PG DRIVES TECHNOLOGY

R-NET PROGRAMMING SOFTWARE - DEALER

ELECTRONIC MANUAL

SK78009/2

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About this manual

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

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 accept no liability for any losses of any kind if the points are not followed.

CHAPTER 1 - INTRODUCTION

1 Introduction

The R-net Programmer software allows R-net Control Systems to be programmed with a PC. In addition to programming, the R-net Programmer can be used to perform diagnostic operations on the vehicle's electrical system.

The main advantage of using programmable Control Systems is that they can be easily tailored to the specific needs and capabilities of a particular vehicle while taking into account safe performance characteristics.

The programmable Control System achieves this great flexibility by referring to a set of internal parameters that govern factors such as the vehicle's speed, acceleration and braking. These parameters can be changed using the OBP Mode in the R-net or the R-net PC Programmer.

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 accept no liability for any losses of any kind if the programming of the Control System is altered from the factory preset values.

2 Hardware

The R-net Programmer pack comprises of the following items:

- R-net Programmer CD ROM
- R-net Programming Dongle - D50609
- USB Connection Cable
- Installation Manual (Hardcopy in Packaging)

3 Security

If a file has been created by an OEM Programmer, it will first be necessary to make a copy of the file if you wish to edit it.

CHAPTER 2 – USER GUIDE

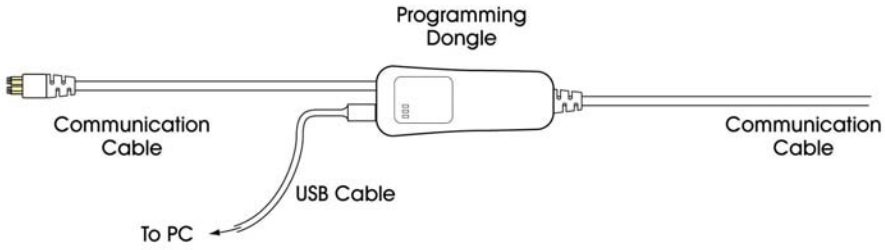
1 Connecting to a Control System

The USB connection cable connects the PC to the R-net Control System via the R-net Programming Dongle. The Dongle can be connected to any point of the Control System.

To attach the Control System to the PC use the USB Cable as follows:

- Insert the USB plug into a spare USB slot on the PC.
- Insert the other end of the USB Cable into the Dongle.
- Switch the Control System ON.

See the following diagram.



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

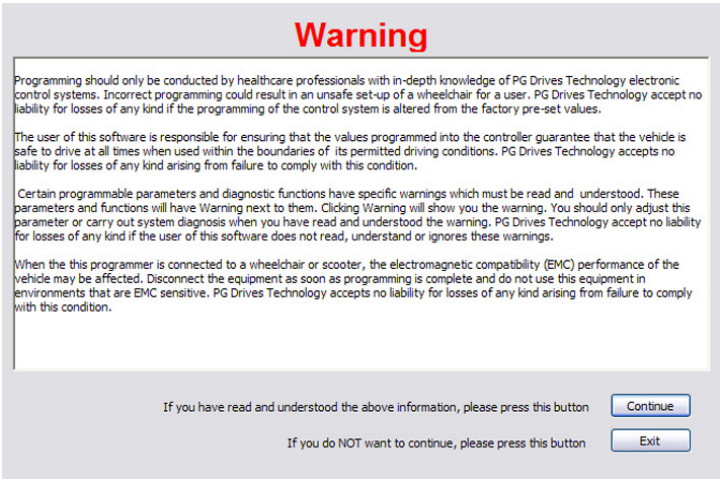
Check the Status Bar to see if the connection is correct. Refer to section 3.4.

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

2 Operation Initiation

PC Programmer can be used to edit existing Control Systems or to perform initial programming acts. Once a program has been loaded into PC Programmer editing tasks can be performed at any time.

Upon opening PC Programmer the following warning window will appear. It is important that this warning is read and understood before programming commences.

