cursor symbols back together.

6.5 WORKING WITH IDEVICES

If a R-net iDevice Module is connected then it can be paired with an iDevice, such as an iPhone or iPad. Once pairing is completed the R-Net iDevice Module makes use of the Accessibility options Switch Control or VoiceOver to allow R-Net Input Device commands (joystick nudges) to control and/or access any of the applications on the iDevice, such as making phone calls, launching the internet or sending text messages.

6.5.1 IDEVICE MODULE SET-UP

For the purposes of this manual an iDevice Module is connected to an iPad 3 running iOS V 7.1.1. The iDevice Module has been programmed with a Device Name of **R-net iDevice Module**.

The iDevice Module can be programmed to control an iPhone, iPod or iPad using accessibility options Switch Control or VoiceOver.

Enabling Switch Control or VoiceOver allows external inputs to sequentially control a predefined list of iPad functions.

The functions available are determined by the host device and the version of operating system it is running.

6.5.2 PAIRING WITH AN IDEVICE.

The iDevice Module must be place in Discovery Mode. Use the following procedure:

- Ensure the R-Net System is in the iDevice mode.
- Operate your Input Device in the forward direction and hold until it beeps. This will take approximately 10 seconds, then release.
- Operate your Input Device in the reverse direction and hold until it beeps. This will take approximately 10 seconds, then release. (A short beep may be heard as the directions are changed).
- The iDevice Module is now in Discovery Mode and ready to be paired with an iDevice.



The Discovery process will only be required once per iDevice.

From the iPad Setting Menu, turn Bluetooth On.



A list of devices will appear on the right side of the page. Select R-net iDevice Module. A successful pairing sequence will show the R-net iDevice Module as Connected.

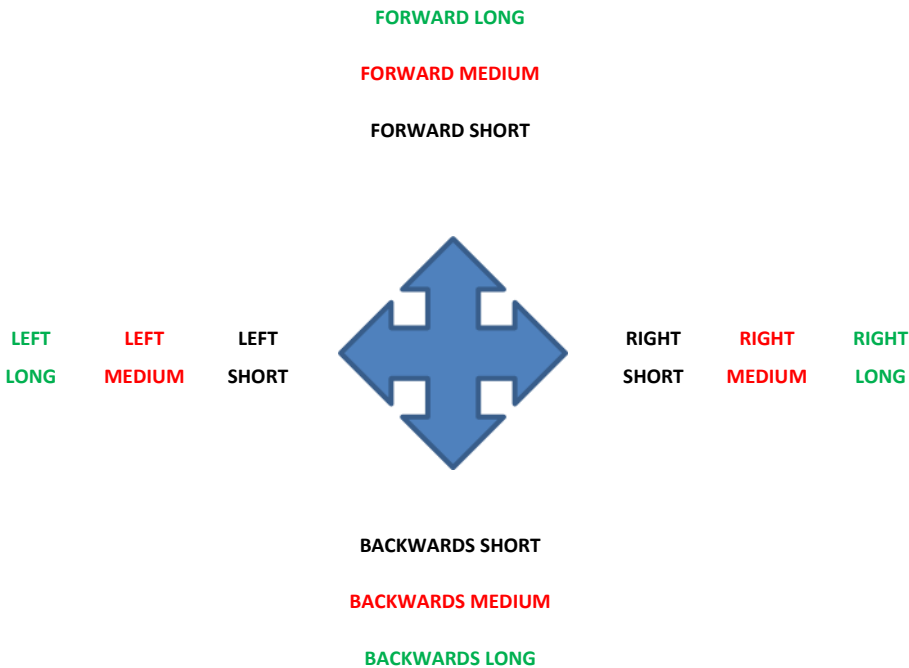


No passkey is required.

6.5.3 EXTERNAL SWITCH COMMANDS

Joystick deflections or SID inputs are read as external switch inputs and can be assigned to iPad functions.

Below are the R-net commands that can be assigned to an iPad function.



Parameters Short, Medium and Long Nudge Time set the interval for each joystick command (see Programming Chapter).

Each of the **Short**, **Medium** and **Long** commands are seen by the iPad as individual external switch inputs. These inputs can be assigned to any of the following iPad functions.

SCANNER:

- Select Item
- Scanner Menu
- Resume Auto Scanning
- Move To Next Item
- Move To Previous Item
- Stop Scanning

SYSTEM:

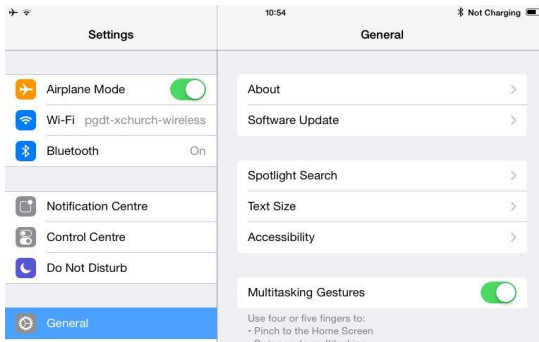
- Tap
- App Switcher
- Home Button
- Notification Centre
- Siri
- Decrease Volume
- Increase Volume



For Switch Control to work correctly, the Mode must be set to SwitchControl in the R-Net PC Programmer (see Programming Chapter, section 3.8).

6.5.4 SWITCH CONTROL

From the iPad setting menu, select –General-Accessibility.



