

# TANNOY®



## Owners Manual

VNET™ SC1

\* VNET™ SC1 (network enabled)



## DISPLAY

The LCD displays preset and parameter information. The default screen is shown after start up and displays the number and name of the current preset on the lower line of text. When navigating around the adjustable parameters, other information is shown.

## CHANNEL SELECT BUTTONS

The currently selected input or output channel is shown in the top left corner of the display. Pressing the channel select buttons scrolls through the available inputs and outputs. If operating stereo linked the channel pair is shown. For example 'CH A+B' means both input A and B parameters.

## EDIT SELECT BUTTONS

The name of the edit parameter page is displayed in the bottom left portion of the LCD. Pressing the edit select buttons moves through the available parameter pages for the current input or output.

## PARAMETER KNOBS

Up to three parameters are shown on the display. The parameter name is shown with its' current value below. Where appropriate, parameters are grouped according to function. For example the parametric equalisation page shows centre frequency, width and gain. Turning a parameter knob clockwise will increase the value of a parameter, turning anti-clockwise will decrease it. Turning a knob rapidly will cause the action to 'accelerate', so the value changes more rapidly.

## MUTE BUTTONS

The LEDs next to the mute buttons indicate their current status. Pressing a mute button toggles between the mute on and off.

## STORE BUTTON

The unit has 45 preset locations. To store a preset in a location, press the store button and use the parameter knobs to select the preset location and name the preset. Pressing the store button again completes the task. Pressing any button other than store during the process cancels the procedure.

## RECALL BUTTON

To recall a preset, press the recall button and use parameter knob A to select the required preset. Pressing the recall button again will activate the preset. You will then be asked to confirm by pressing recall once more. As with the store function, pressing any button other will cancel the process.

- 3. IMPORTANT SAFETY INSTRUCTIONS**
- 5. PRODUCT FEATURE IDENTIFICATION**
- 7. ACCESSORIES**
- 8. HARDWARE OPERATION**
- 16. SOFTWARE INSTALLATION**
- 18. SOFTWARE OPERATION**
- 24. PRODUCT DIMENSIONS**
- 25. TECHNICAL SPECS**
- 26. EQ AND FILTER RESPONSE GRAPHS**
- 27. WARRANTY STATEMENT**
- 29. DECLARATION**

**IMPORTANT SAFETY INFORMATION**

The lightning flash with an arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

**IMPORTANT SAFETY INSTRUCTIONS**

- 1 Read these instructions.
- 2 Keep these instructions.
- 3 Heed all warnings.
- 4 Follow all instructions.
- 5 Do not use this apparatus near water.
- 6 Clean only with dry cloth.
- 7 Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8 Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
- 9 Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- 11 Only use attachments / accessories specified by the manufacturer.
- 12 Use only with the cart, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over.
- 13 Unplug this apparatus during lightening storms or when unused for long periods of time.
- 14 Refer all servicing to qualified service personnel. Service is required when the apparatus has been damaged in any way, such as power-supply cord or plug damaged, liquid has been spilled or objects have fallen into the apparatus, this apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

**SAFETY WARNING**

Permanent disconnection from the mains supply is to be achieved by removing the supplied cord connector from the back of the unit.

**SAFETY WARNING**

Do not remove any covers, loosen any fixings or allow items to enter any aperture.

**SAFETY WARNING**

Objects filled with liquids should not be placed on this apparatus.

**AVERTISSEMENT DE SECURITE**

Pour déconnecter l'appareil de l'alimentation principale de façon permanente, débranchez le connecteur du câble fourni à l'arrière de l'appareil.

**AVERTISSEMENT DE SECURITE**

Ne retirez pas les couvercles, ne desserrez pas les fixations et ne laissez aucune pièce s'introduire dans les ouvertures.

**AVERTISSEMENT DE SECURITE**

Ne placez pas d'objets contenant du liquide à proximité de l'appareil.



## INSTALLATION INSTRUCTIONS

- 1 THIS PRODUCT MUST BE EARTHED.
- 2 Only use attachments and accessories approved by or specified by Tannoy.

## FOR CUSTOMERS IN EUROPE

This product complies with both the LVD (electrical safety) 73/23/EEC and EMC (electromagnetic compatibility) 89/336/EEC directives issued by the commission of the European community.

Compliance with these directives implies conformity with the following European standards:

EN60065	Product safety
EN55103-1	EMC emissions
EN55103-2	EMC immunity

This product is intended for the following electromagnetic environments: E2; E3 & E4. Environment E1 (domestic) is specifically excluded.

## FOR CUSTOMERS IN THE USA & CANADA

This product has been tested for electrical safety and complies with:

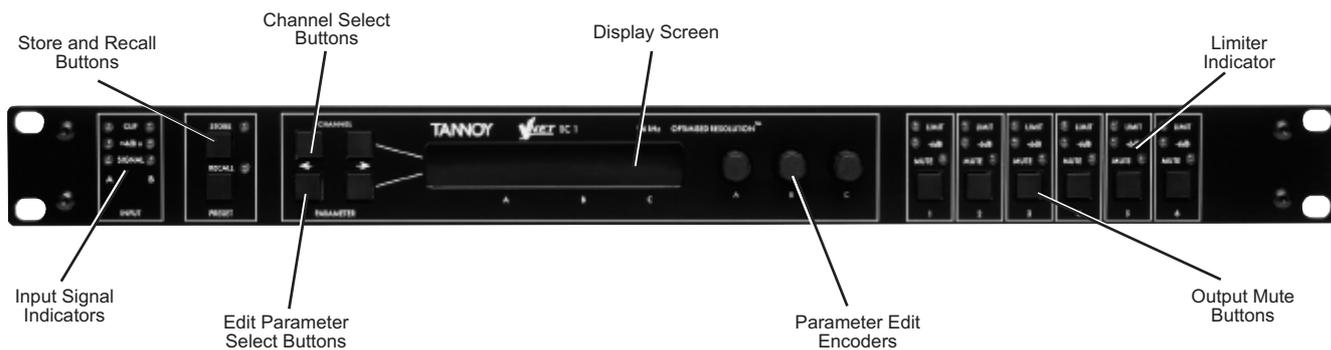
UL60065 7th edition  
CA /CSA C22.2 No.60065-03

## EMC

This equipment has been designed to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Industry Canada Class A emission compliance statement: This Class B digital apparatus complies with Canadian ICES-003. Avis de conformité a' la réglementation d'Industrie Canada. Cet appareil numérique de classe A est conforme a' la norme ICES-003.

**FRONT PANEL**



**INPUT SIGNAL INDICATORS**

A set of three pairs of LEDs indicate signal present, +4dBu and input clip for each channel. The signal present LEDs operate at approximately -40 dBu, giving a useful indication of even relatively low input signal levels. The +4 dBu LEDs are intended to show nominal operating level and can also be useful for setting system gain structure. Clip LEDs warn the user of input overload and operate at +19 dBu.

**STORE AND RECALL BUTTONS**

These controls provide access to the 45 presets stored within the device. Pressing the store button allows the user to name a preset and choose which memory location it will be held in. Pressing store button again completes the process. The Recall function operates in a similar way, pressing the recall button allows the user to select which preset they require, pressing the button for a second time, then confirming, recalls the new DSP settings.

**Note that presets cannot be stored or recalled when Secure mode is activated.**

**CHANNEL SELECT BUTTONS**

The currently selected channel is displayed on the top left hand corner of the LCD. Pressing the channel buttons scrolls through the available input and output channels and finally through the utility functions and back to the default screen. If operating a stereo linked preset, the channel name will indicate the channel pairing. For example 'A+B' means both input A and B parameters. The name of the output will be shown briefly at the top of the display when stepping onto an output.

**EDIT PARAMETER SELECT BUTTONS**

The currently selected edit parameter page is displayed on the bottom left corner of the LCD. Pressing the edit select buttons moves through the available parameters for the current input or output.

**DISPLAY SCREEN**

Preset, channel, parameter and status information is shown on the 2x 24-character text display. In most screens the currently selected channel is displayed on the upper line and the edit parameter on the lower line. To simplify the display and enhance security, some parameters or parameter pages are omitted when not relevant.

**PARAMETER EDIT ENCODERS**

Three velocity sensitive parameter knobs are used to adjust parameters shown on the display. Up to three parameters at a time are displayed on the screen. The parameter name is shown above the parameter value in each of the three screen sections. The parameter knobs have a fixed association with the screen sections; the rightmost parameter knob adjusts the rightmost parameter and so on.

**LIMITER INDICATOR**

Two LEDs are provided for each output channel. These show the signal level relative to the limiter threshold. The yellow LED will light when the signal is 6dB below the threshold and the red warning LED will light when the limiter threshold is reached.

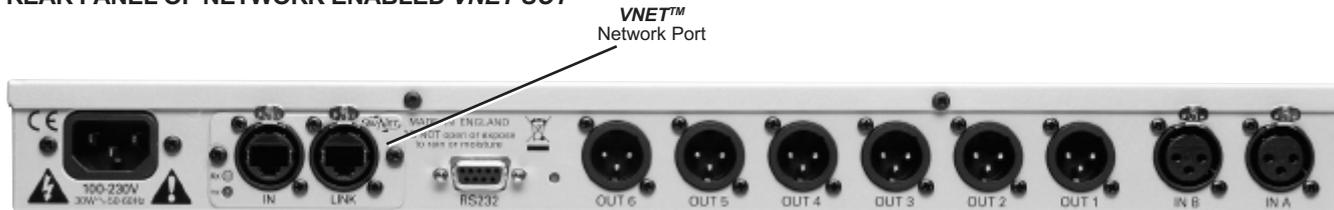
**MUTE BUTTONS**

Each output has a mute button and associated mute status LED. Pressing the button toggles the mute on and off. Note that the mute buttons do not function when the Secure mode is activated.