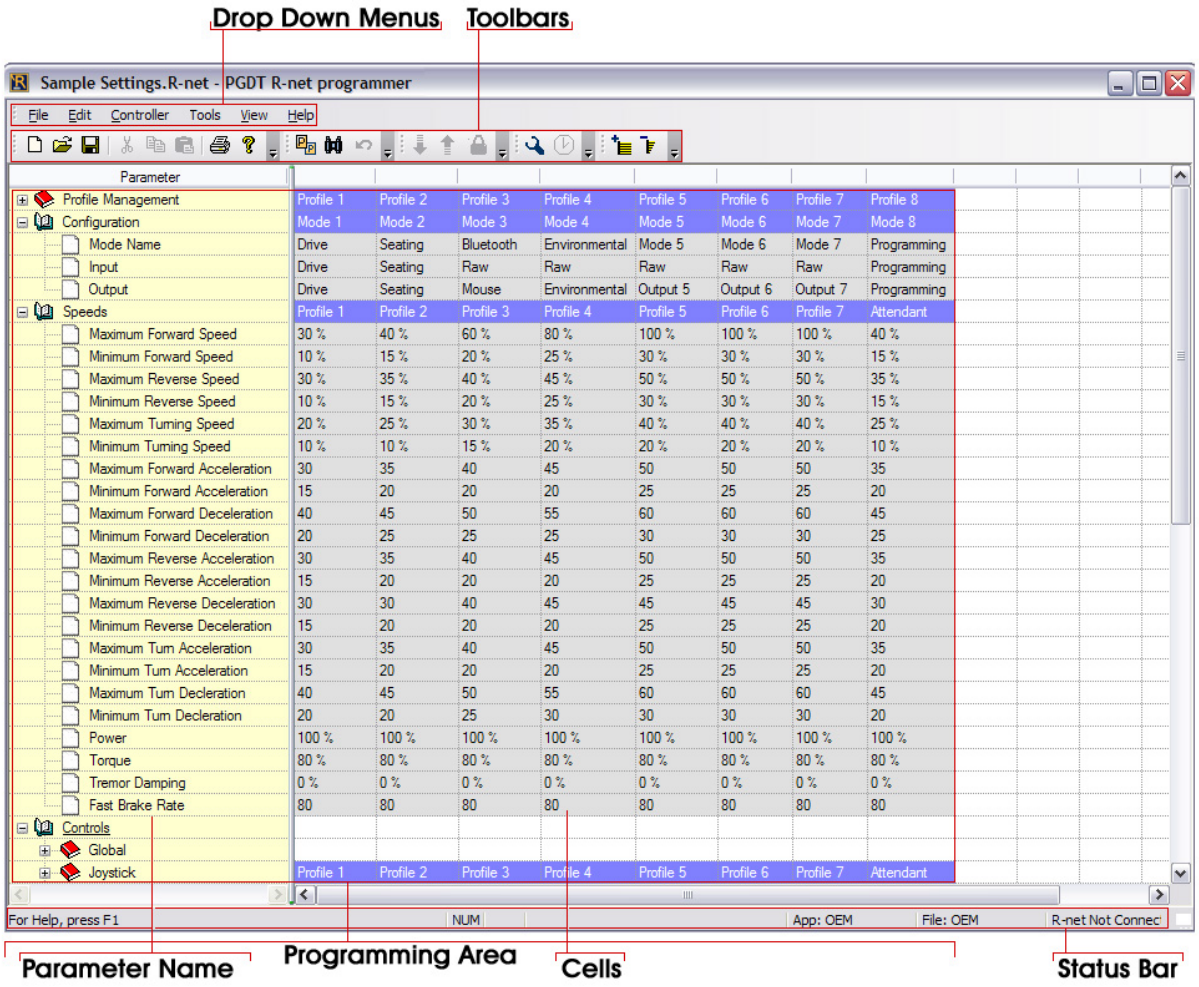


Clicking Continue opens the Programmer Window.

To begin using the PC Programmer one of three things must occur:

- A New file must be opened.
- An existing file must be opened.
- A file must be read from a Control System.