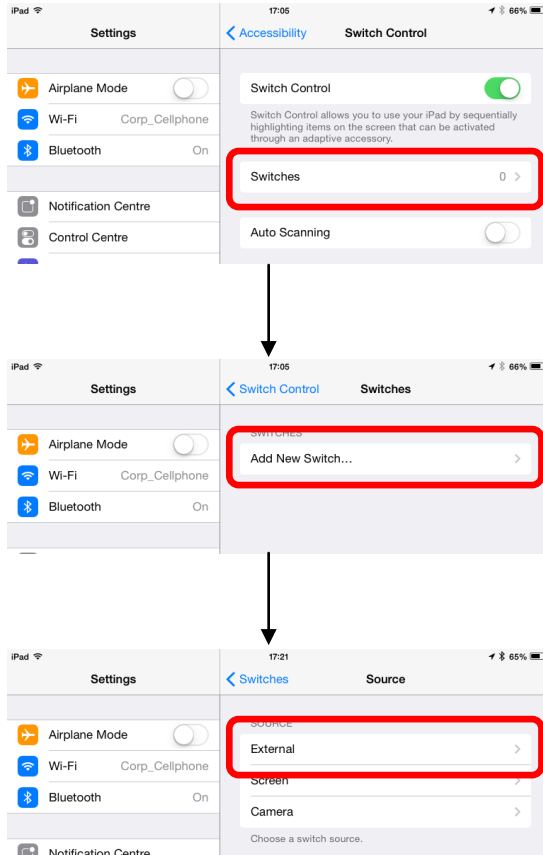
Scroll down in the Accessibility Tab, select Switch Control and turn it On.



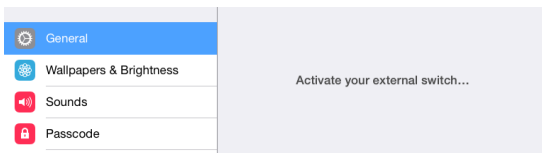
Within Accessibility there are Auto Scanning and Auto Hide options. It is recommended that these options are turned off for the initial set up.

6.5.5 ADDING SWITCHES

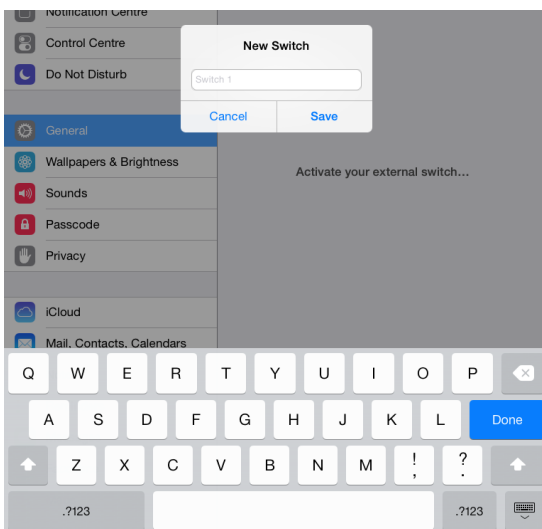
Within the Switch Control options, select Switches – Add New Switch... - External.



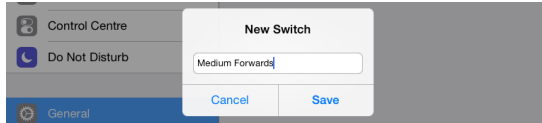
The iPad will ask you to “activate your external switch....”. Select one of the R-Net commands, and deflect the joystick accordingly (**Short**, **Medium** or **Long** in the chosen direction).



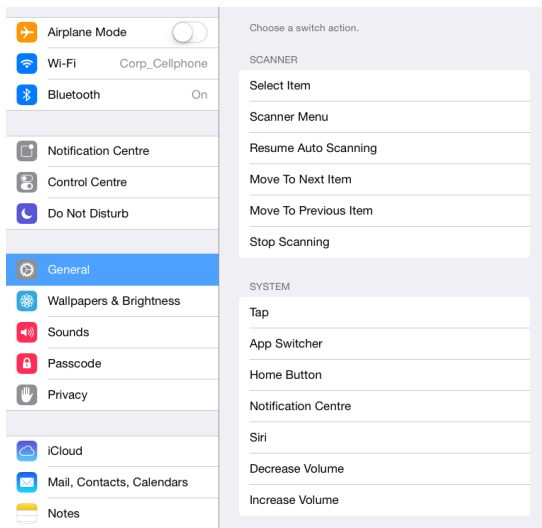
The iPad will then ask you to give the external switch command a name.



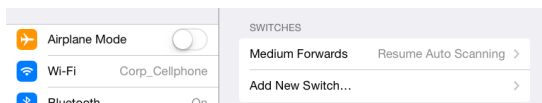
Enter the name of your switch, for this example, “Medium Forwards” has been chosen.