## REAR PANEL OF STANDARD VNET SC1



## REAR PANEL OF NETWORK ENABLED VNET SC1



### POWER INLET

The Tannoy **VNET SC1** unit should be connected to a suitable mains electricity supply using the cable supplied. The processor has a switch mode power supply that is capable of operating with a nominal mains voltage of 85V to 240V, 50/60Hz without re-configuration.

### VNET NETWORK PORT (ON NETWORKED ENABLED VNET™ SC1 ONLY)

The network enabled **VNET SC1**'s feature two VNet network ports. This allows for connection to any **VNET™** system.

### AUDIO INPUT CONNECTORS

All audio connections are fully balanced and wired pin-1 ground, pin-2 hot & pin-3 cold. The two inputs have pin-1 connected directly to the chassis and feed the signal processing chains. If an unbalanced source is used, a connection should be made between the pin-3 'cold' signal and the ground connection of the unbalanced source.

### AUDIO OUTPUT CONNECTORS

The processed outputs are impedance balanced, and wired pin-1 ground, pin-2 hot and pin-3 cold. An unbalanced input may be driven by connecting pin-3 'cold' signal to the ground connection of the unbalanced destination input. Note that output pin-1's are ground lifted at audio frequencies but connected to ground at RF for good EMC performance. The intention being that the amplifiers the processor is driving should be responsible for the grounding of their input cable shields.

### COMMUNICATIONS PORT CONNECTOR

annoy **VNET™ SC1** processors may be controlled entirely from another controller, typically a Personal Computer, running **VNET™** Software. Connection will normally be made to the controller via this serial port connector. This port is also used for updating the firmware in the unit.

**Note that the communications port is NOT disabled when the front panel is made secure using the secure button.**

### SECURE MODE SWITCH

A momentary button is fitted behind the rear panel, between the output XLRs and the RS232 port. When activated, this will disable all the front panel controls so they cannot affect the signal path, making the unit secure against tampering. When in secure mode, the indicators still operate normally and the menu can still be navigated to allow viewing of parameters. Pressing this button again will take the unit out of security mode.

Note that the communications port is still active in secure mode.

ACCESSORIES

**OPTIONAL VNET™ INTERFACE**

The rack-mountable VNet interface allows for communication between a **VNET™** network and computer.

If communicating with a non-networked SC1 direct communication via the PC & SC1 can be made with a standard serial lead, or USB-RS232 cable.



**OPTIONAL VNET INTERFACE POWER SUPPLY**

The PSU is only required when communication with a **VNET™** network is by RS232.



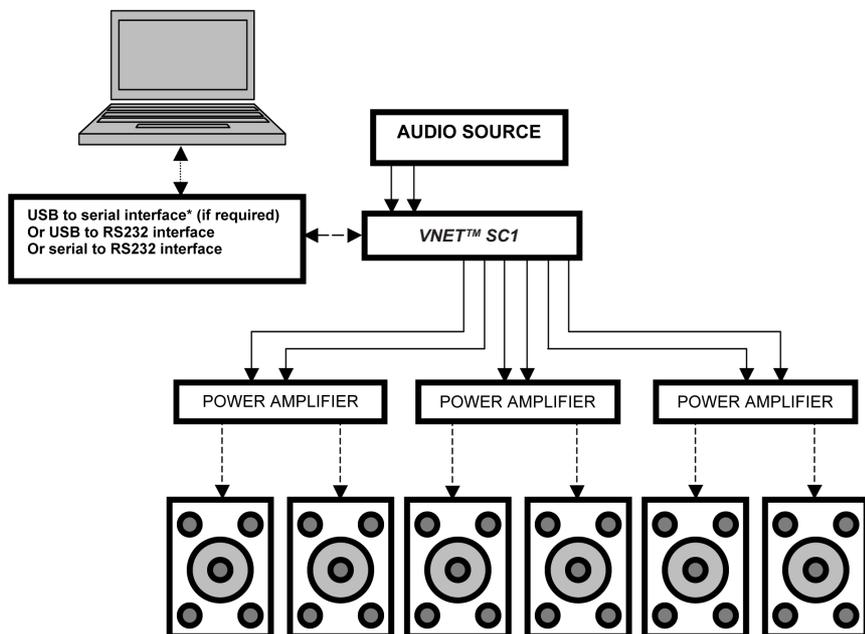
**OPTIONAL RACK MOUNT KIT**

This 1U bracket allows you to rack mount up to three **VNET™** interface accessories in a standard 19" equipment rack.

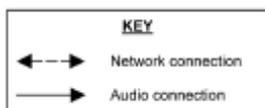


**CONNECTING THE VNET™ SC1**

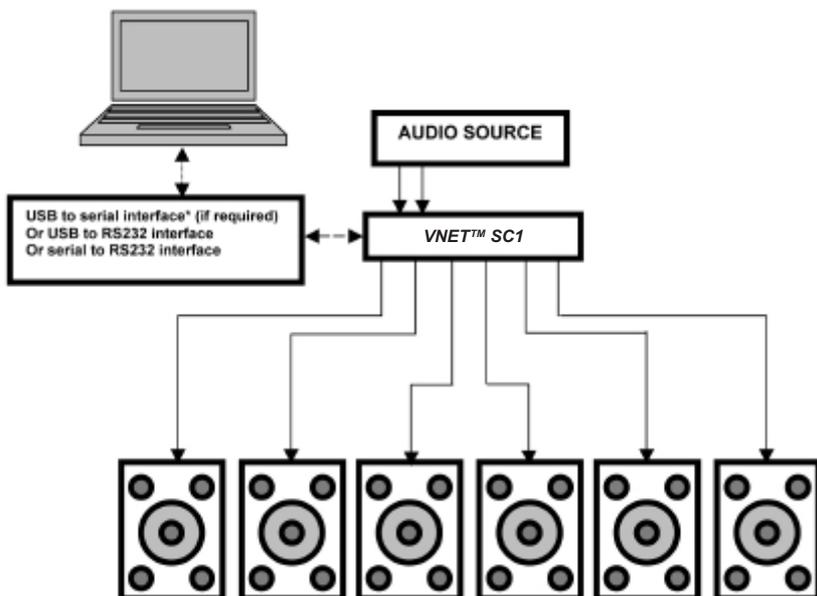
**Example 1:** Using a Tannoy VNET™ SC1 with a passive loudspeaker system (e.g. Tannoy V-Series™)



\* USB to Serial interface allows networking of multiple VNET speakers or SC1 controllers



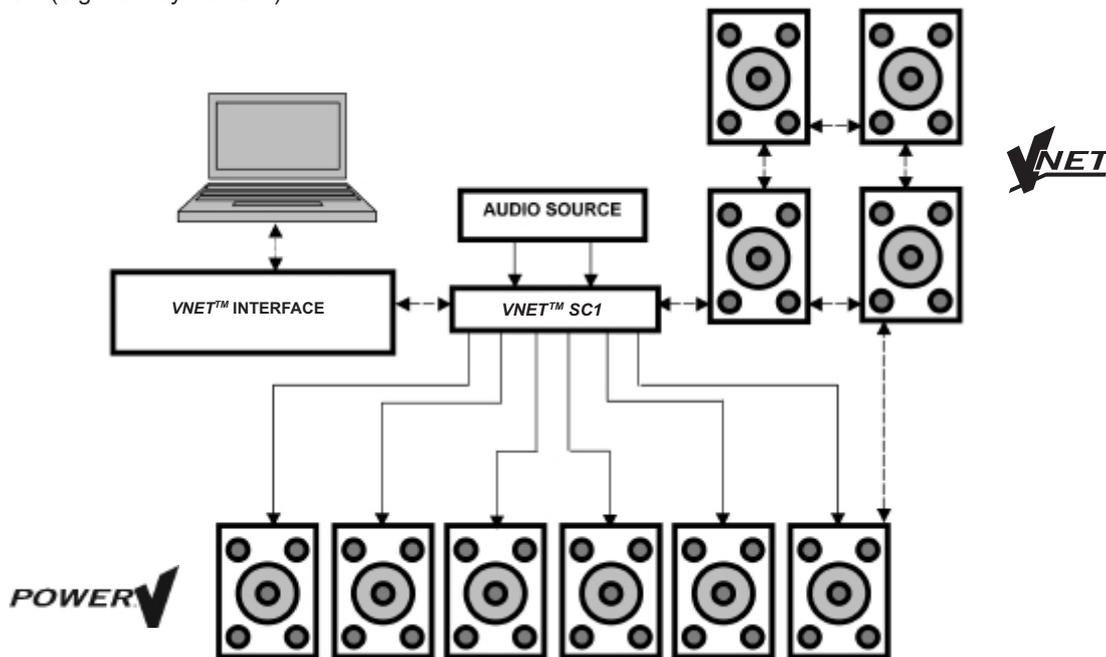
**Example 2:** Using a Tannoy VNET™ SC1 with a powered loudspeaker system (e.g. Tannoy PowerV™)



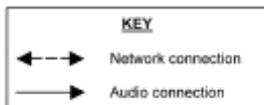
\* USB to Serial interface allows networking of multiple VNET™ speakers or SC1 controllers



**Example 3:** Using a network enabled **VNET™ SC1** to combine an existing Tannoy **VNET™** system with another loudspeaker system (e.g. Tannoy PowerV)



\* The **VNET™** interface allows networking of multiple **VNET™** speakers or **SC1** controllers



**STARTING UP**

The unit will energise as soon as power is applied to the IEC inlet; there is no power switch. During the start up process the firmware application model number and version numbers are displayed and the outputs are muted until the unit has completed its internal checks. Once the start-up routines are complete and the unit is ready to pass audio. The DSP signal path will be restored to the current settings when it was last powered down and the audio signal is gradually ramped up to its correct level.