3 The Application Window



For ease of description the application window will be separated into 4 different sections. These are:

3.1 - Drop Down Menus

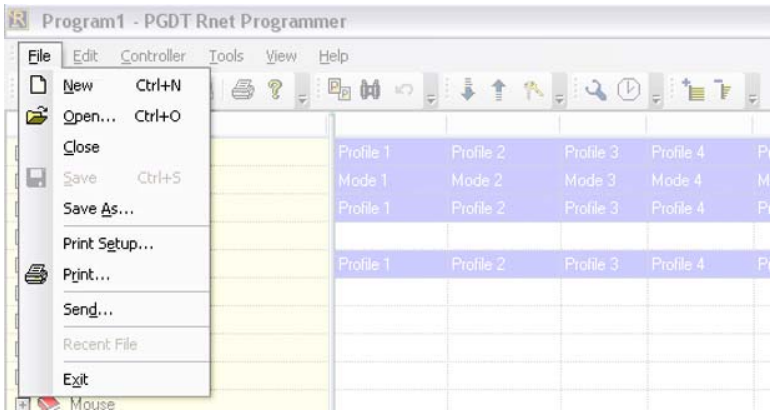
3.2 - Toolbars

3.3 – Programming Area

3.4 - Status Bar

3.1 Drop Down Menus

3.1.1 File

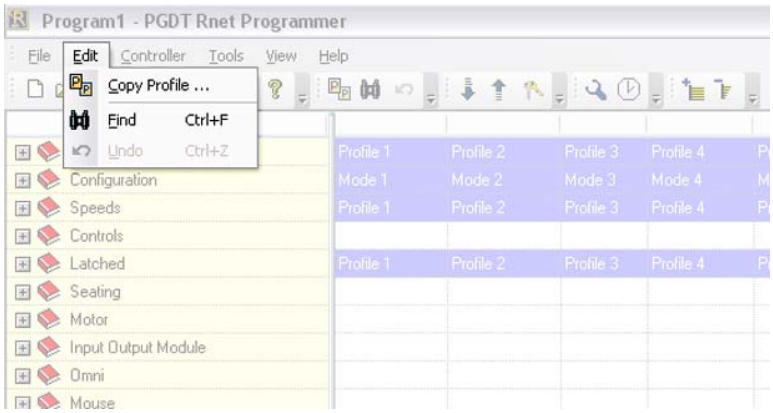


This menu contains standard Windows functions – New, Open, Close, Save, Save As, Print, Print Setup, Send and Exit.

When opening a New file, this will be the standard R-net template with PGDT default values. Refer to the Upgrades section of this manual to ensure you have the most recent template. You can still use older templates, but they may not contain all the latest parameters.

When printing, the print content will be as displayed on the screen, i.e. parameters within closed branches will not be shown.

3.1.2 Edit

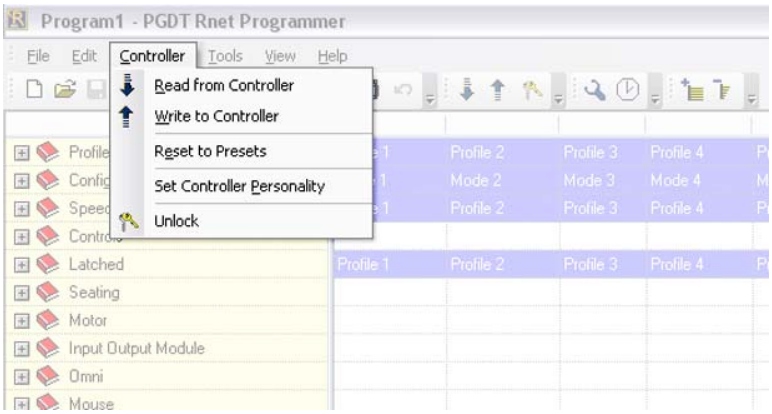


Copy Profile – This is a facility allowing you to quickly transfer the contents of one Profile to another Profile. On the left-hand side of the dialogue box, simply select the Profile you wish to copy, then on the right-hand side of the box select the Profile you wish to copy to. To make the copy, click the $^{P}\blacktriangleright_{P}$ symbol in the center of the box.

