VIPEDIA-12

Professional Sound Life-Safety Digital Audio System

Software Version V2.1

User's Manual

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Safety and Precaution

Observe all safety information both on the equipment and in this section.

ESD Precaution

The product contains static-sensitive devices. Observe ESD precautions when handling the product with the lid removed.

Electrical Safety

Ensure power supply cabling is adequately rated for the unit's operating current and protected, in case of short circuit, by a correctly rated fuse or circuit breaker. This is particularly important for supply feeds from the 24 V backup batteries which can deliver short circuit currents of several hundred amps.

Always replace blown fuses with the correct type and rating.

External 24 V DC batteries connected to this unit can deliver very high currents that could cause fire or burns.

Take care to avoid short-circuits of the battery supply by tools or jewellery.

Do not allow tools or unconnected cables to rest on top of batteries.

Fire / Burn Safety

Batteries contained within the rack can deliver very high currents that could cause fire or burns.

Take care to avoid short-circuits of the battery terminals by tools or jewellery.

Do not allow tools or unconnected cables to rest on top of batteries.

Laser

The fibre switch is a Class 1 Laser/LED product.

Do not stare at the Laser/LED beam.

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1 Introduction

The VIPEDIA-12 Audio Router and V2000 Amplifier Mainframe configuration is comprised of two parts: static system configuration and dynamic configuration.

- Static System Configuration (or simply system configuration):

  This contains system and site-specific configuration that is unlikely to change frequently. It is generated by the use of the PAVA System Configuration Tool (PAVA SCT) and stored in a XML file.

  One XML system configuration file is created for any given PAVA system. A PAVA system is comprised of at least one ASL VIPEDIA-12 Audio Router and a number of Amplifier Mainframes (V400, X400 and or V2000) and peripherals (such as MPS/EMS microphones and BMB01 Remote I/O Units).

  The system configuration (XML and binary) is loaded into all VIPEDIA-12 and V2000 units by the use of the File Transfer Tool (FTT). The FTT can also read the XML system configuration from any VIPEDIA-12 or V2000 unit in the system.

- Dynamic Configuration:

  This contains site-specific configuration that is expected to change on a fairly routine basis, such as the various audio settings and those parameters that would be adjusted during commissioning such as system surveillance. The dynamic configuration includes the VIPEDIA-12 front panel settings.

  All audio settings and some of the dynamic settings are configured by the use of the Dynamic Configuration Tools: the VIPEDIA-12 Dynamic Configuration Tool (VIPEDIA-12 DCT) and V2000 Dynamic Configuration (V2000 DCT). These tools also provide means to upload and download the dynamic configuration from/to a file.

The VIPEDIA-NET Network Card configuration is generated and applied by the use of the VIPA Config Tool (VCT). One CFG configuration file is created for any given VIPA system which may be comprised of any number of VIPEDIA-NET units and VIPA-base products such as the Linutop and VIPA Server.