**CREATING A CROSSOVER**

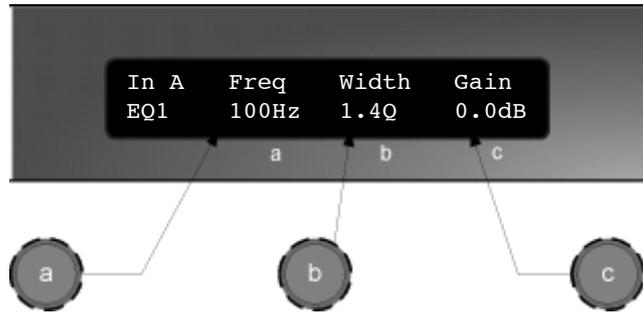
The unit has two 'Base Presets'; mono and stereo. These Base Presets are stored in locations 1 and 2 respectively; they can be used to develop settings for any loudspeaker combination. They are recalled in the following way:-

Press Recall and use the left hand parameter knob A to scroll through the available base preset locations (as indicated by a box symbol after the preset number). Once the appropriate base preset has been selected press recall again, at which point you will be asked to confirm the action by pressing recall for a third time. This is to guard against accidental recall of presets.

The base presets are also locked but the user can name and store their own edited versions in any free preset location.

## NAVIGATION AND VIEWING PARAMETERS

Many of the processing elements in each input and output path have features that may be controlled by the user, such as gain, frequency or limiter threshold. We call these adjustable features parameters.



A parameter may be adjusted when it is displayed by turning one of the three-parameter knobs. Each of the three-parameter knobs is associated with a zone on the display. Adjusting the leftmost parameter knob will change the value of the parameter showing in the leftmost zone of the display and so on. Turn a knob clockwise to increase the value of a parameter, or anti-clockwise to decrease it. The knobs are velocity-sensitive so turning a knob rapidly will cause the action to 'accelerate', so the value changes more rapidly.

## NAVIGATION

The DSP parameters are organised by channel. The currently selected channel is shown in the top left hand corner of the display. You can navigate between the channels by pressing the channel buttons. Pressing the channel buttons will scroll through the channels, utilities and back to the default screen. When using a Preset that is stereo linked, the channel selection will reflect this. For example '1&4' indicates outputs 1 and 4. When navigating onto an output channel, the usage of the output, as define in the Factory Preset, will be shown briefly at the top of the screen.



Pressing the edit navigation buttons gives access to the various pages of parameters available for each channel. The currently selected page is shown in the bottom left hand corner of the display, this is omitted on some pages where the function is obvious. The screen shows up to three (normally related) parameters for a given part of the processing functions on a given channel.

The edit buttons allow you to scroll, in either direction, through the different processing pages for a given Channel. When you go past the last page, you will be returned to the default page.

The channel buttons allow you to scroll, in either direction, through the input and output channels, whilst trying to maintain the currently viewed processing block. If the channel you scroll to does not have the currently viewed processing block, the next one will be shown instead.

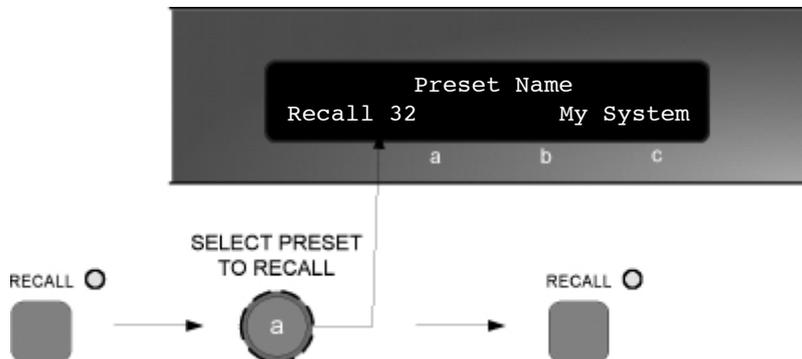
**NB. When the unit powers-up, the settings will be the same as those when the unit was last switched off.**

**PRESETS**

The device contains a total of forty-five user and Factory Presets. The user cannot overwrite the basic mono or basic stereo base presets.

**PRESET RECALL**

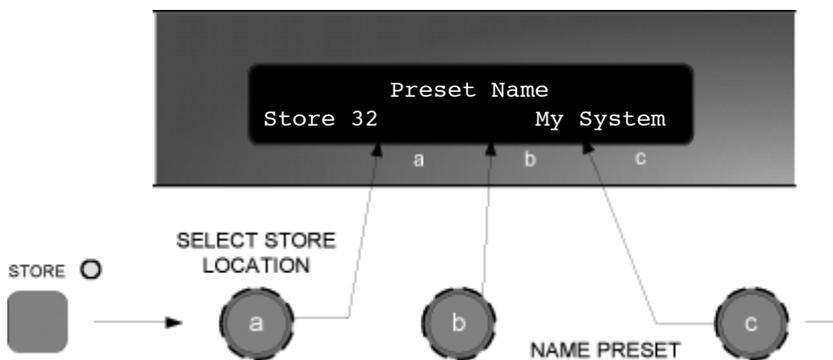
To select an existing preset, press the Recall Button so the indicator above it illuminates. Turn parameter knob A until the required preset number is shown on the display. Press the Recall Button again to activate the Preset. Pressing any other button will cancel the operation.



Users can develop their own preset based on one of the base presets stored within the device. Once a basic or user Preset has been recalled, a user has complete freedom to adjust any or all of the parameters.

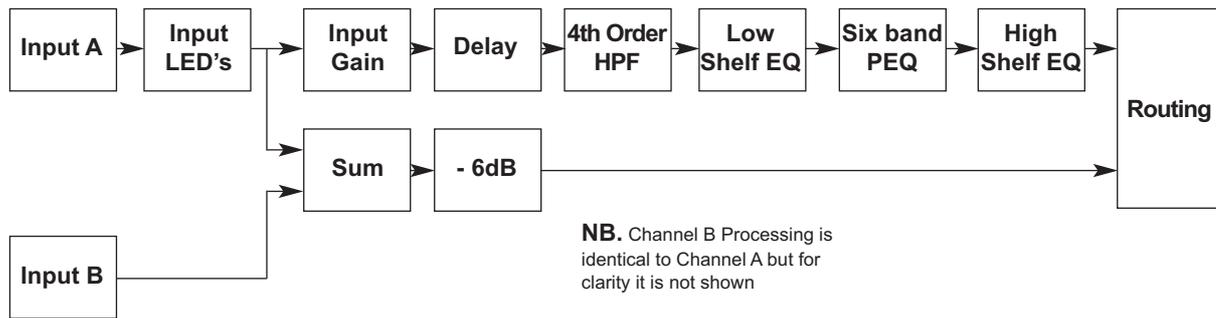
**PRESET STORE**

To store the current Preset in a user location, press the Preset Store Button so the indicator above it illuminates. Turn the first parameter knob until the required Preset location number is shown on the display. A Preset name of up to 12 characters in length can be entered using parameter knobs B and C. Pressing the Store Button again completes the process and stores the Preset. As with Preset Recall, pressing any other button cancels the operation.



The user can overwrite non-protected Presets only; if an attempt is made to save a Preset in a location already occupied by a basic or Factory Preset a 'LOCKED PRESET' message is displayed.

## DSP PROCESSING INPUT DSP BLOCK DIAGRAM



## OUTPUT DSP BLOCK DIAGRAM



## STEREO / MONO FORMATS

There is only one 'standard' layout of the processing blocks, but flexible routing and control linking allows this layout to be adapted to a wide variety of applications.

There are two 'Formats', Mono or Stereo. With the Mono format, all outputs have unique parameter settings, and all outputs are identical in terms of processing functions and routing capability. This is the most flexible Format.

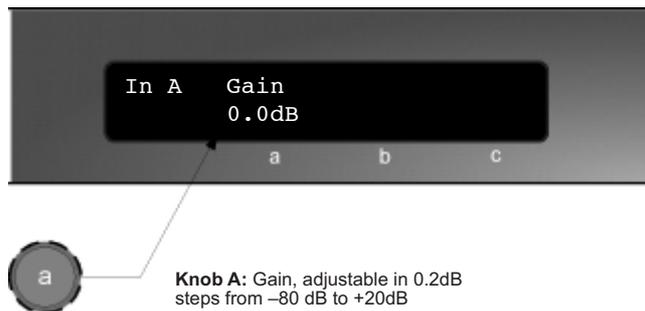
Stereo format pairs the inputs and outputs for stereo operation, the parameters of each member of the pair being identical. The routing of inputs to outputs is fixed. This format is intended for symmetrical stereo operation, eliminating the need to make identical parameter adjustments for each channel.