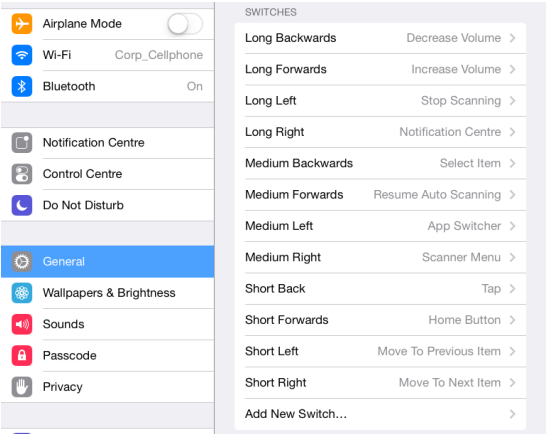
Select “Save” and then choose the command you wish to assign to this switch.



Once selected, the iPad will return to the screen showing the list of switches you have assigned.



To add more switches, just repeat the above steps, selecting “Add New Switch...” each time from the list of assigned switches.



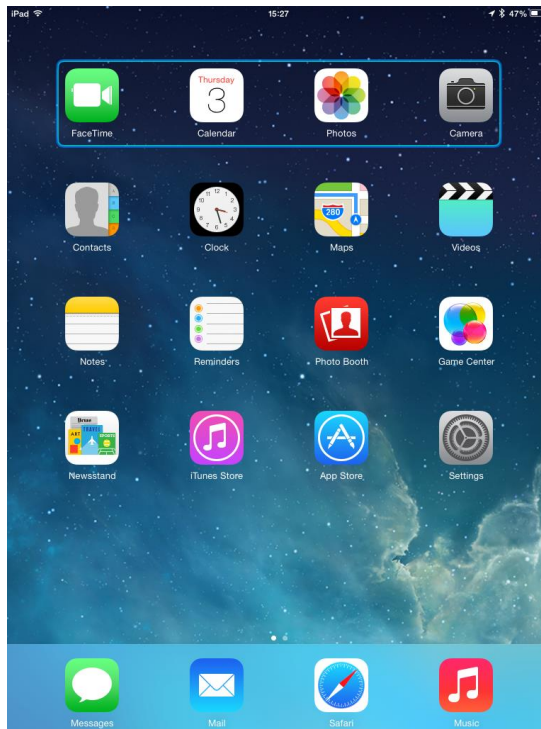
By adding switches in turn, you could have the following list of assigned commands / switches.

E.g.

JS Command	-> iPad function
Short Left	-> Previous Item
Short Right	-> Next Item
Short Forward	-> Home
Short Back	-> Tap
Mid Left	-> App Switcher
Mid Right	-> Scanner Menu
Mid Forward	-> Resume Auto Scanner
Mid Back	-> Select Item
Long Left	-> Stop Scanning
Long Right	-> Notification Center
Long Forward	-> Increase Volume
Long Back	-> Decrease Volume

6.5.6 SWITCH CONTROL OPERATION

Switch Control works by highlighting sections within the open application window and sequentially scrolling through the available options on the application window.

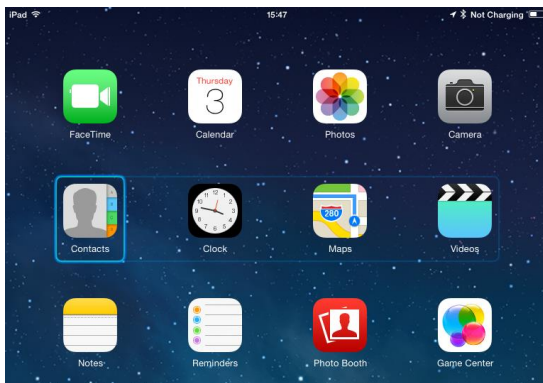


Using the standard home page and the switch assignment above as an example:

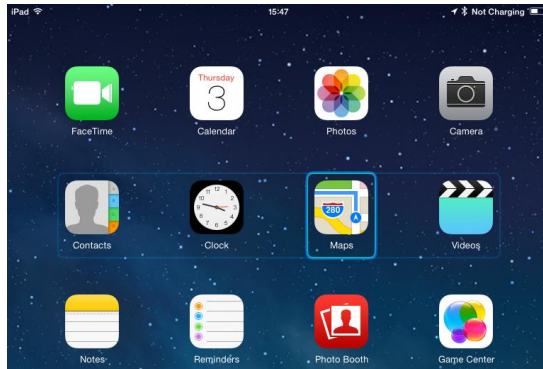
A Short Right nudge would take the user from line one to line two, to line three, and so on.



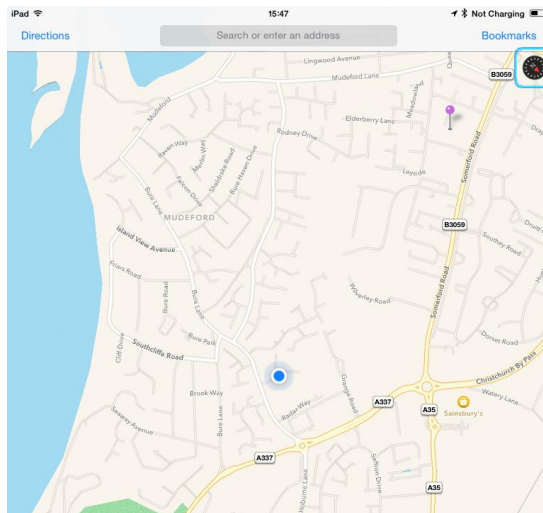
A Mid Back command selects the icons within the highlighted area.