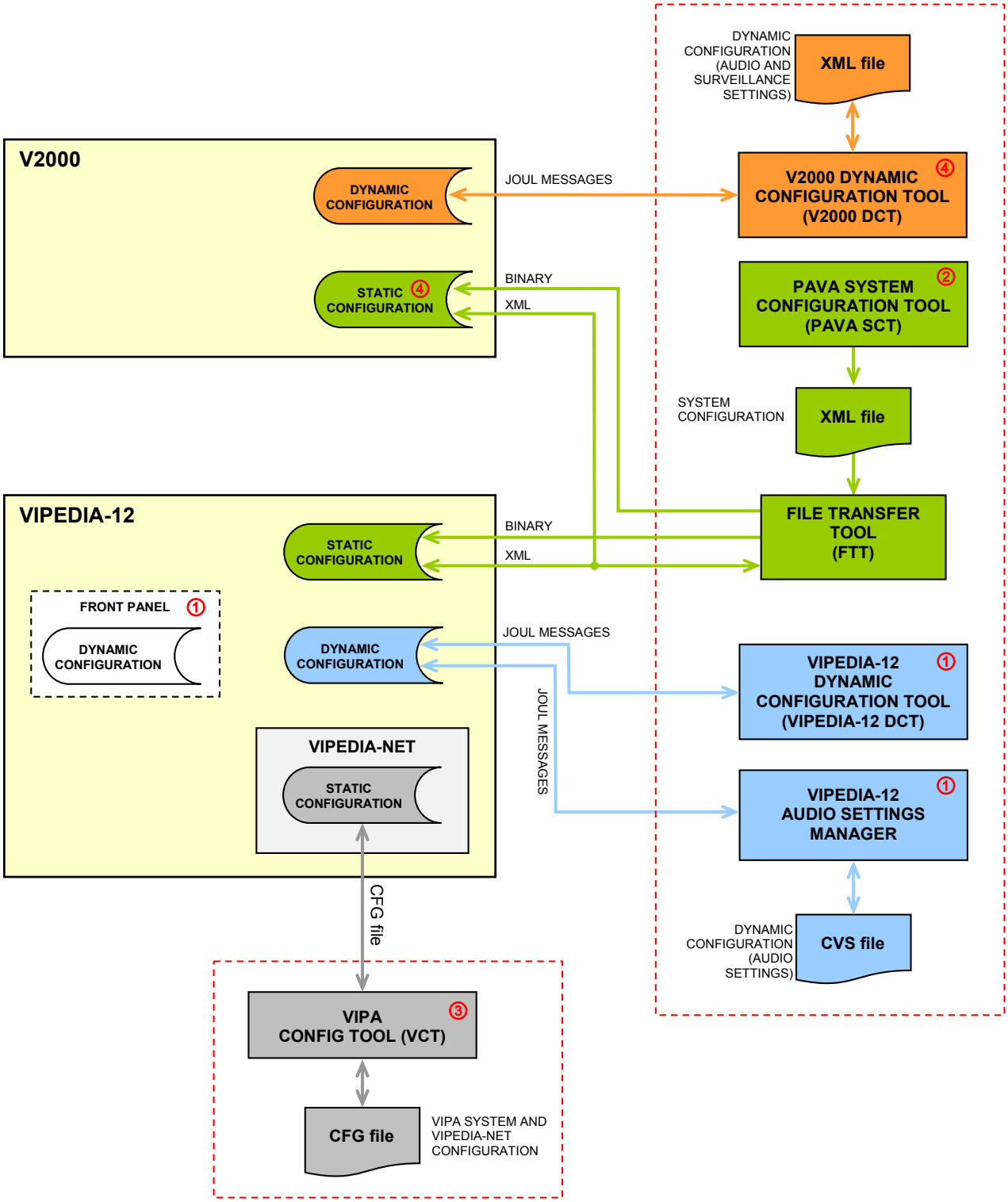
Figure 1 (page 10) illustrates the VIPEDIA-12/V2000/VIPEDIA-NET configuration structure and the associated tools.

This User's Manual provides general guidance for the operation, configuration, commissioning, maintenance, and fault finding of the VIPEDIA-12 by the use of the unit's front panel and the VIPEDIA-12 Dynamic Configuration Tool. Information on other products and tools is available as follows:

- The PAVA System Configuration Tool User's Manual (U-0701-1093) provides general guidance for the system configuration of a PAVA system comprised of at least one ASL VIPEDIA-12 Audio Router and a number of Amplifier Mainframes (V400, X400 and or V2000) and peripherals (such as MPS/EMS microphones and BMB01 Remote I/O Units).
- The V2000 User's Manual (U-0623-0383) provides guidance for the operation, configuration and commissioning of V2000 units.
- The VIPA Config Tool comes with help files which provide general guidance for the configuration and commissioning of VIPA devices and the VIPEDIA-NET.

1) The following short names will be used in this document:
   - PAVA SCT = PAVA System Configuration Tool
   - FTT = File Transfer Tool
   - VIPEDIA-12 DCT = VIPEDIA-12 Dynamic Configuration Tool
   - V2000 DCT = V2000 Dynamic Configuration Tool
   - VCT = VIPA Config Tool
2) The FTT, VIPEDIA-12 DCT and V2000 DCT are installed as part of the PAVA SCT and are launched from the PAVA SCT.

Figure 1 VIPEDIA-12/VIPEDIA-NET configuration structure and associated tools and user documentation



User documentation:

① VIPEDIA-12 User's Manual (ASL U-0641-2637)

② This User's Manual (ASL U-0701-1093)

③ VIPA Config Tool (VCT) Help files

④ V2000 User's Manual (U-0623-0383)

2 Controls and Indicators

① **Loudspeaker**:

Alarm Sounder and Audio Monitor

② **LCD Display**:

2 x 40 backlit alphanumeric display.

Used to display control menu, faults, overall system status, and configuration data.