Find - This is a useful facility to find a parameter quickly. Simply type in one word of the parameter name.

Undo – This allows you to undo any changes you have made to a file since it was last saved.

3.1.3 Controller



Read from Controller – Reads and displays the programming file from the controller. Note: you may see branches on the PC Programmer relating to modules that are not presently connected. These branches can just be ignored. The file will automatically assume a name corresponding to the serial number of the Power Module.

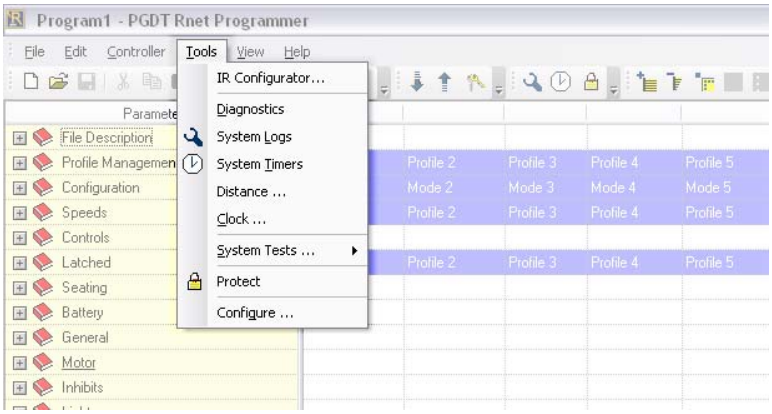
Write to Controller – Writes the contents of the displayed file to the controller.

Reset to Presets – Resets the controller to a set of default values predefined either by PGDT or the Wheelchair manufacturer. Refer to the Wheelchair manufacturer for information on the default values.

Set Controller Personality – Programs the controller with predefined parameter and screen display settings. These settings determine the displayed parameters in OBP and the language used for both OBP and error reporting.

Unlock – If the Control System is locked, you can unlock it with this command in order to program.

3.1.4 Tools



IR Configurator - Programs the controller with predefined parameter and screen display settings. These settings determine the displayed parameters in OBP and the language used for both OBP and error reporting.

Diagnostics – If the Control System is tripped, i.e. has detected an error, this command will give you details of the error.

System Logs – This views the system's diagnostic logs. See section Reading System (Diagnostics) Logs for more details.

System Timers – This views the timers of each of the connected system modules. Note, not all modules have a timer facility.

Distance – This displays the total and trip distance traveled by the wheelchair (Power Module). The trip distance can be reset from a CJSM or Omni by entering the Settings menu.

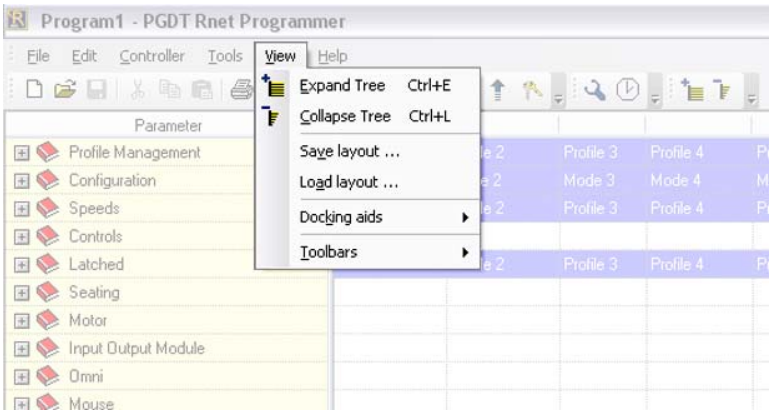
Clock – Sets the controllers clock. It can be set manually or using the time on the PC currently connected.

System Tests – This facility allows you to carry out some diagnostic tests on the system. Refer to section Diagnostics Tests for more details.

Configure – This contains options for the screen display and how parameters are edited. You can also set a user name here.

Language – Displays a list of languages currently supported by the Programmer.

31.5 View



Expand Tree – This expands the display so that all parameters are visible

Collapse Tree – This closes the display up, such that only the major branches are visible.