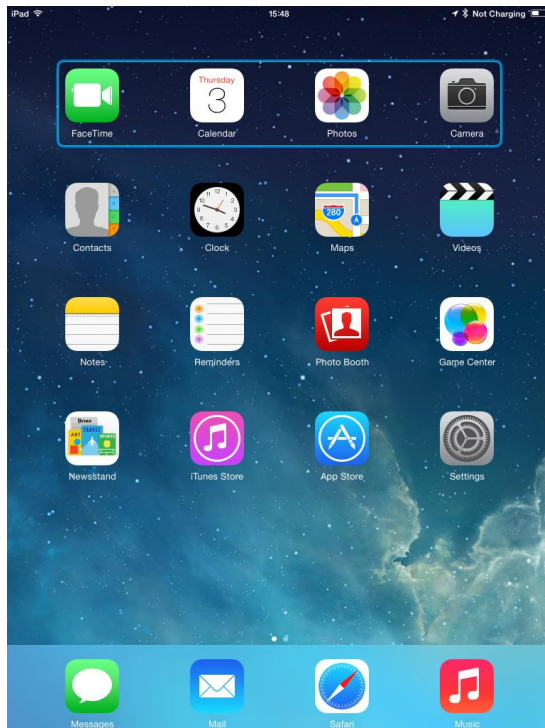
Short Left and Short Right nudges scroll across the items in the highlighted area.



A Mid Back command selects and opens the highlighted item.



A Short Forward command selects the Home screen.



The same sequence of actions can be applied to navigate any application window.

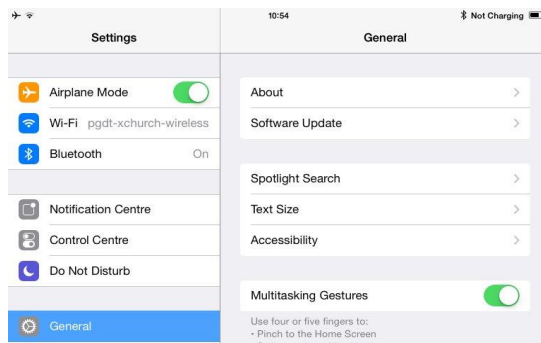


It is important to note the sequence in which items are highlighted is defined by the iPad, not the R-net iDevice Module.

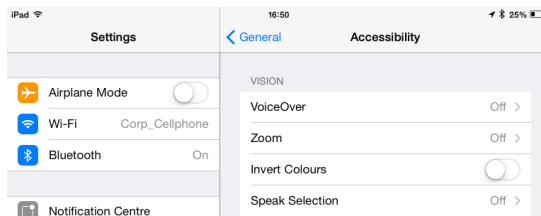
6.5.7 VOICEOVER OPERATION

The VoiceOver function enables audible feedback to the user.

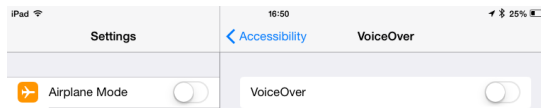
From the iPad setting menu, select – General – Accessibility

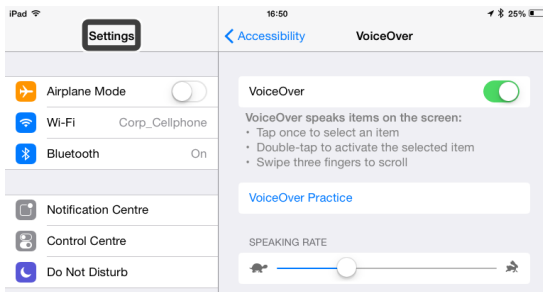


VoiceOver can be found at the top of the Accessibility tab.



Select it to go to the VoiceOver tab, where it can be turned on.





When VoiceOver is on, the highlighted command is shown by both the border, and the audible feedback.

As with Switch Control, external movements / nudges of the input device can be assigned to different iPad commands within the R-Net PC Programmer, to allow full navigation of the iPad.

VoiceOver also accepts inputs from the External Switch jack sockets, 1 and 2. These can be assigned as **Short**, **Medium** and **Long** commands as well, in the R-Net PC Programmer.



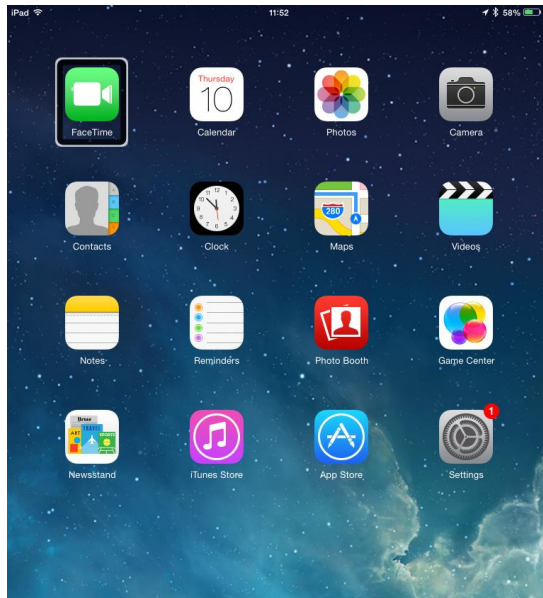
For VoiceOver to work correctly, the Mode must be set to Voiceover in the R-Net PC Programmer (see Programming Chapter, section 3.8).