③ **Rotary Encoder:**

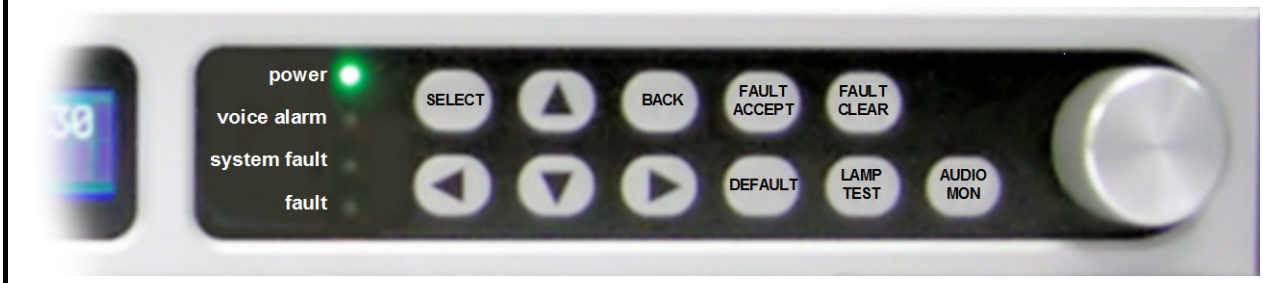
- An alternative for the ▲ and ▼ arrow keys for fast increment and decrement of menu items.
- During Audio Monitoring it also acts as a volume control.

④ **USB Port**[1]:

USB Micro-AB (USB OTG)

⑤ LED indicators and control buttons; see details below.

[1] USB port is available on VIPEDIA-12 Build Standard 3 onwards.



Indicators and Controls		Description
LED	**power** (green)	Lit if the unit is receiving DC power.
	voice alarm (red)	Lit to indicate that a voice alarm condition is present in the PA/VA system.
	system fault (yellow)	Lit to indicate that a system fault has been detected in the PA/VA system. This requires immediate action as part(s) of the system used for emergency functions may have been affected. A system fault will always cause the "fault" LED to be lit as well. A system fault is triggered by a failure of any processor or memory, critical to the Voice Alarm system, including those of the VIPEDIA-12 itself. A communication fault between the VIPEDIA-12 and any equipment or device that has been configured at the VIPEDIA-12 and that is critical to Voice Alarm functions will also trigger a system fault.
	fault (yellow)	Lit to indicate that the unit has detected a fault. Flashes if a fault has not yet been accepted.
Keys	◀ ▶	The left and right arrow keys move the item selection in the direction selected, to the next item in the menu. The selected item is indicated by [brackets] around the selection.
	▲ ▼	The up and down arrow keys toggle a selection, or increment a number, or a letter of the alphabet when editing. The rotary encoder acts in the same manner as these keys, and enables faster editing.
	SELECT	Press after selecting an item to confirm the selection.
	BACK	Press after selecting an item to cancel the selection. If pressed repeatedly, this returns the display to the top-level menu.
	DEFAULT	Press to clear previously configured text strings quickly during system configuration, or to return fields to their default values.
	FAULT ACCEPT	Accepts all current faults, steadies the flashing fault LED indication, and turns off the audible alarm until a new fault condition occurs.
	FAULT CLEAR	Clears all faults and sets all connected equipment to the 'no faults' state, which also cancels any amplifier changeovers in effect. If a fault cleared in this way still persists, then the fault warning condition will be detected anew and reported again.
	AUDIO MON	Selects Audio Monitor submenu on the LCD display.
	LAMP TEST	Tests all indicators on the VIPEDIA-12and on all connected mainframe and amplifier units. The sounder and the LCD display are also tested. The display shows "LAMP + LCD + SOUNDER TEST', and then, solid black characters. The menu locks for the entire duration of the test.

3 EN 54-16 Configuration Check List

Use this checklist to ensure you have configured all dynamic settings as required for EN 54-16 compliance.

Table 1 EN 54-16 configuration checklist

Item	Refer to Section	Page	Configuration Task	Check (✓)
Emergency Microphones	5.3.1.4	87	Check that the input surveillance is enabled and the correct fault threshold level commissioned for all emergency microphones inputs.	
	5.3.1.6	90	Check that the EQ is enabled for all emergency microphone inputs with the following setting: • Gain:- 3.3dB • Frequency: 251Hz • Q: 1 This ensures a flat frequency response.	
V400/X400 Amplifier Mainframes	4.9.1	23	Check that Frame Learn is performed.	
	5.3.3.2	103	Check that all the output surveillance tone is commissioned (per surveillance method) for all outputs carrying Voice Alarm signals. • DC surveillance with EOL10K resistors: low frequency **Generator 1:** Frequency: Pulsed / 30Hz / Pulse Interval: 20.0s / Pulse Width: 1.5s / Pulse Offset: 0.0s Level (reference): -6 dB (adjust to ensure a nominal 1 to 1.5 V RMS) **Generator 2:** Frequency: Off • AC surveillance with AEL01 or AEL02 Active End of Line Device(s): low and high frequencies **Generator 1:** Frequency: Pulsed / 30Hz / Pulse Interval: 20.0s / Pulse Width: 1.5s / Pulse Offset: 0.0s Level (reference): -4 dB (adjust to ensure a nominal 1.5 V RMS) **Generator 2:** Frequency: Pulsed / 20kHz / Pulse Interval: 20.0s / Pulse Width: 10.0s / Pulse Offset: 0.1s Level (reference): -21 dB (adjust to ensure a nominal 8 V RMS) • Impedance monitoring: low frequency **Generator 1:** Frequency: Pulsed / 30Hz / Pulse Interval: 20.0s / Pulse Width: 3.0s / Pulse Offset: 0.0s Level (reference): -6 dB (adjust to ensure a nominal 1 to 1.5 V RMS. Can be adjusted to increase the output level up to 2 V RMS for stable impedance readings on low loads, typically below 25 W) **Generator 2:** Frequency: Off	
	4.9.4.4	30	Check that the amplifier's internal audio path surveillance is enabled and correctly commissioned for all amplifiers (including standby amplifiers) carrying Voice Alarm signals. • Type: LF Surv • Interval: 20 seconds	