The channel pairing is:

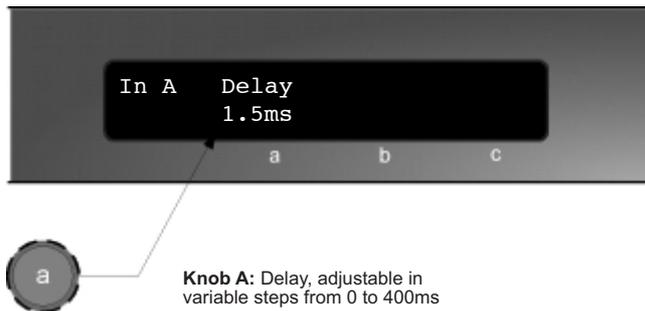
- Left and Right Inputs
- Outputs 1 (routed from L input) and 3 (routed from R input)
- Outputs 2 (routed from L input) and 4 (routed from R input)
- [Outputs 3 (routed from L input) and 6 (routed from R input)]

**INPUT CHANNELS**

**Gain**

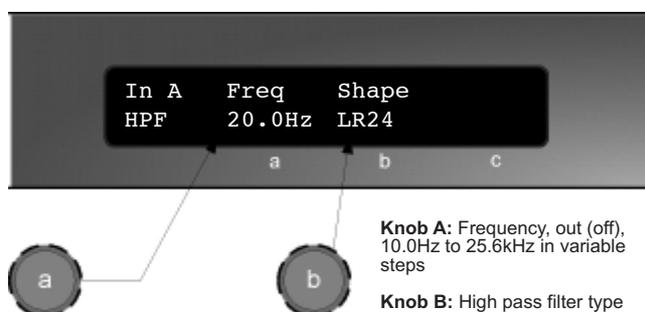


**Delay**



The delay parameter is adjustable in fine steps at low values; the adjustment becomes progressively coarser as the value increases. The velocity sensitive Parameter Knobs therefore provide accurate setting of driver offset delays (typically below 10ms) and rapid setting of longer system alignment delays.

**High Pass Filter**



System high pass filtering is provided for the input signal. This is the preferred location for high pass filtering as it affects all outputs and can therefore improve inter-band phase relationships. Filter type is selectable from Butterworth, Bessel, Linkwitz-Riley and Hardman. Filter slopes of up to 4th order or 24dB / octave are provided. Not all filter types are available in all slopes. For example 18dB / octave Linkwitz-Riley filters do not exist.

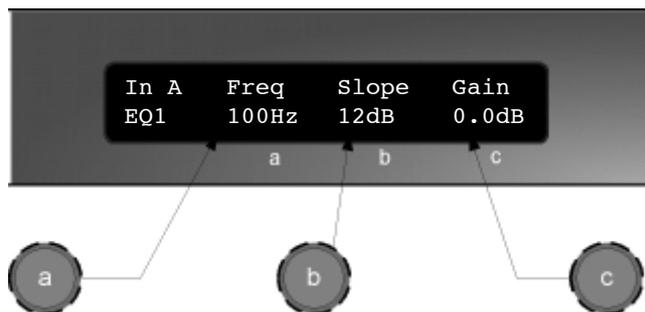
The Hardman type filter is always described by its' order as the filter becomes progressively steeper rather than following a linear slope so a dB/octave description is not accurate.

**Parametric Equalisation**

Eight sections of equalisation are provided, two shelving filters and six fully variable parametric sections.

**High and Low shelving filters**

The frequency is specified as point where the filter deviates by 3dB from the gain value.

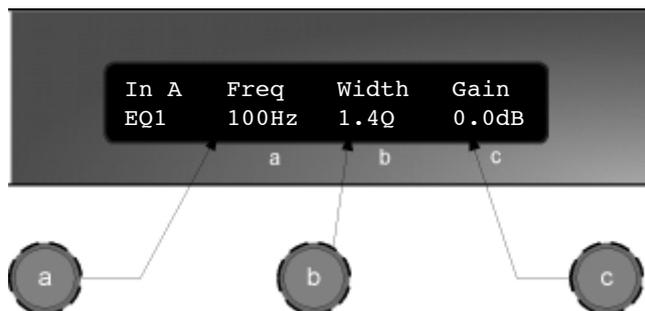


**Knob A:** Frequency, 10.0Hz to 25.6kHz in variable steps

**Knob B:** Slope, 6 to 12dB / octave in 1dB steps

**Knob C:** Gain, +/-15dB in 0.2dB steps

**Parametric filters**



**Knob A:** Centre Frequency, 10.0Hz to 25.6kHz in variable steps

**Knob B:** Width, display selectable, Q or BW (Bandwidth)

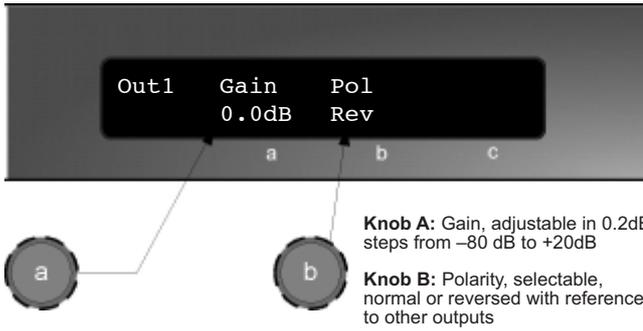
- BW adjustable from 0.05 to 5 octaves in variable steps

- Q adjustable from 14.2 to 0.2 in variable steps

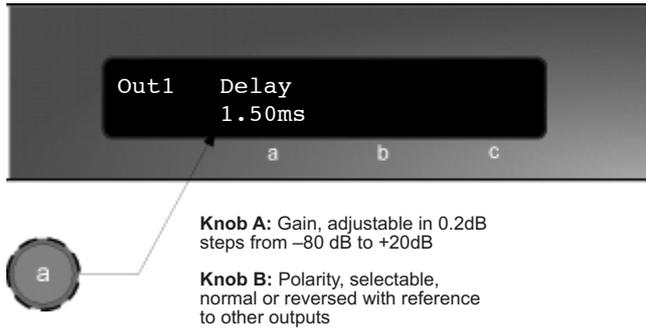
**Knob C:** Gain, +/-15dB in 0.2dB steps

## OUTPUT CHANNELS

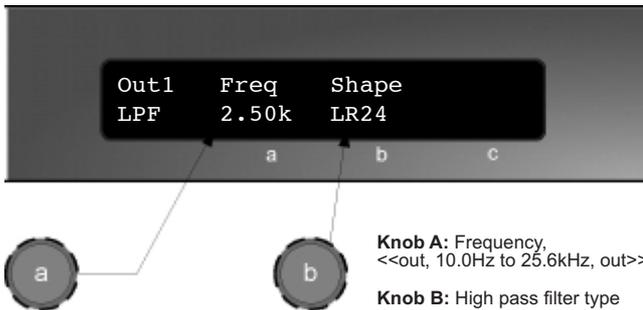
### Gain and Polarity



### Delay



As for input delay, velocity sensitive Parameter Knobs provide finer adjustment at low levels and rapid selection of higher values.



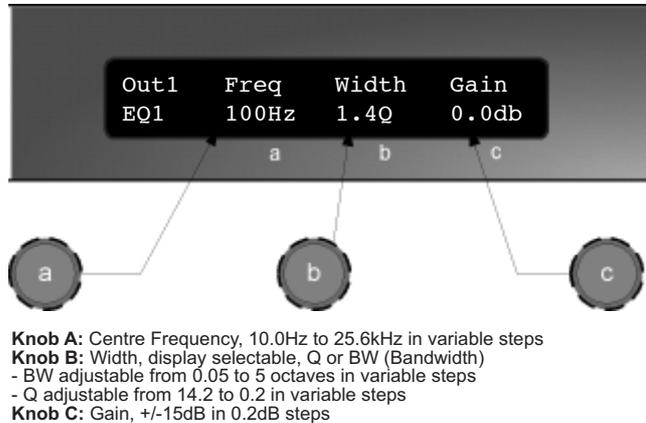
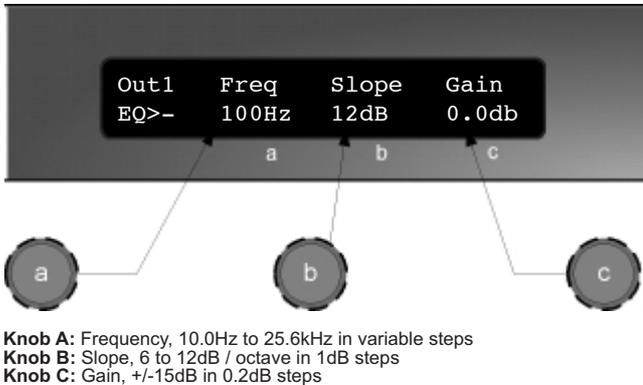
### High and Low Pass Filters

Filter type is selectable from Butterworth, Bessel, Linkwitz-Riley and Hardman. Filter slopes of up to 8th order or 48dB / octave are provided. Not all filter types are available in all slopes. For example 18dB / octave Linkwitz-Riley filters do not exist.

The Hardman type filter is always described by its' order as the filter becomes progressively steeper rather than following a linear slope so a dB/octave description is not accurate.

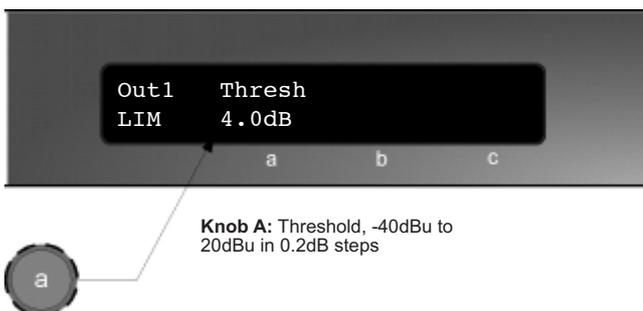
## PARAMETRIC EQUALISATION

Eight sections of equalisation are provided in a similar format to the input channel equalisation; two shelving filters and six parametric. The frequency is specified as point where the filter deviates by 3dB from the gain value.