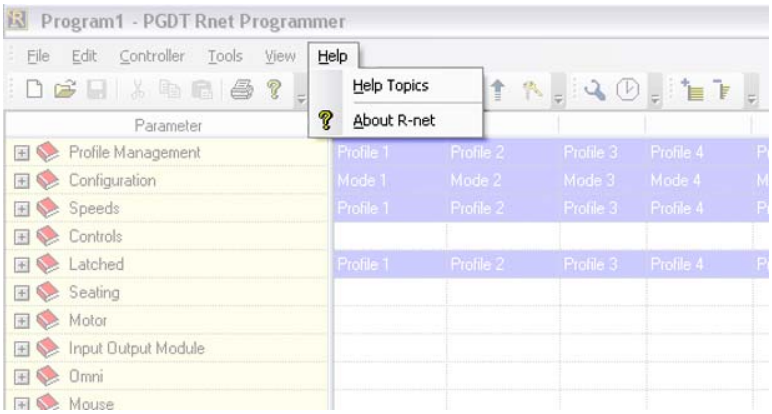
Save Layout – This allows you to save your preferred screen layout format. The format is stored in a file with an extension .lyo.

Load Layout – This loads a layout file.

Docking Aids – This is a standard Windows type utility that sets the way active windows mesh with each other.

Toolbars – Allows customization of the Toolbars and Icons displayed on screen.

3.1.6 Help



Help Topics – This allows you to search for help text on any R-net topic.

About R-net – This presents information relating to the software versions being used by the PC Programmer.

3.2 Toolbar

The toolbar icons are shortcuts to the most regularly used functions within the drop down menus.

3.3 Programming Area

All adjustments to the program parameters are made within this window.

3.3.1 Parameters on Screen

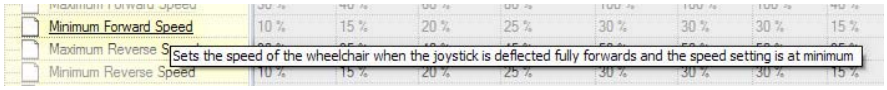
The R-net Power Module may contain parameters for modules that are not actually connected in a system, for example, an Input/Output Module (IOM). This is because manufacturer's default values for this module are pre-loaded into the Power Module, so that when an IOM is connected, it will automatically assume preferred values for its parameters. This means you may see branches on the PC Programmer relating to modules that are not presently connected. These branches can just be ignored.

Each programmable parameter has its own adjustable entry.

To adjust parameters move the mouse cursor to the parameter and click on the cell to be adjusted. When the setting is highlighted use your keyboard to enter the new desired setting.

Where there is a drop down menu selection, highlight the cell and then click on the new desired setting. In some instances it may be possible to select more than setting for the parameter.

3.3.2 Help text

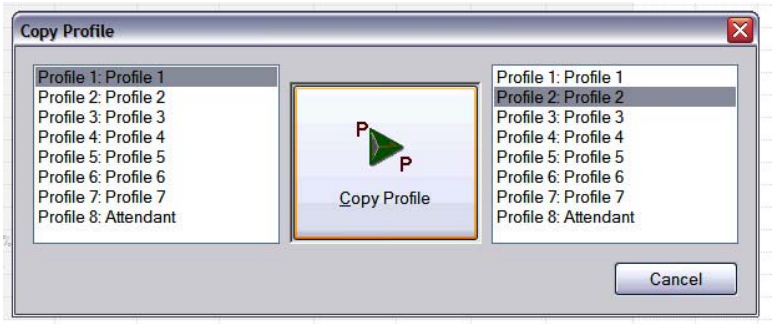


There is a short piece of help text associated with ach parameter. To read the text place the mouse cursor over the parameter name, the help text will then appear. For more detailed parameter information use the Help Topics. Refer to section 3.1.6.

3.3.3 Warning Text

Where a parameter has a Warning associated with it, an icon will be visible next to the parameter name. These warnings should always be read prior to adjusting the parameter.

3.3.4 Copying Parameters



It is possible to copy parameters from one Profile to another in two ways. Firstly, a single cell can be dragged and dropped to another Profile; alternatively, all the parameters within a profiled branch can be drag and dropped together by drag and dropping the associated Profile name cell.