Item	Refer to Section	Page	Configuration Task	Check (✓)
			• Input threshold (reference): 200 mV to 250 mV • Output threshold (reference): 600 mV to 900 mV	
	4.9.4.5	32	Check that the speaker line surveillance is enabled and the correct fault thresholds commissioned (per surveillance type) for all amplifiers slots (working amplifiers only) carrying Voice Alarm signals.	
	4.9.4.6	38	Check that the speaker line Earth Leakage monitoring is enabled for all amplifiers slots (working amplifiers only) carrying Voice Alarm signals.	
V2000 Amplifier Mainframe	5.3.3.2	103	Check that all the output surveillance tone is commissioned as described below for all outputs carrying Voice Alarm signals. • **Generator 1:** Frequency: On / 20Hz / Pulse Interval: 20.0s / Pulse Width: 1.5s / Pulse Offset: 0.0s Level: -30 dB (always) • **Generator 2:** Frequency: Off	
	Refer to the V2000 User's Manual (U-0623-0383).		Check that the surveillance tone is commissioned as described below for all amplifier slots (including standby amplifiers) carrying Voice Alarm signals. • LF Tone: enabled / 1.5 V • HF Tone: enabled (if impedance monitoring is used) / 4 V	
			Check that the amplifier's internal audio path surveillance is enabled and correctly commissioned for all amplifiers (working amplifiers only) carrying Voice Alarm signals. • Tolerance: 40% • Low threshold (reference): 840 mV (D150) / 960 mv (D500) • High threshold (reference): 1960 mV (D150) / 2240 mv (D500)	
			Check that the input surveillance tone is commissioned for all amplifiers slots (working amplifiers only) carrying Voice Alarm signals. • Tolerance: 40% • Threshold (reference @ 100): 14 mV	
			Check that the speaker line surveillance is enabled and the correct fault thresholds commissioned (per surveillance type) for all amplifiers slots (working amplifiers only) carrying Voice Alarm signals.	
			Check that the speaker line Earth Leakage monitoring is comissioned for all amplifiers slots (working amplifiers only) carrying Voice Alarm signals. • Threshold: 2 mA	

4 Front Panel Operation

The operation described here is correct for the current version of the VIPEDIA-12 Dynamic Configuration Tool at the time of the publication of this document (Host CP V2.1).

If the VIPEDIA-12 in your system has a later (or earlier) version of software, then it may mean that some aspects of the operation are subtly different from the operation described in this document, or that enhanced features have been added.

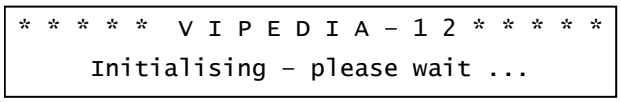
If any difficulties are encountered, contact ASL or an appointed ASL distributor, quoting the Build Standard and software versions of your VIPEDIA-12 unit; see Section "6.2.1 Build Standard and Software Versions" (page 134).

The configuration performed from the front panel is part of the dynamic configuration and can only be cleared and reset to factory default by a special procedure; see Section "6.2.6 Resetting the Dynamic Configuration to Factory Default" (page 141).

4.1 Initialisation

The VIPEDIA-12 automatically starts up when powered on. It will display the following text during the initialisation process.

Figure 2 Startup display



4.2 LCD Menu Display

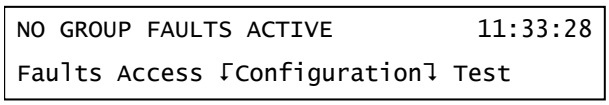
The VIPEDIA-12 menu system is intuitive and the user will find the menus largely self-explanatory.