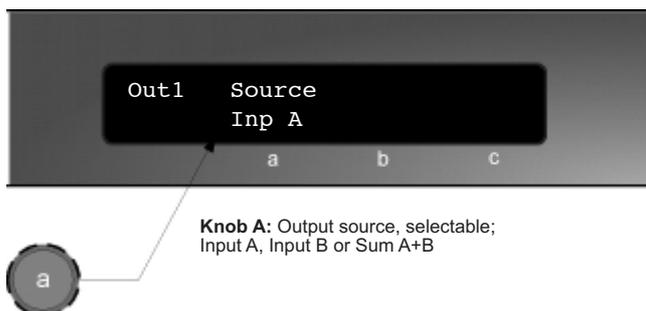
### Limiters

A high performance, low distortion limiter is provided on each output. Threshold is user adjustable; all other parameters are carefully calculated dependant on configuration to provide clean and effective control of signal dynamics.



### Routing

Configures the routing from input to output. This function is only available in mono format Presets.

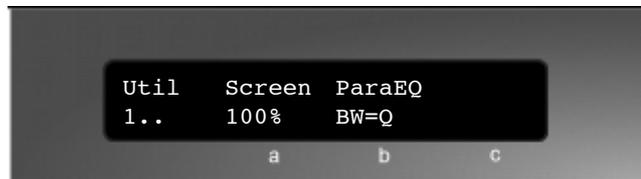


## UTILITIES

Three utility functions are provided to adjust screen contrast, the display units used for parametric equalisation bandwidth and switch between stereo and mono mode.

The device automatically adjusts for the variations in display contrast as the temperature of the LCD changes. The screen contrast utility control sets the base contrast of the screen and also allows optimization for a given viewing angle.

Parametric equalisation width parameters can be displayed in either 'Q' or bandwidth, expressed in octaves.



Care should be taken when swapping between mono and stereo mode as the parameter set for the left hand channels will be copied to the right hand side, overwriting those settings. This is not reversible and could represent quite a significant and potentially damaging change to the processing.



The enclosed disc contains the Podware software package; a comprehensive editor, interface, & diagnostics tool for the **VNET™** range of products.

Check the Tannoy website for any updates <http://www.tannoy.com>

The disk should 'AUTORUN', if not open the 'Podware' folder & double click on the 'Setup.exe' icon. Your PC will need to have the Windows .NET Framework installed. If it does not, you will be directed to the necessary location to do so •[http://msdn.microsoft.com/netframework/downloads/framework1\\_1/](http://msdn.microsoft.com/netframework/downloads/framework1_1/)  
The .NET Framework is also on your installation CD.

#### WHAT IS THE .NET FRAMEWORK?

The .NET Framework is an integral Windows component for building and running the next generation of software applications and Web services. The .NET Framework:

Supports over 20 different programming languages.

Manages much of the plumbing involved in developing software, enabling developers to focus on the core business logic code.

Makes it easier than ever before to build, deploy, and administer secure, robust, and high-performing applications.

The .NET Framework is composed of the common language runtime and a unified set of class libraries.

You can check to see if you already have the .NET Framework 1.1 installed by clicking **Start** on your Windows desktop, selecting **Control Panel**, and then double-clicking the **Add or Remove Programs** icon. When that window appears, scroll through the list of applications. If you see Microsoft .NET Framework 1.1 listed, the latest version is already installed and you do not need to install it again.

#### COMPUTER SYSTEM REQUIREMENTS:-

Microsoft® Windows® 98

Microsoft® Windows® 98 Second Edition

Microsoft® Windows® Millennium Edition

Microsoft® Windows NT® 4.0 Workstation with Service Pack 6.0a or later

Microsoft® Windows NT® 4.0 Server with Service Pack 6.0a or later

Microsoft® Windows® 2000 Professional

Microsoft® Windows® 2000 Server

Microsoft® Windows® 2000 Advanced Server

Microsoft® Windows® 2000 Datacenter Server

Microsoft® Windows® XP Home Edition

Microsoft® Windows® XP Professional

Microsoft® Windows® Server 2003 family

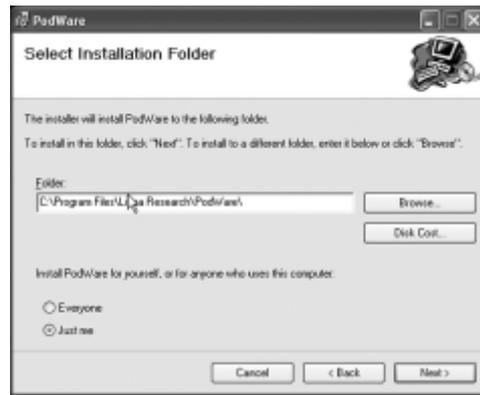
**Note: On all these systems, Microsoft® Internet Explorer 5.01 or later and Microsoft® Windows® Installer 2.0 or later are also required.**

#### HARDWARE REQUIREMENTS:-

Scenario	Required processor	Recommended processor	Required RAM	Recommended RAM
Client (Windows Forms and Windows Services)	Pentium 90 MHz*	Pentium 90 MHz or faster	32 MB*	96 MB or higher
Server	Pentium 133 MHz*	Pentium 133 MHz or faster	128 MB*	256 MB or higher

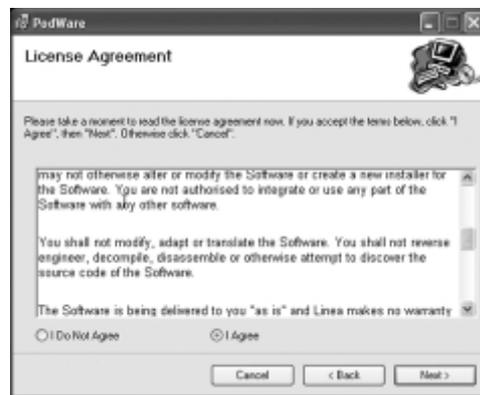
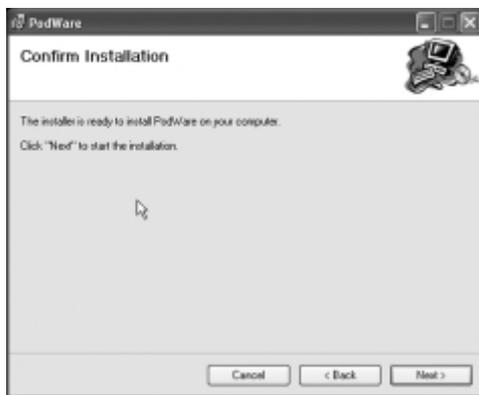
\*Or the minimum required by the operating system, whichever is higher.

**INSTALLING THE SOFTWARE FROM THE CD**



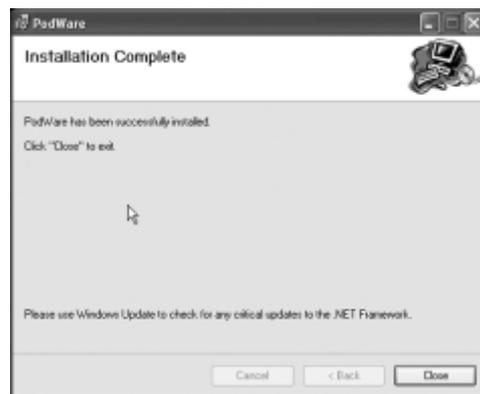
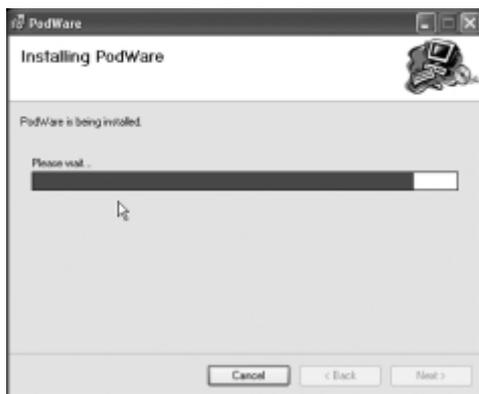
1. Exit all running programmes & insert the CD. Open the CD contents & Double click on the 'Setup.exe icon. The welcome screen will appear. Click <Next>

2. Select your destination Folder. Click <Next>



3. Confirm Installation. Click <Next>

4. If you accept the licence agreement check 'I Agree' and Click <Next>



5. The programme will begin installing

6. Installation Complete

## MENUS

The menu system is arranged like so (FIG.1):

### File

- Open** opens a file which contains parameters for the device
- Save** saves the current settings in the current file name
- Save As** saves the current settings under a new file name
- Exit** closes the application

### Device

- Update update device firmware (requires loader utility)

### Network

- Go Online** allows communication with devices on the network
- Go Offline** stops communication with devices on the network
- Port** allows you to select which serial COM port you wish to use

### Help

- Help topics** opens the help file (in your HTML viewer)
- About this Application** shows copyright and version information

*Some of these menu items have short-cuts using toolbar buttons. See 'Toolbar'*

## TOOLBAR

The toolbar provides the following one-click functions:

- Open** Opens a file which contains parameters for the device. A dialogue will appear, inviting you to choose a file to open.
- Save** Saves the current settings. If you have previously opened or saved a file, the configuration will be saved in the same file name, otherwise, a dialogue will appear inviting you to enter a file name.  
  
If the settings have not changed since you last saved or opened a file, the Icon will appear greyed out, indicating that a save is not necessary.
- Online** Goes online/offline to/from the network. If a device cannot be found, an error will be reported. While PodWare remains on-line, this toolbar button is coloured green. It is red when off-line.

If you place the mouse cursor over a toolbar, text fill appear describing the action of the button. If this text does not show, click on the panel background.