6.5.7 NAVIGATING WITH VOICEOVER

For this example, the short commands have been programmed as follows:

JS Command	-> iDevice function
Short Left	-> Cursor Left
Short Right	-> Cursor Right
Short Forward	-> Home
Short Back	-> Select

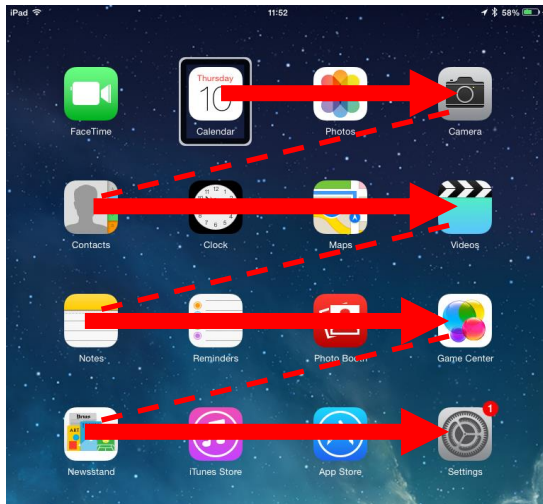
A short forward command selects the Home screen.



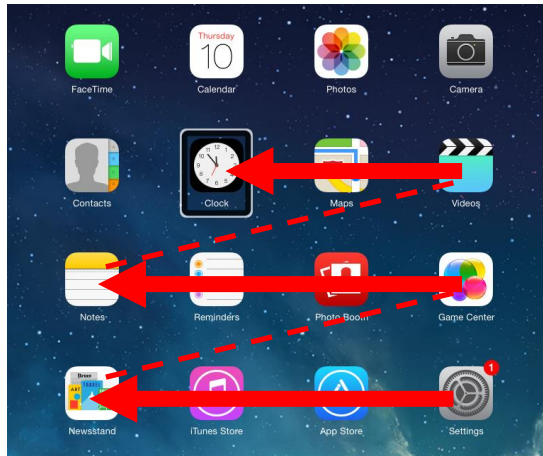
A short right command will move the screen cursor to the right by one application.



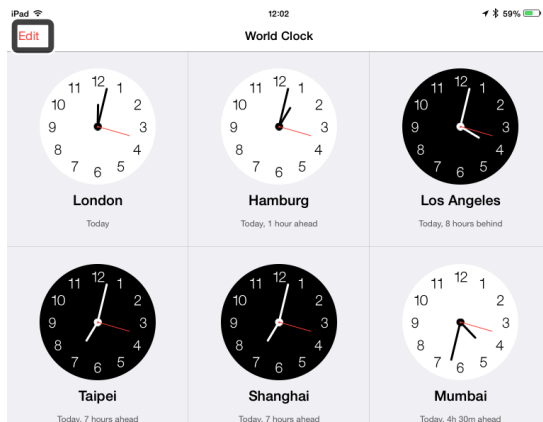
Further short right commands will move the screen cursor to the right by one application at a time.



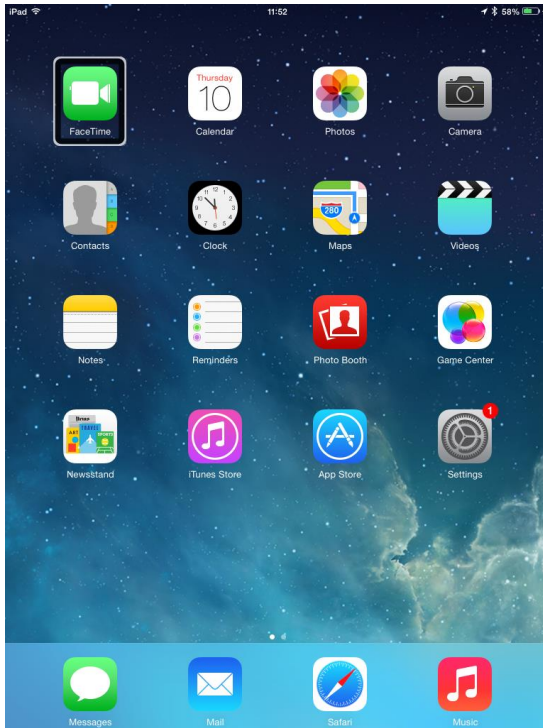
Similarly, short left commands will move the screen cursor to the left by one application at a time.



A short back command will select the highlighted application.



A short forward command will select the Home screen again.



When entering text in VoiceOver mode, ensure Quick Nav is ON. This will allow keyboard navigation using the left and right Input Device commands.

CHAPTER 3 – PROGRAMMING

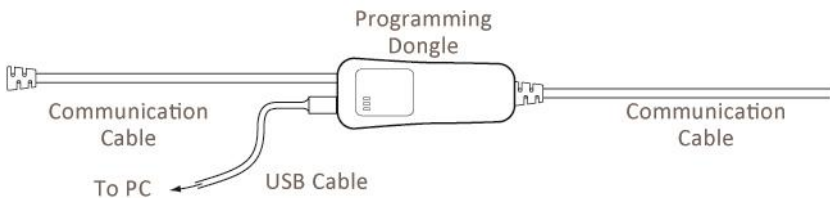
1 INTRODUCTION

This chapter gives an overview of the Bluetooth Module programmable parameters within the R-Net Control System. A Bluetooth Module parameters can only be programmed using a PG Drives Technology R-net PC Programmer.