Note that the VIPEDIA-12 is password protected in order to prevent unauthorised alteration of the system configuration. Thus the system configuration cannot be changed unless the operator is logged on by entering a valid access code. When the operator is logged off it is possible to view all the information apart from the access code. Refer to Section "4.4 Accessing the VIPEDIA-12" (page 18) for details.

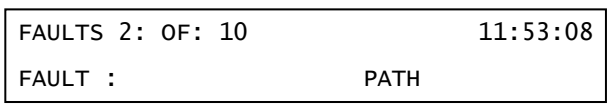
4.2.1 Display Structure

Figure 3 Examples of display (top-level menu)

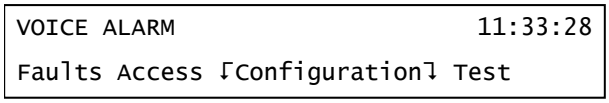
Example 1:



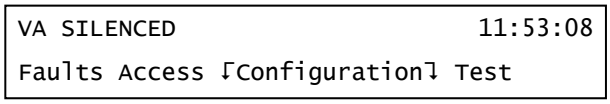
Example 2:



Example 3



Example 4



4.2.1.1 Display Top Line

Top-Level Menu

The top line displays the number of faults present or the Voice Alarm condition on the left-hand side; see examples in Figure 3 (page 15):

- NO GROUP FAULTS ACTIVE
- FAULTS: <number of local faults> OF: <number of faults in the VA group>
- VOICE ALARM (flashing)
- VA SILENCED (flashing)

The current time is displayed on the right-hand side of the top line.

Submenus

The top line displays the menu description on the right-hand side, and whether the user is logged on or logged off on the left-hand side. When the user is logged on, it identifies which user's access level: Access 2 or Access 3; see examples in Figure 4 (page 16).

Figure 4 Example of display (submenu)

Example 1:

```
CONFIGURATION MENU            [Access 3]
Router ↧Frames↴
```

Example 2:

```
VOICE ALARM                   [Access 3]
Router ↧Frames↴
```

If a Voice Alarm condition is present or silenced in the PA/VA system, the VOICE ALARM or VA SILENCED message will alternate with the current text on the left-hand side; see Example 2 in Figure 4 (page 16).

4.2.1.2 Display Bottom Line

The bottom line displays the menu options. If a power, fuse, path, or earth fault is reported that affects the Voice Alarm system, the appropriate text will be displayed flashing (POWER, EARTH, FUSE and/or PATH) on the bottom line; see Example 2 in Figure 3 (page 15). The text will persists until a user presses any key on the VIPEDIA-12 front panel, when the previous menu text will be restored.

4.2.2 Menu Selection Markers

Different markers are used to aid menu navigation as described in Table 2 (page 16).

Table 2 Menu selection markers

Marker	Description
[square brackets**]**	Indicate this option is an editable field or can be scrolled using the up and down arrows
{curly braces**}**	Indicate this option is read-only, for instance when the user is logged off
↧arrows both sides↴	Indicate this option leads to a submenu
↧arrow on left, bracket on right**]**	Indicates this option can be scrolled using the up and down arrows and when selected will lead to a submenu for the selection.

4.2.3 Menu Navigation and Selection Controls

The front panel keys and rotary encoder are used for menu navigation and control as described in Table 3 (page 17).

Table 3 Menu navigation and selection controls

Controls	Description
◀ and ▶ keys	To moves to the next item in the menu
▲ and ▼ keys or Rotary encoder	To edit or scroll options (use the rotary encoder for fast increment and decrement)
SELECT key	To select a [highlighted] item or to save the changes
BACK key	To exit from the current menu and to return to the parent menu without saving changes
Rotary encoder	To adjust the volume during audio monitoring (**Tests** menu)

4.2.4 Menu Timeouts

All menus timeout to revert to the previous (higher) level menu after two minutes with no user activity. If logged on, then after five minutes with no activity the user is logged off. Thus with no user activity the LCD display always returns to the top-level display and logged off state.

4.3 LCD Backlight

The LCD backlight is turned on when any button is pressed, and stays on for five minutes after the last key press has occurred. Should a fault or Voice Alarm condition occur, the backlight is automatically illuminated:

- Fault condition: the backlight is turned on for one hour following the indication of a new fault condition. The backlight will be turned off, if the new fault condition is accepted within the one-hour timeout.
- Voice Alarm condition: the backlight is turned on for one hour following the indication of a new Voice Alarm condition. The backlight will be turned off, if the Voice Alarm condition is removed within the one-hour timeout.

4.4 Accessing the VIPEDIA-12

The VIPEDIA-12 is password protected in order to prevent unauthorised alteration of the system configuration. Thus the system configuration cannot be changed unless the operator is logged on by entering a valid access code. When the operator is logged off it is possible to view all the information apart from the access code.