3.4 Status Bar

The Status Bar along the bottom of the screen contains various pieces of information. There are seven panels within the bar, see below, and the information in each is as described.

1 - Connection Status

This will contain one of four messages.

No Connection –	PC Programmer is not connected to a Dongle.
R-net Not Connected –	PC Programmer is connected to a Dongle, but the Dongle is not connected to an R-net system.
Initialising System –	Connection to both a Dongle and an R-net has been made, but there is some intialising taking place.
R-net Connected –	Full communications between the PC Programmer and an R-net system.

2 – File origin

Denotes the access level of the PC Programmer Software that created the file.

3 – Access level of the PC Programmer Software.

Connecting to dongle of lower access than the software will demote the access level.

4 - Live Trip Code

Text describing any live trips that are detected.

5 - Scroll Lock Indicator

6 - Number Lock Indicator

7 - CAP lock indicator

4 Reading System (Diagnostics) Logs

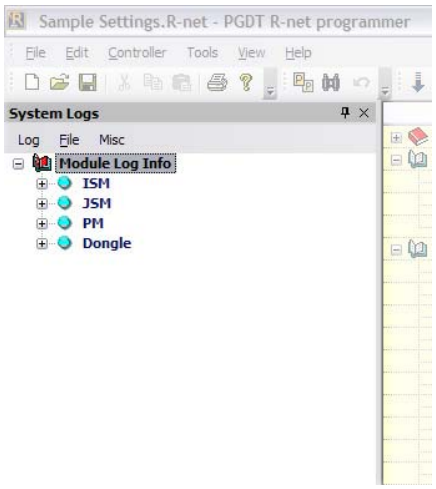
These are accessed by selecting System Logs from the Tools menu.

In the Systems Logs window, there are a further three drop-down menus – Log, File and Misc.

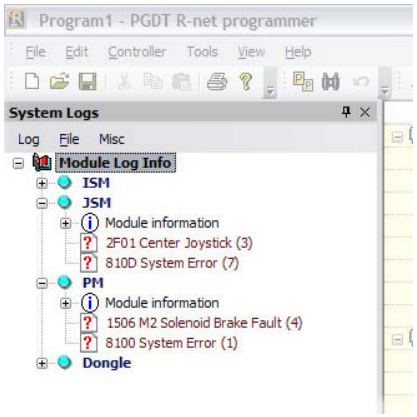
Log :

Read – This extracts data from each of the system modules' diagnostic logs, as well as each module's serial number and software version.

A typical log is shown below.



The Module Information branches can be expanded to show the serial number and software version. Under this branch, the content of the module's diagnostics log are listed. The order of the list is such that the most recent entries are at the top. An example of is shown as follows.



This shows that the last 3 trips have been due to the joystick being away from center at power-up. Prior to these, there were 4 instances of a brake being disconnected and, prior to that, there were 1 system error.

Print – This will print a copy of the System Logs. Regardless of how they appear on the screen, the print will show all the logs in an expanded form.

File :

Save to File – This allows you to save the system logs to a file. The default file name will correspond to the date and the file extension will be .rnsi. While you can change the name, the extension should not be changed.

Load from File – This allows a log file (.rnsi type) to be opened from disk and inspected.

Comments – This allows text comments to a log file.

Send – This will attach a log file to an email with the following information in the subject field *R-net system log (User Name* serial number): time and date of sending mail.*

*As set in the Configure facility.

The log file will assume a name corresponding to the day's date and have an extension of .rnsi.

Misc :

Clipboard – This is a standard Windows facility that will put the log file onto the clipboard meaning it can then be pasted into other applications, such as Word.

Expand – This expands the log file display so that all information is visible.