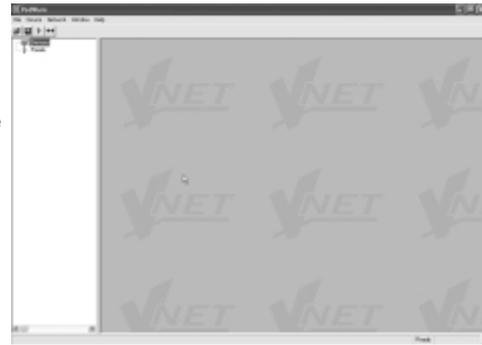


FIG 1

PodWare communicates with **VNET™** using a serial 'COM' port as a 'network' connection. When a network connection is open and actively connected to a compatible device, the system is said to be 'On Line'. Whilst On-line, you can control the connected device in 'real time', and continuously receive status information from the device. When going online, the application will take a few seconds while it copies the settings in the device to the control panel. (See **parameter synchronisation**)

To go On-line, you can either select Device/Online from the menu, or press the Online toolbar button, which is a red triangle. If all is well, the triangle will turn green, indicating that you are '**On-line**'. You can however operate your system without going On-line. You can send the current controls settings to a device using Device/Send (See **Menus**), or by clicking the Send toolbar button (see **Toolbar**). These actions clearly still require a network connection to be present.

Only the network enabled version of the **VNET™ SC1** (i.e. the **VNET™ SC1** with with **VNET™** network card pre-installed) can be controlled in conjunction with other **VNET™** devices.

**PARAMETER SYNCHRONISATION**

PodWare aims to always ensure that the control settings in the virtual control panel are always a faithful representation of the settings in the connected device. To achieve this, the parameters in the device are copied to the control panel when going online. This takes a few seconds to complete (see **Communications**). Whilst online, any changes to the control settings will result in changes in the stored parameters in the devices, thus retaining synchronisation. When a file is opened online, the new settings are not only set in the control panel; they are also transferred to the device.

**CONTROLLING DEVICES**

When 'online' the tree menus will show the connected **VNET™** speakers or SC1's on the network (FIG 2). Double clicking on the model on the tree view will open the control panel for each respective device (FIG 3). Each 'open' panel will also appear on the tree view under 'panels'. When online, Podware gathers information from the connected devices. Any parameters which have been adjusted by the user in previous sessions will be shown.

Each control panel can be positioned on the screen to represent its actual location position in the venue. When saving data the control panels' co-ordinates are also saved so that it appears in the same location on the screen when data is recalled (see **saving & recalling data**)

The panel shown on FIG 3 allows you to view what is going on inside the **VNET™** product. Input level meters and output limiter meters which indicate the signal relative to the limiter threshold setting. Preset status is also shown (FIG 3).

The arrow button (>>) at the top right hand side of the control panel will 'expand' the control panel to reveal a host of parameters which can be viewed & adjusted (FIG 4).

The device properties panel has an editable device name - this will appear in the tree menu after editing. Each panel will in addition have a complete set of controls relating to the adjustable parameters within the device (press the **CROSSOVER** tab to access this section). Each control will contain the current parameter value (see **parameter synchronisation**). Single parameters may be adjusted 'live' whilst 'On-line' (FIG 5).

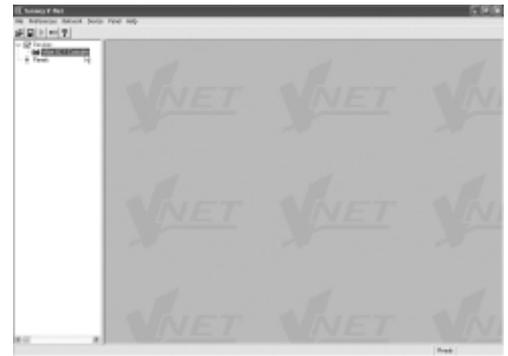


FIG 2

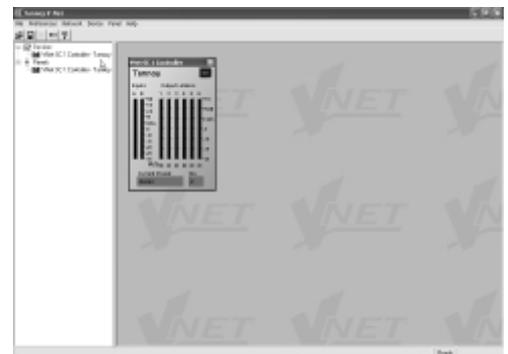


FIG 3

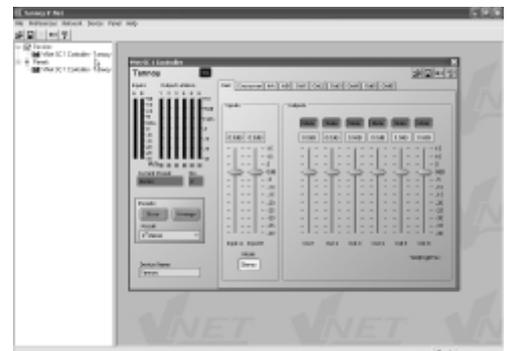


FIG 4

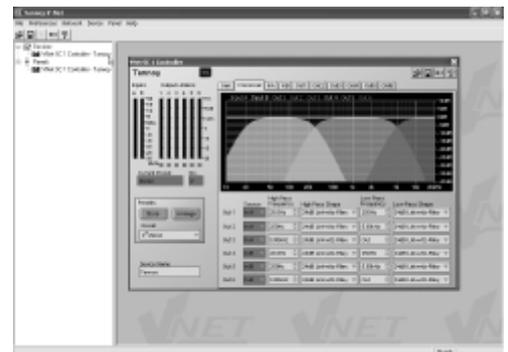


FIG 5

Controls have standardised properties that allow them to work in a consistent way across various control panels for different devices. Many controls will allow the mouse wheel to be used for fine adjustments, or the keyboard as an alternative (see Keyboard Shortcuts). When using the keyboard or the mouse wheel, it is necessary to have the control in question 'in focus'. You can bring a control into focus either by tabbing to it (using the Tab key), or by clicking on it with the mouse. Focus is often shown as a dotted rectangle around part of the control (FIG 6).

### INPUT CONTROL PANELS (IN A AND IN B)

There are two input control panels (one for each input; in A and in B). Bringing these panels "in focus" allows control of many input parameters including high pass and low pass filters, and up to six bands of fully parametric EQ.

### OUTPUT CONTROL PANELS (OUTPUTS 1 TO 6)

There are six output control panels (one for each output). Bringing these panels "in focus" allows control of many output parameters including limiting threshold, delay, high pass and low pass filters, and up to six bands of fully parametric EQ.

### LIMITING PARAMETERS

Note that the limiters do not require you to set the ratio, attack time or release time since they are automatically derived from the crossover frequency chosen.

### DROP-DOWN SELECTOR BOXES

These are for selecting one item from a number of possibilities in a list. Click the arrow on the right-hand end of the control to cause it to display a list of the options. Click on the text for that option to select it. If there are many options to choose from, a scroll-bar will be shown, allowing you to scroll up and down the list by clicking the scroll arrows. Note that once the control is highlighted, the PGUP, PGDWN and Arrow keys or the mouse wheel may also be used to change the selection.

### SPIN BOXES

The value would normally be adjusted by clicking on the top button to increase the displayed value, or on the bottom button to reduce the displayed value. Holding the mouse button whilst on a button will after a short delay cause the repeat mechanism to repeatedly increment or decrement the value. Alternatively, values may be typed into the value box directly. To do this, click in the value box and type in the new value. The value you type in may include a minus sign, a decimal point, and/or an engineering multiplier, such as 'k' to signify a multiplication of 1000. This may appear at the end of the typed string, or may be used instead of a decimal point (such as 6k2 to mean 6200). For the value to be accepted, you can either click outside the control (such as on another control), or press the Enter key. Once a control button is highlighted, the PGUP, PGDWN and Arrow keys or a mouse wheel may also be used to adjust the value (FIG 7).

### BUTTONS

Buttons generally have two states; depressed (active) and non-depressed (inactive). Generally, the button will apply the condition that is labelled when it is depressed. The space bar may be used to activate a highlighted button.

### FADERS

Faders provide a linearly traversing button, which may be dragged using a pressed mouse to adjust the value. These sometimes also have an associated value box for showing the numerical value of the parameter. Once the control is highlighted, the PGUP and PGDWN keys may be used for coarse adjustment, and the Arrow keys or the mouse wheel may be used for fine adjustment.

Also see (VNET™ Control Panel)

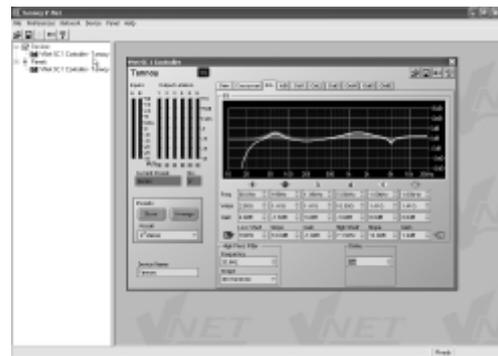


FIG 6

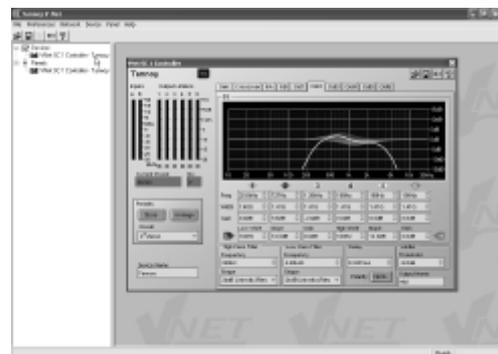


FIG 7

**DEVICE PROPERTIES**

At the top of the panel there are several pieces of information about the connected device (which are only activated when going On-line to a device):

**Model Name**

The model number (SC-1)

**Device name**

To uniquely identify the device (i.e. delay 3). This is set by the user.