The top line of all submenus displays whether the user is logged on or logged off on the left-hand side. When the user is logged on, it identifies which user's access level: "Access 2" or "Access 3".

Only qualified personnel who are very familiar with the VIPEDIA-12 equipment, the installation and its configuration requirements should log on to alter the system configuration.

Any adjustment of audio parameters or DVA zoning may leave the system in a dangerous state where it will not correctly respond to alarm inputs or may not produce adequate sound pressure levels or intelligibility to comply with Voice Alarm Standards.

Similarly it is possible for the untrained operator to inadvertently disable system surveillance functions that are mandated by Voice Alarm standards.

When the user is logged on, accessing the functions and options should be done with great care. Pressing the **SELECT** key saves any configuration changes and recalling the previous configuration may not be possible.

If required, contact ASL or an appointed ASL distributor for support.

4.5 Logging On

The VIPEDIA-12 provides two security access levels with separate access codes: Access Level 2 and Access Level 3.

To log on:

1. Select **Configuration→Access**.
2. Enter the access code and press **SELECT**.

   The default access code to the system is available from ASL or appointed ASL distributor:

   - <*Access Level 2 PIN*>: logs on with Access Level 2 with restricted access to the system. The user can only clear faults, either via the FAULT CLEAR button or via the menu.
   - <*Access Level 3 PIN*>: logs on with Access Level 3 with full access to the system.

4.6 Logging Off

Note that the system will automatically log the user off after five minutes without any user interaction.

To log off:

Select **Configuration→Access→LogOff**.

4.7 Changing the System Access Code (PIN)

The access code can only be changed if the user is logged onto the system with full access, i.e, with Access Level 3.

It is highly recommended that the access codes be set to non-default values during system commissioning.

To change the access code(s):

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Access→Change-PIN**.

   Notes: This submenu is not displayed is not displayed at Access Level 2.

   When logged on with Access Level 3, this submenu is only displayed if changing of the access code from the front panel has been allowed in the system configuration.
3. Select the required access level, change the password, and then press **SELECT**.

   Note: On changing the access code, a warning message may be displayed, depending on the password control settings in the system configuration.

4.8 VIPEDIA-12 Front Panel Configuration

This section only describes the parameters that are accessed and/or configured from the unit's front panel and are correct for the VIPEDIA-12 software package version at the time of publication (Host CP V2.1).

If any difficulties are encountered, contact ASL or an appointed ASL distributor, quoting the Build Standard and software versions of your VIPEDIA-12 unit; see Section "6.2.1 Build Standard and Software Versions" (page 134).

1) The audio settings configuration is described in Section "5 VIPEDIA-12 Dynamic Configuration Tool" (page 72).
2) The system configuration is not described in this document. Please refer to the VIPEDIA-12 System Configuration Tool User's Manual (U-0701-1093) for further details of the system configuration.
3) The Network Card configuration is not described in this document. Please refer to the help files of the VIPA Configuration Tool (VCT)[1].

4.8.1 IP Address Configuration

Consult your network administrator to obtain the IP address configuration for you VIPEDIA-12 unit. This includes the unit's IP address, the gateway address, and the subnet mask.

Factory default IP configuration:

- IP Address: 192.168.1.10
- Gateway Address: 192.168.1.0
- Subnet Mask: 255.255.255.0

4.8.1.1 Configuring the Unit's IP Address

To configure the IP address:

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Router→Identity→IP Config→IP Addr**.
3. Configure the IP address and press **SELECT**.
4. Reboot the unit (you may reboot the unit after configuring all other Unit Identity parameters).

4.8.1.2 Configuring the Gateway Address

To configure the gateway address:

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Router→Identity→IP Config→Gateway Addr**.
3. Configure the gateway address and press **SELECT**.
4. Reboot the unit (you may reboot the unit after configuring all other Unit Identity parameters).

[1] VIPEDIA-NET software V2.0 or later is required for configuration by the use of the VIPA Config Tool (VCT).

4.8.1.3 Configuring the Subnet Mask

To configure the subnet mask:

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Router→Identity→IP Config→Subnet Mask**.
3. Configure the subnet mask and press **SELECT**.
4. Reboot the unit (you may reboot the unit after configuring all other Unit Identity parameters).

4.8.2 Unit Identity Configuration

4.8.2.1 Configuring the Unit's Id

The Unit Id is used by the system to uniquely identify each VIPEDIA-12 unit in the system.

It is possible for multiple independent VIPEDIA-12 subsystems with overlapping Unit Ids to co-exist in the same network where it is not possible to allocate a unique Unit ID. An application running ASL's VIPA software suite such as the ASL's iVENCS Control System can integrate these subsystems.