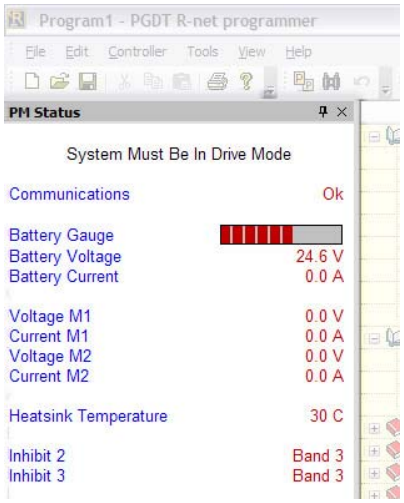
Collapse – This collapses the log file display.

5 Diagnostic Tests

These are accessed by selecting System Tests from the Tools menu.

From here, it is possible to check the status of all modules connected to the system, as well as the joystick within the JSM.

5.1 PM Tests



The status of the following is displayed. Note, the system must be in Drive Mode.

Communications: shows whether the PM is communicating to other modules.

Battery Gauge: shows the battery gauge information that is being put onto the bus by the PM.

Battery Voltage: shows the battery voltage that is being measured by the PM.

Battery Current: shows the battery current that is being measured by the PM.

Voltage M1: shows the voltage being measured by the PM on its M1 motor output.

Current M1: shows the current being measured by the PM through its M1 motor output.

Voltage M2: shows the voltage being measured by the PM on its M2 motor output.

Current M2: shows the current being measured by the PM through its M2 motor output.

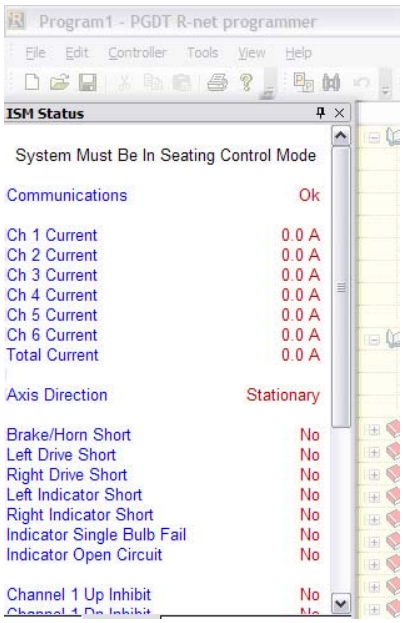
Heatsink Temp: shows the temperature measured by the PM at its own heatsink.

Inhibit 2: shows which Band* the PM's Inhibit 2 input is in.

Inhibit 3: shows which Band* the PM's Inhibit 3 input is in.

* For more information on Bands, refer to help topic "Inhibits Explained". Band 0 is likely to mean an inhibit switch is closed to 0V, whereas Band 3 is likely to mean an inhibit switch is opened or not connected.

5.2 ISM Status



The status of the following is displayed. Note, the system must be in Seating Control Mode.

Communications: shows whether the ISM is communicating to other modules.

Channel x Current: shows the current being measured by the ISM through each of its output channels.

Total Current: show the total battery current being measured by the ISM.

Axis Direction: shows whether the selected actuator axis is driving in the Up or Down direction, or is Stationary. The takes into account the setting of the parameter Invert Axis.

Brake/Horn Short: shows whether the ISM is detecting a short-circuit fault on its brake light/horn output.

Left Drive Short: shows whether the ISM is detecting a short-circuit fault on its left-hand driving lamps output.

Right Drive Short: shows whether the ISM is detecting a short-circuit fault on its right-hand driving lamps output.

Left Ind Short: shows whether the ISM is detecting a short-circuit fault on its left-hand indicator output.

Right Ind Short: shows whether the ISM is detecting a short-circuit fault on its right-hand indicator output.

Ind Bulb Fail: shows whether the ISM has detected a single bulb failure on either indicator output.

Ind Open Circuit: shows whether the ISM has detected there is an open-circuit one or both of its indicator outputs.

Chnl x Up Inhibit: shows whether the ISM is inhibiting Up movement in a particular channnel, as a result an external inhibit. The sourse of the inhibit will depend on the system setup and programming.