Also see (*Controls and Control Panels*)

**KEYBOARD SHORTCUTS**

PodWare supports the following 'shortcuts':

Tab	Move to next control
<b>In value boxes:</b>	
CTL+C	Copy
CTL+V	Paste
CTL+X	Cut
CTL+Z	Undo
<b>On Drop-down, Spin, Push, Fader controls:</b>	
PgUp	Increase value (coarsely)
PgDown	Reduce value (coarsely)
Up/Right arrow	Increase value (finely)
Down/Left arrow	Reduce value (finely)
<b>On push-button controls:</b>	
Space	Activate

**AUDIO PROCESSING**

SC1 provides the following processing options:

- Crossover filtering with frequency variable over the range 10Hz to 25kHz (and 'Out') with the following alignments:
- 1st order
- 12dB/Octave Bessel
- 12dB/Octave Butterworth
- 12dB/Octave Linkwitz-Riley
- 18dB/Octave Bessel
- 18dB/Octave Butterworth
- 24dB/Octave Bessel
- 24dB/Octave Butterworth
- 24dB/Octave Linkwitz-Riley
- 4th Hardman
- 48dB Butterworth
- 48dB Linkwitz-Riley
- 8th Hardman

The Low band has a low-pass crossover filter, and the High band has a high-pass and a low-pass crossover filter.

- A 2nd order low-shelf filter with frequency variable over the range 10Hz to 25kHz, and boost/cut from -15 to +15dB.
- A 2nd order high-shelf filter with frequency variable over the range 10Hz to 25kHz, and boost/cut from -15 to +15dB.
- Six bands of bell (parametric) equaliser, each band having frequency variable over the range 10Hz to 25kHz, bandwidth variable from 0.1 to 5 octaves, and boost/cut from -15 to +15dB.
- Delay adjustable up to 405ms on input A and B.
- Delay adjustable up to 80ms on each output.
- Adjustable gain from -40 to +15dB, and mute.

### EQUALISATION FILTERS

The six Bell filters (Parametric equalisation filters) may each be used to emphasise (by applying a positive Level parameter setting) or de-emphasising (by applying a negative Level parameter setting) a range of frequencies centred on the setting of the Frequency parameter, and encompassing a frequency range determined by the Bandwidth parameter setting.

The two shelving filters allow all frequencies below that of the frequency parameter (for the Low shelf) or all frequencies above that of the frequency parameter (for the high shelf) to be emphasised (by applying a positive Level parameter setting) or de-emphasised (by applying a negative Level parameter setting).

### CROSSOVER SHAPES

In addition to the usual Butterworth, Linkwitz-Riley and Bessel filter shapes, **VNET™** processing provides access to Hardman crossover filtering. Hardman filters produce much steeper cut-off slopes for a given order than conventional crossover alignments, without any additional group delay. This allows a lower order filter to be used without sacrificing cut-off characteristics, but with smoother group delay and less severe phase penalties, giving a more natural sound. Hardman filters and also provide identical phase characteristics between adjacent bands (like Linkwitz-Riley), so the polar performance is rock steady.

We also employ phase matching on our Bessel filters, so adjacent bands are in-phase throughout the crossover region.

### LIMITING PARAMETERS

Note that the limiters do not require you to set the ratio, attack time or release time since they are automatically derived from the crossover frequency chosen.

### SMOOTH ADJUSTMENT

Whenever a parameter is changed, **VNET™** will assess the likely impact on the signal path, and will intelligently smoothly ramp to the new value, or mute for a short time if the change could otherwise cause any undesirable sound to be reproduced.

### SAVING & RECALLING DATA

Device Data may be saved to disk or opened from disk.

PodWare Device Data files (with file extension .dse) contain all the data necessary to restore a device to exactly the same state as when the file was saved.

If the current settings have been changed since the last file save or file open, the Save Icon on the toolbar will be shown in solid colour. If the settings are already safe, the Save icon appears grey.

If a file is opened when on-line to devices, the new data will be sent to the device, overwriting whatever was in the device. A warning will be given before this is done.

Data saved from one device can be reopened in another to save time inputting data. (Assuming settings are to be duplicated)

Podware will always try to protect your data, warning you if you are attempting an action that could cause loss of data.

**UPDATING FIRMWARE**

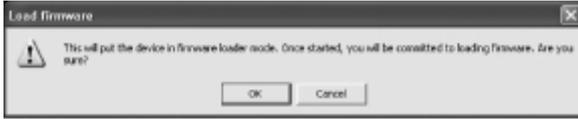
Occasionally it may be necessary to update the devices firmware (with file extension .dfw); this may be due to added features or amendments to the **VNET™** product. Check with your dealer/distributor or ([www.tannoy.com](http://www.tannoy.com)) for any applicable updates.

Firmware can be updated over the network (no need to disconnect speakers from the network)

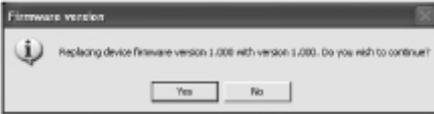
A firmware update will be common to all **VNET™** products (one file for all models).

Updating a devices firmware is straight forward:-

1. Download and save the new firmware file to disk.
2. From the toolbar select '**Device**' & '**Start Firmware Loader**'
3. The following message will appear



4. Click '**OK**'
5. Browse to the new firmware file & select. The following message will appear stating the old version number & the replacement version number.



6. Click '**OK**'
7. In order for the new firmware to take effect the unit has to be switched off & back on again. This can be done automatically after the update. Click '**OK**' to confirm.



8. At the bottom right hand side of the screen a blue bar will show the progress of the firmware update.



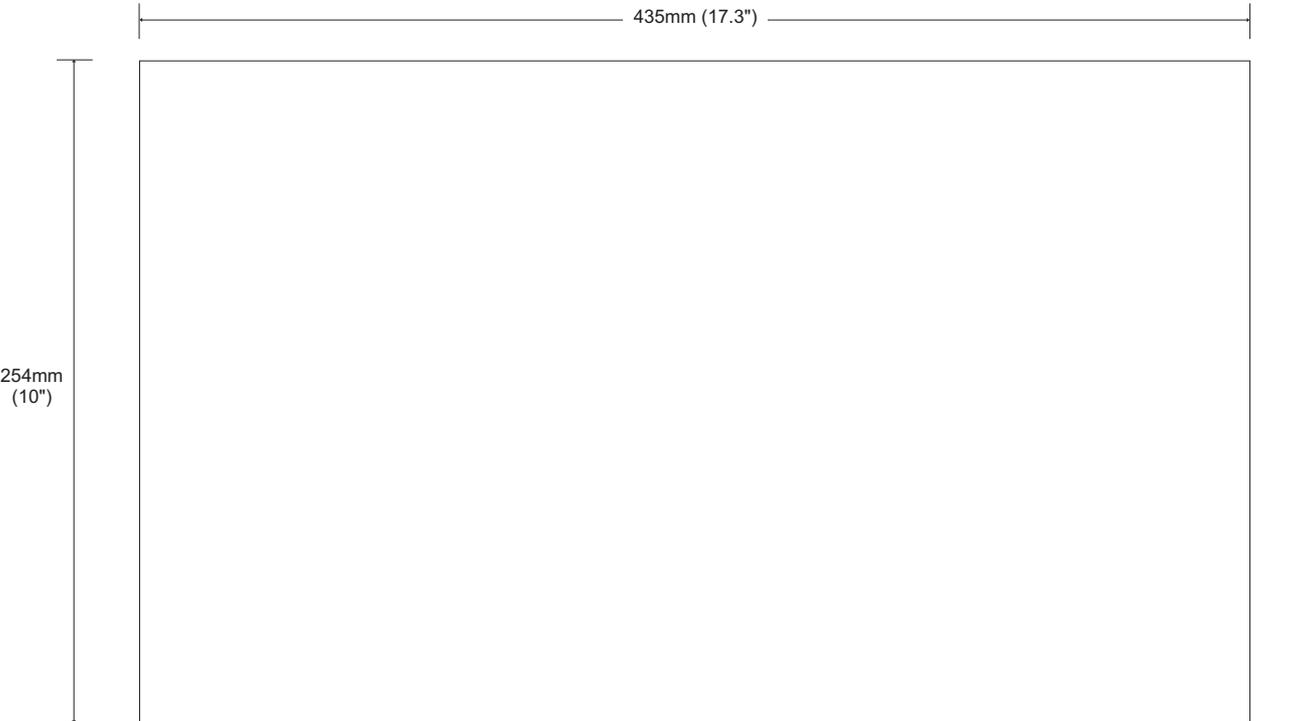
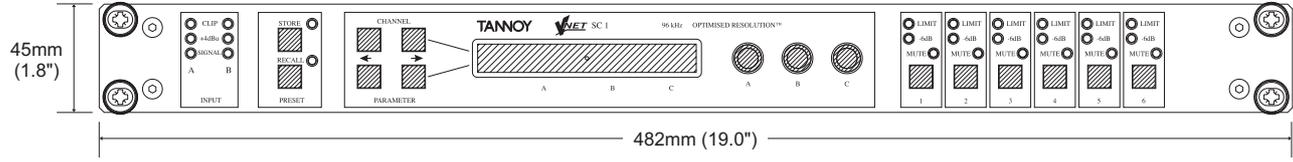
9. After the download is complete the following message appears. The DSP is updating at this point. Do not power down the unit or disconnect any network cable at this point. During the update a red bar will show the progress of the firmware update (bottom right of screen).