In such system each VIPEDIA-12 subsystem is allocated unique multicast control and PMC multicast base addresses which provide each subsystem with unique data and audio channels. This enables each subsystem to differentiate between multiple units with overlapping Ids. Refer to the PAVA System Configuration Tool User's Manual (U-0701-1093) for further details.

Consult your system design documentation to obtain the unit Id for the VIPEDIA-12 unit(s).

To configure the unit's Id:

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Router→Identity→Unit Identity→Id**.

   System default configuration: "1"
   Possible values: "1" to "63"
3. Configure the unit Id and press **SELECT**.
4. Reboot the unit (you may reboot the unit after configuring all other Unit Identity parameters).

4.8.2.2 Configuring the Unit's Name

It is possible to assign a name to the VIPEDIA-12. It can be used to identify the site. This is for reference only and is only displayed through this menu.

To configure the unit's name:

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Router→Identity→Unit Identity→Name**.

   System default configuration: blank
   Possible values: alphanumeric string of up to 32 characters.

   Note: DEFAULT key sets the entire name to blank.
3. Configure the name and press **SELECT**.

4.8.2.3 Configuring the Date and Time

The VIPEDIA-12 features a real time clock, which is used for date and time stamping of log entries such as fault reports. This is fitted with an internal Lithium battery so that the clock continues running without power applied.

Note that the VIPEDIA-12 unit may have been configured to synchronise the date and time with a time source, e.g. another VIPEDIA-12 unit.

To configure the date and time:

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Router→Identity→Unit Identity→Date/Time**.
3. Configure the date and time and press **SELECT**.

4.8.2.4 Configuring the UTC Offset (for GPS time synchronization only)

A GPS (Global Positioning System) device can be used to synchronize the time of a VIPEDIA-12 unit which can then be configured as Time Master for other VIPEDIA-12 units in the system.

The GPS time matches UTC (Coordinated Universal Time). The time provided by the GPS for synchronization can be adjusted according to the DST (Daylight Saving Time) and local time zone.

To adjust the UTC offset:

1. Log on with Access Level 3 access code via **Configuration→Access** menu option if not already done.
2. Select **Configuration→Router→Identity→Unit Identity→UTC offset**.
3. Configure the offset and press **SELECT**.

4.8.2.5 Verifying the Software Versions

The VIPEDIA-12 software version is changed from time to time. The version of the currently installed software can be verified from the front panel.

To verify the software versions:

1. Select **Configuration→Router→Identity→Software**.
2. Scroll the list to display the version of each code.

   `[Host CP : 2.1.33.0P]`

   Note: The Host CP version is referred as the VIPEDIA-12 SW version in this document unless other code is specified, e.g., DSP SW.
3. Press **SELECT** or **BACK** to return to the parent menu.

4.9 ASL Amplifier Mainframe Commissioning

This section describes the V400 and X400 Amplifier Mainframes commissioning which is carried out from the VIPEDIA-12's front panel.

Please refer to the Amplifier Mainframe, Amplifier, and Interface Card user documentation to complement the information provided in the following sections.

The V2000 Amplifier Mainframe requires the V2000 Dynamic Tool. The V2000 commissioning procedure is not part of this User's Manual, please refer to the V2000 User's Manual (U-0623-0383).

4.9.1 Learning Connected V400 and X400 Amplifier Mainframes

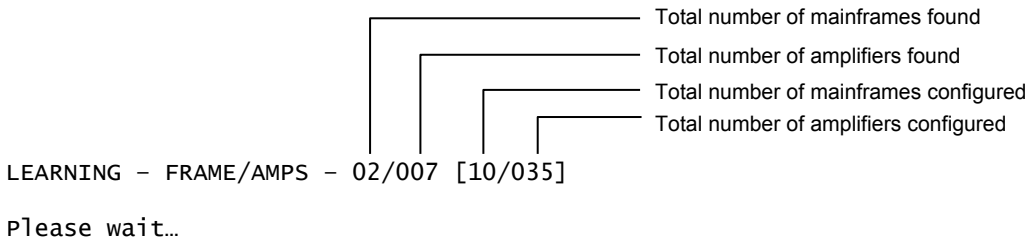
The "Learn" function allows the system to automatically find all ASL V400 and X400 Amplifier Mainframes and amplifiers that are connected to the VIPEDIA-12 via an Audio-CAN serial data network and audio monitor bus. Once the system has found the installed configuration, each mainframe configuration will be available for viewing, and the user will be able to commission the each mainframe.