Programming should only be conducted by healthcare professionals with in-depth knowledge of PGDT Control Systems. Incorrect programming could result in an unsafe set-up of a wheelchair for a user. PGDT accept no responsibility for losses of any kind if the programming of the control system is altered from the factory pre-set values.

To connect the R-net PC Programmer to the Control System use the USB connection cable and R-net Dongle as shown below. The Dongle can be connected to any point of the Control System.



The control unit must be connected and ON before program transfer can be achieved.

Check the Status Bar to see if the connection is correct.



Ensure the PC Programmer cable has been disconnected from the Control System before you start driving.

2 MOUSE MODULE SPECIFIC PARAMETERS

Dealer and OEM Parameter List

Mouse 1

Forward Nudge	<i>Sets the action when the JS is deflected forward in mouse 1 mode</i>
Reverse Nudge	<i>Sets the action when the JS is deflected in reverse in mouse 1 mode</i>
Left Nudge	<i>Sets the action when the JS is deflected left in mouse 1 mode</i>
Right Nudge	<i>Sets the action when the JS is deflected right in mouse 1 mode</i>
Nudge Time	<i>Sets the time for a nudge to be active</i>
Action Beeps	<i>Enables beeps on clicks on scroll functions</i>
Deflection beeps	<i>Enables beeps on deflection outside the deadband</i>

Mouse 2

Forward Nudge	<i>Sets the action when the JS is deflected forward in mouse 2 mode</i>
Reverse Nudge	<i>Sets the action when the JS is deflected in reverse in mouse 2 mode</i>
Left Nudge	<i>Sets the action when the JS is deflected left in mouse 2 mode</i>
Right Nudge	<i>Sets the action when the JS is deflected right in mouse 2 mode</i>
Nudge Time	<i>Sets the time for a nudge to be active</i>
Action Beeps	<i>Enables beeps on clicks on scroll functions</i>
Deflection beeps	<i>Enables beeps on deflection outside the deadband</i>

2.1 FORWARD, REVERSE, LEFT & RIGHT NUDGE

Programming Nudge allows the user to activate a click of the mouse without having to activate a key on an Input Device.

In Bluetooth Mode a Nudge is a quick activation of the Input Device in the Forward, Reverse, Left or Right directions. Activating the Input Device in a particular direction can be set to a particular mouse function.

The programmable options are as follows:

- None - No Mouse click will be initiated.
- Left Click – A Left Mouse click will be initiated.
- Right Click – A Right Mouse click will be initiated.
- Scroll Up – A mouse wheel Up operation is initiated when within an appropriate program.
- Scroll Down – A mouse wheel Down operation is initiated when within an appropriate program.
- Double Click Left – A left double click operation will be initiated.
- Double Click Right – A right double click operation will be initiated.

Any action that is not programmed will remain as the default setting.

2.2 NUDGE TIME

The parameter Nudge Time sets the time limit in which an Input Device must be deflected and released to activate a mouse command.

The Parameter Nudge Time is programmable between 0 and 5 seconds in steps of 20ms. Setting Nudge Time to 0 disables Nudge support.

2.3 POINTER SPEED

Pointer Speeds sets the maximum speed that the mouse pointer can be moved across the screen.

This parameter is programmable between 0 and 100% in steps of 1%.

Setting the Pointer Speed to 0% will disable mouse pointer movement, and change the functionality for both proportional and switched Input Devices: Deflecting the Input Device will cause the action associated with that direction to be executed immediately, irrespective of the Nudge Time parameter.

- If the action of the Input Device is programmed to a mouse button, a button operation will be assumed and will remain assumed for as long as the input device is held deflected in that direction.
- If the action of the Input Device is programmed to a scroll movement, a scroll movement will be performed and will auto-repeat every 200ms for as long as the Input Device is held deflected in that direction.

This could be useful for wheelchair users that have limited motor control and use Input Devices such as head arrays, switch inputs or Sip n Puff. Single input commands can therefore be used to activate and repeat a mouse click or scroll function.

2.4 POINTER ACCELERATION

For non proportional Input Devices, Pointer Acceleration sets the time taken for the mouse pointer to reach its programmable setting of Pointer Speed.

The parameter is programmable between 20ms and 5s in steps of 20ms.

2.5 ACTION BEEPS

This parameter sets whether the user gets a continuous set of beeps whilst an Input Device is being used to control a mouse. E.g. moving the mouse across the screen

This parameter can be set to Yes or No

2.6 DEFLECTION BEEPS

This parameter sets whether the user gets a single beep whilst an Input Device is being used to control a mouse button function. E.g. Nudge functions such as Right Click.

This can be set to Yes or No

2.7 DOUBLE CLICK TIME

This sets the period of time during which two external switch operations must be detected, in order to be interpreted as a double-click.

The programmable range is 0s to 2.5s in steps of 0.1s

If set to 0s, then no double-click facility will be supported. This setting should be used if accidental double-clicks are a problem.

If set to any other value, then this is the period that two User Switch operations must be made, in order to be interpreted as a double-click.

2.8 EXTERNAL SWITCH INPUT 1 & 2

The external switch input enables mouse functions to be assigned to external switch inputs.

The programmable options are as follows:

None - No Mouse click will be initiated.

Left Click – A Left Mouse click will be initiated.