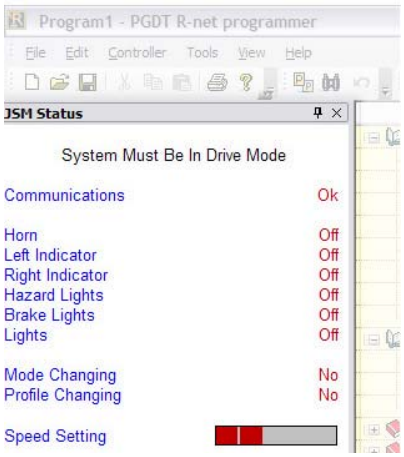
Chnl x Dn Inhibit: shows whether the ISM is inhibiting Down movement in a particular channnel, as a result an external inhibit. The sourse of the inhibit will depend on the system setup and programming.

Inhibit 4: shows which Band* the ISM's Inhibit 4 input is in.

Inhibit 5: shows which Band* the ISM's Inhibit 5 input is in.

* For more information on Bands, refer to help topic "Inhibits Explained". Band 0 is likely to mean an inhibit switch is closed to 0V, whereas Band 3 is likely to mean an inhibit switch is opened or not connected.

5.3 JSM Status



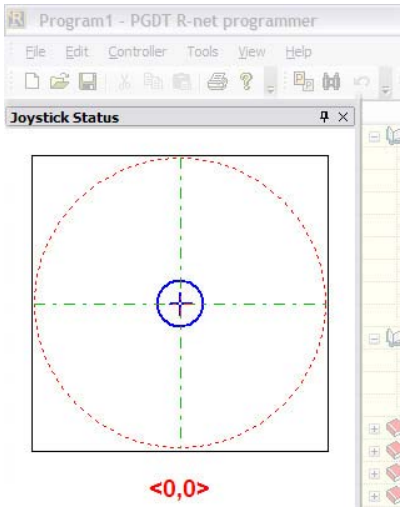
The status of the following is displayed. Note, the system must be in Drive Mode.

Communications: shows whether the JSM is communicating to other modules.

Horn: shows whether the JSM is putting a horn switch signal onto the bus.

Left Indicator:	shows whether the JSM is putting a left indicators on request onto the bus.
Right Indicator:	shows whether the JSM is putting a right indicators on request onto the bus.
Left Indicator:	shows whether the JSM is putting a right indicators on request onto the bus.
Hazard Lights:	shows whether the JSM is putting a hazard lights on request onto the bus.
Brake Lights:	shows whether the JSM is putting a brake lights on request onto the bus.
Lights:	shows whether the JSM is putting a lights on request onto the bus.
Mode Changing:	shows whether the JSM is putting a request to change Mode onto the bus.
Profile Changing:	shows whether the JSM is putting a request to change Profile onto the bus.
Speed Setting:	shows the speed setting that the JSM is putting onto the bus.

5.4 Joystick Status



This shows the joystick commands that the JSM is putting onto the bus.

6 Upgrades

If you have purchased a copy of the PGDT R-net PC Programmer you are eligible for free upgrades. This means each time a new programmable function is introduced, then you can upgrade you Programmer to the latest version.

The procedure below is for Generic Programmers purchased directly from PGDT.

If you have purchased a Wheelchair Manufacturer's specific R-net PC Programmer please refer to your supplier for upgrade details.

To qualify for free upgrades, you need to send the following information to ftprequest@pgdt.com:

- Your name
- Your address
- Your organization (the organization which originally purchased the PC Programmer)
- Product type - this is the number, Dxxxxx/x, which is located on the packing box.
- Product serial number – this is the number, *Hxxxxxxx*, which is located on the packing box.

Once qualification has been recognized you will be sent an Email containing a unique username and password.

This username and password allows you to access the latest software via the www.pgdt.com website.

This is achieved as follows:

- Upon entering www.pgdt.com site navigate to http://www.pgdt.com/scenter/secure/index.html.
- This is the Customer Download page.
- Select the Relevant Program type folder. i.e. R-net – Dealer from the list.
- Click on the link and enter your Username and Password when prompted.

You can check the version of software you have currently installed on your PC by using the About Box in the Help pull-down menu of the Programmer.

- Double-click on the .exe file to start the download.
- Follow the instructions within the Zip wizard.

Each upgrade will have a new Electronic Manual specific to that version within the self-extracting Zip.