10. The device will then power cycle automatically. The device is now ready for normal operation.

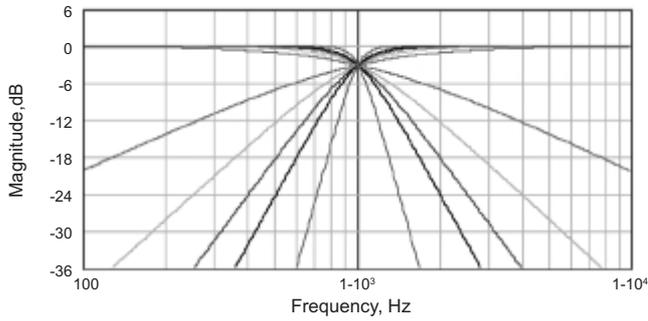


PRODUCT DIMENSIONS



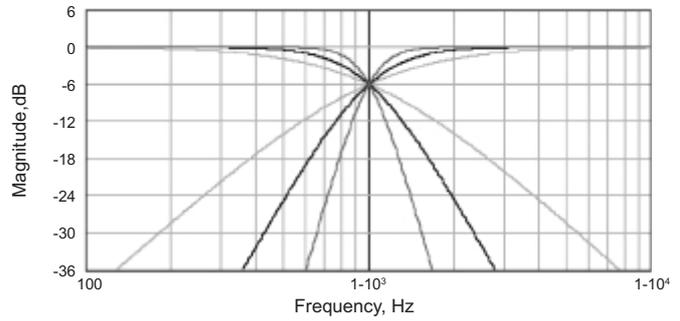
SYSTEM	VNET™ SC1
<b>GENERAL</b>	
Inputs	2
Input Impedance	> 10k Ohm Electronically balanced
Maximum Input level	+20dBu
Outputs	6
Output Impedance	<100 Ohm, ground balanced
Maximum Output Level	+20dBu into 600ohm load
Sample Rate	96kHz
Bit Depth	24 bit
Frequency Response	10Hz to 40kHz, +/- 3dB (filters disabled) 20Hz to 20kHz, +/- 0.5dB (filters disabled)
THD	<0.01%, (+10dBu, 20Hz to 20kHz, 30kHz bandwidth)
Dynamic Range	>112dB (A weighted, 22kHz bandwidth) >109dB (un-weighted, 22kHz bandwidth)
Serial Comms Data	38.4kbaud, format: 8 data, 1 stop, no parity
<b>PROCESSING</b>	
Gain	+15dB to -40dB and mute, 0.2dB steps
Output Ch. Source	Input A, Input B and SUM
HP filter frequency	Off, 10Hz to 25.4kHz, 1/36 octave steps
LP filter frequency	10Hz to 25.4kHz and off, 1/36 octave steps
LP / HP filter type	12, 18 & 24dB/octave Bessel and Butterworth 12, 24 and 48dB/octave Linkwitz Riley 4th or 8th order Hardman
Delay	Input 400ms, output 80ms
Limiter	High performance limiter, adjustable threshold in 0.2dB steps, automatic time constants
EQ frequency	10Hz to 25kHz, 1/36 octave steps
EQ gain	+15dB to -15dB, 0.2dB steps
EQ width	5.0 to 0.1 octaves bandwidth, 1/36 octave steps
<b>CONNECTORS</b>	
Audio inputs	3 pin female XLR
Audio outputs	3 pin male XLR
Serial comms	Available via RS232 port
Network comms	Only available on network enabled SC1
Mains	3 pin IEC
Mains Power	Universal switch-mode PSU, 85v to 250v AC, 50 / 60Hz
Consumption	< 25watts
Dimensions	44mm (H), 482mm (W), 254mm (D)
Weight	2.7 Kgs net

Butterworth



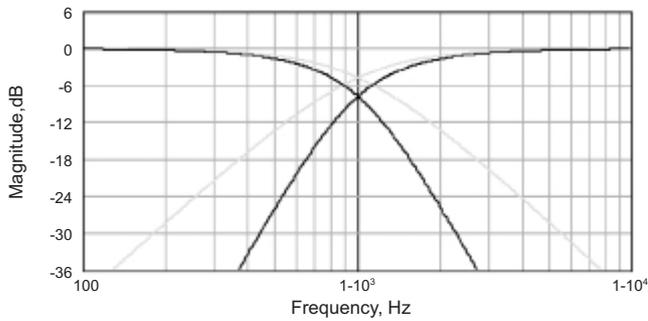
— 6dB/Oct — 12dB/Oct — 18dB/Oct  
 — 24dB/Oct — 48dB/Oct

Linkwitz-Riley



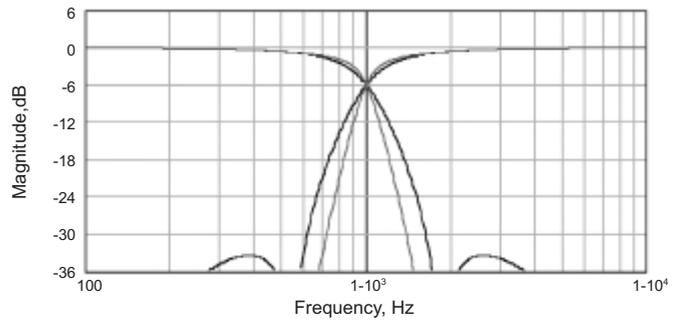
— 12B/Oct — 24dB/Oct — 48dB/Oct

Bessel



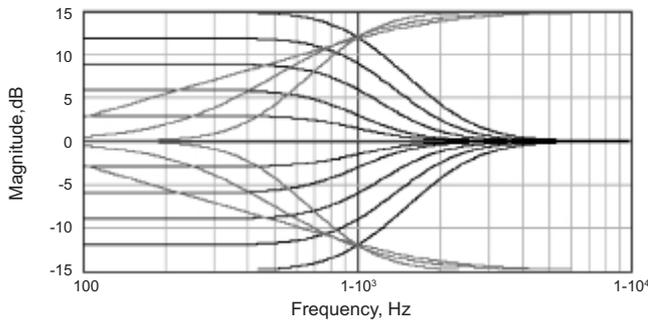
— 6dB/Oct — 12dB/Oct

Hardman



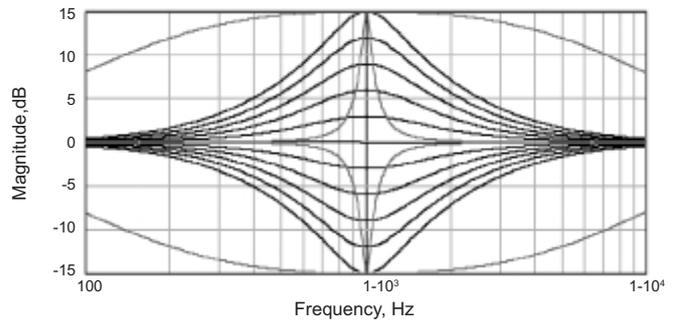
— 4th Order — 8th Order

Shelving EQ



— Low Shelf, Varying Gain  
 — High Shelf, Varying Slope

Butterworth



— 12B/Oct — 24dB/Oct — 48dB/Oct

**WARRANTY**

**No maintenance of the VNET™ SC1 device loudspeakers is necessary.**

All Tannoy active electronics are covered by a 1 year warranty from the date of manufacture, subject to the absence of misuse, overload or accidental damage. Claims will not be considered if the serial number has been altered or removed. Work under warranty should only be carried out by a Tannoy Professional dealer or service agent. This warranty in no way affects your statutory rights. For further information please contact your dealer or distributor in your country. If you cannot locate your distributor please contact Customer Services, Tannoy Ltd at the address given below.

Customer Services, Tannoy Ltd., Rosehall Industrial Estate, Coatbridge, Strathclyde, ML5 4TF, Scotland.

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 +44 1236 420199 (International)  
 Fax: 01236 428230 (National)  
 +44 1236 428230 (International)  
 E-Mail: prosales@tannoy.com

**DO NOT SHIP ANY PRODUCT TO TANNOY WITHOUT PREVIOUS AUTHORISATION**

Our policy commits us to incorporating improvements to our products through continuous research and development. Please confirm current specifications for critical applications with your supplier.

**DECLARATION OF CONFORMITY**

The following apparatus is/are manufactured in UK for Tannoy Ltd of Rosehall Industrial Estate, Coatbridge, Scotland, ML5 4TF. The following equipment is marked with the CE label and conform(s) to the protection requirements of the European Electromagnetic Compatibility Standards and Directives. The apparatus is designed and constructed such that electromagnetic disturbances generated do not exceed levels allowing radio and telecommunications equipment and other apparatus to operate as intended, and, the apparatus has an adequate level of intrinsic immunity to electromagnetic disturbance to enable operation as specified and intended.

Details of the Apparatus: **VNET™ SC1**

The equipment listed above is covered by this certificate and marked with the CE-label conforms with following standards:

- EN 60065 (IEC 60065)** Safety requirements for mains Operated electronic and related apparatus for household and similar general use
- EN 55103-1** Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1: Emission.
- EN 55103-2** Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2: Immunity.

With reference to regulations in following directives:  
 73/23/EEC, 89/336/EEC

Signed:



Position: Engineering Director – Professional Products, Tannoy Professional

Date: 8/11/2006  
 For Tannoy Ltd









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Tannoy adopts a policy of continuous improvement and product specification is subject to change.

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