Right Click – A Right Mouse click will be initiated.

Scroll Up – A mouse wheel Up operation is initiated when within an appropriate program.

Scroll Down – A mouse wheel Down operation is initiated when within an appropriate program.

Double Click Left – A left double click operation will be initiated.

Double Click Right – A right double click operation will be initiated.

3 IDEVICE MODULE SPECIFIC PARAMETERS

iDevice

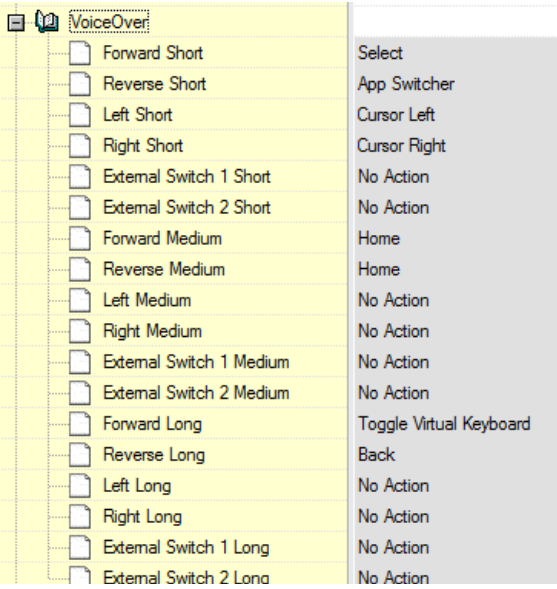
VoiceOver



















Forward Short	<i>Sets the action when the ID is deflected a forward short in iDevice mode</i>
Reverse Short	<i>Sets the action when the ID is deflected a reverse short in iDevice mode</i>
Left Short	<i>Sets the action when the ID is deflected a left short in iDevice mode</i>
Right Short	<i>Sets the action when the ID is deflected a right short in iDevice mode</i>
External Switch 1 Short	<i>Sets the action when the External Switch 1 is activated for a short period in iDevice mode</i>
External Switch 2 Short	<i>Sets the action when the External Switch 2 is activated for a short period in iDevice mode</i>
Forward Medium	<i>Sets the action when the ID is deflected a forward medium in iDevice mode</i>
Reverse Medium	<i>Sets the action when the ID is deflected a reverse medium in iDevice mode</i>
Left Medium	<i>Sets the action when the ID is deflected a left medium in iDevice mode</i>
Right Medium	<i>Sets the action when the ID is deflected a right medium in iDevice mode</i>
External Switch 1 Medium	<i>Sets the action when the External Switch 1 is activated for a medium period in iDevice mode</i>
External Switch 2 Medium	<i>Sets the action when the External Switch 2 is activated for a medium period in iDevice mode</i>
Forward Long	<i>Sets the action when the ID is deflected a forward long in iDevice mode</i>
Reverse Long	<i>Sets the action when the ID is deflected a reverse long in iDevice mode</i>
Left Long	<i>Sets the action when the ID is deflected a left long in iDevice mode</i>
Right Long	<i>Sets the action when the ID is deflected a right long in iDevice mode</i>
External Switch 1 Long	<i>Sets the action when the External Switch 1 is activated for a long period in iDevice mode</i>
External Switch 2 Long	<i>Sets the action when the External Switch 2 is activated for a long period in iDevice mode</i>
Action Beeps	<i>Enables beeps on clicks or scroll functions</i>
Deflection beeps	<i>Enables beeps on deflection outside the deadband</i>
Short Nudge Time	<i>Sets the time for a short nudge or period to be active</i>
Medium Nudge Time	<i>Sets the time for a medium nudge or period to be active</i>
Long Nudge Time	<i>Sets the time for a long nudge or period to be active</i>
Device Name	<i>Sets the name of the iDevice module</i>
Mode	<i>Sets the mode for the iDevice module</i>

3.1 VOICEOVER

This section contains the commands and their functions that work only with VoiceOver mode, to allow full navigation of a connected iDevice.

Below are the default commands:



	Forward Short	Select
	Reverse Short	App Switcher
	Left Short	Cursor Left
	Right Short	Cursor Right
	External Switch 1 Short	No Action
	External Switch 2 Short	No Action
	Forward Medium	Home
	Reverse Medium	Home
	Left Medium	No Action
	Right Medium	No Action
	External Switch 1 Medium	No Action
	External Switch 2 Medium	No Action
	Forward Long	Toggle Virtual Keyboard
	Reverse Long	Back
	Left Long	No Action
	Right Long	No Action
	External Switch 1 Long	No Action
	External Switch 2 Long	No Action

3.1.1 FORWARD SHORT, REVERSE SHORT, LEFT SHORT, RIGHT SHORT, EXTERNAL SWITCH 1 SHORT, EXTERNAL SWITCH 2 SHORT

These represent the functions associated with **Short** commands in VoiceOver mode.

The programmable options are as follows:

No Action - No action will be initiated.

Cursor Left – The screen cursor will move to the left by one application.

Cursor Right – The screen cursor will move to the right by one application.

Select – The highlighted application or item will be selected (equivalent to a double tap).

App Switcher – This presents the App Switcher screen.

Toggle Virtual Keyboard – This will show or hide the virtual keyboard.

Back – In Safari, goes back to previous page.

Home – This will select the Home screen.

Quick Nav - Allows navigation using arrow keys (left and right cursor)

Volume Up – This will increase the volume.

Volume Down – This will decrease the volume.

Double Click Right – A right double click operation will be initiated.

Any action that is not programmed will remain as the default setting.



When keyboard is visible, Back command toggles between split keyboard and normal keyboard

3.1.2 FORWARD MEDIUM, REVERSE MEDIUM, LEFT MEDIUM, RIGHT MEDIUM, EXTERNAL SWITCH 1 MEDIUM, EXTERNAL SWITCH 2 MEDIUM

These represent the functions associated with **Medium** commands in VoiceOver mode.

The programmable options are as follows:

- No Action - No action will be initiated.
- Cursor Left – The screen cursor will move to the left by one application.
- Cursor Right – The screen cursor will move to the right by one application.
- Select – The highlighted application or item will be selected (equivalent to a double tap).
- App Switcher – This presents the App Switcher screen.
- Toggle Virtual Keyboard – This will show or hide the virtual keyboard.
- Back – In Safari, goes back to previous page.
- Home – This will select the Home screen.
- Quick Nav - Allows navigation using arrow keys (left and right cursor)
- Volume Up – This will increase the volume.
- Volume Down – This will decrease the volume.
- Double Click Right – A right double click operation will be initiated.

Any action that is not programmed will remain as the default setting.



When keyboard is visible, Back command toggles between split keyboard and normal keyboard

3.1.3 FORWARD LONG, REVERSE LONG, LEFT LONG, RIGHT LONG, EXTERNAL SWITCH 1 LONG, EXTERNAL SWITCH 2 LONG

These represent the functions associated with **Long** commands in VoiceOver mode.

The programmable options are as follows:

- No Action - No action will be initiated.

Cursor Left – The screen cursor will move to the left by one application.

Cursor Right – The screen cursor will move to the right by one application.

Select – The highlighted application or item will be selected (equivalent to a double tap).

App Switcher – This presents the App Switcher screen.

Toggle Virtual Keyboard – This will show or hide the virtual keyboard.

Back – In Safari, goes back to previous page.

Home – This will select the Home screen.

Quick Nav - Allows navigation using arrow keys (left and right cursor)

Volume Up – This will increase the volume.

Volume Down – This will decrease the volume.

Double Click Right – A right double click operation will be initiated.

Any action that is not programmed will remain as the default setting.



When keyboard is visible, Back command toggles between split keyboard and normal keyboard.

3.2 ACTION BEEPS

This parameter sets whether the user gets a continuous set of beeps whilst an Input Device is being used to control a mouse. E.g. moving the mouse across the screen

This parameter can be set to Yes or No

3.3 DEFLECTION BEEPS

This parameter sets whether the user gets a single beep whilst an Input Device is being used to control a mouse button function. E.g. Nudge functions such as Right Click.

This can be set to Yes or No

3.4 SHORT NUDGE TIME

The parameter Short Nudge Time sets the time limit in which a Input Device must be deflected and released to activate a **Short** command.

The Parameter Short Nudge Time is programmable between 0 and 2 seconds in steps of 100ms.

The default value for Short Nudge Time is 0.5s.

3.5 MEDIUM NUDGE TIME

The parameter Medium Nudge Time sets the time limit in which a Input Device must be deflected and released to activate a **Medium** command.

The Parameter Medium Nudge Time is programmable between 0 and 3 seconds in steps of 100ms.

The default value for Medium Nudge Time is 2.0s.



It is recommended Medium Nudge Time is programmed to a value greater than Short Nudge Time.

3.6 LONG NUDGE TIME

The parameter Long Nudge Time sets the time limit in which a Input Device must be deflected and released to activate a **Long** command.

The Parameter Long Nudge Time is programmable between 0 and 5 seconds in steps of 100ms.

The default value for Long Nudge Time is 3.0s.



It is recommended Long Nudge Time is programmed to a value greater than Medium Nudge Time.

3.7 DEVICE NAME

The parameter Device Name allows the iDevice to have a unique name that will be displayed in the Bluetooth list when pairing has been successful or on initial pairing.

The Parameter Device Name can be a text string up to 20 characters in length.

The Parameter Device Name will be set to R-net iDevice Module by default.

3.8 MODE

The parameter Mode sets the mode of operation for the iDevice module.

The programmable options are as follows:

- VoiceOver – The iDevice will use VoiceOver mode on the connected iDevice.
- Switch Control – The iDevice module will use Switch Control mode on the connected iDevice.

The Parameter Mode will be set to Switch Control by default.



Ensure the relevant mode is switched on, on the connected iDevice to allow navigation in that mode. (Refer to Chapter 2, sections 6.5.4 or 6.5.7).

CHAPTER 4 - SPECIFICATIONS

1 ELECTRONIC SPECIFICATIONS

Operating Voltage:	16V-35V
Operating Range:	10 Meters (Mouse Module) 5 Meters (iDevice Module)
Operating Temperature:	– 25°C to + 50°C
Storage Temperature:	– 40°C to + 60°C

Moisture Resistance

Electronics to:	IPx4
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EMC tested on Sample wheelchair

Susceptibility:	tested to 30V/m to EN12184 and ANSI/RESNA
Emissions:	TO EN55022 Class B
ESD:	IEC 801 part 2