The act of commissioning commands the mainframe to recognise the current amplifier installation as the correct one, e.g. if an amplifier is removed and no longer required, then a fault will be reported that the amplifier is not present until the mainframe is re-commissioned. Once re-commissioned the mainframe will recognise that the missing amplifier is correctly missing, and will stop reporting a fault.

1) The "Learn" is not used with V2000 Amplifier Mainframes which are connected to the VIPEDIA-12 system via an IP network.
2) The VIPEDIA-12 when configured with V400/X400 Amplifier Mainframes checks if the "Learn" function has been performed following a power cycle or a fault clearance. If no mainframes are configured, then a fault will be raised. This is to prevent the "Learn" step from being omitted when VIPEDIA-12 units are swapped out on site, and as consequence, the mainframe and amplifier related faults not being reported. The fault is automatically suppressed on VIPEDIA-12 units with no V400/X400 Amplifier Mainframes configured.
3) Refer to the PAVA SCT User's Manual for details.

To learn and commission the connected amplifier mainframes:

1. Select **Configuration→Frames→Learn**.



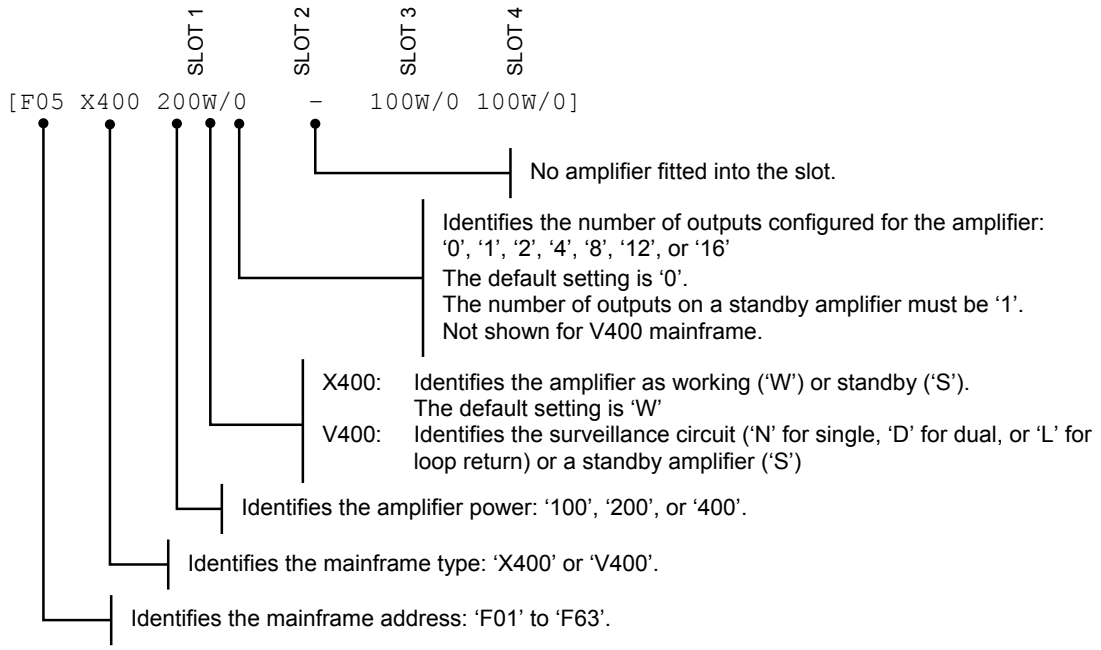
Notes:

1) The VIPEDIA-12 will lock out the user whilst each amplifier mainframe is interrogated in turn.
2) The total number of mainframes and amplifiers that are configured in the system configuration is displayed on the right-end of the top line ([mainframes/amplifiers]).

3) The total number of mainframes and amplifiers currently found are displayed on the top line (mainframes/amplifiers). In the example above, 02/007, indicates that a total so far of 2 mainframes and 7 amplifiers have been found.

4) The display is updated as each mainframe/amplifier is found.

2. At the end of the Learn process, a list containing all amplifier mainframes found on the CAN bus is displayed.



Notes:

1) Whilst "Learning" is in progress, data is read from each mainframe, but no data is changed at the mainframe itself. Commissioning is required in order to change the data at the mainframe.

2) If no mainframe is found, then the "NO FRAMES FOUND" message will be displayed.

   a) Check the VIPEDIA-12 has been configured with amplifiers.

   b) Check CAN bus connections.

   c) Check that the end of the CAN bus is terminated

   d) Repeat the above steps.

3) If number of mainframes and/or amplifiers found on the CAN bus does not match the system configuration, "Learned/config'd frames mismatch" message will be displayed. Check that the system configuration matches the mainframe hardware configuration, update the VIPEDIA-12 system configuration (if changed), and then repeat the above steps.

4) The timeout on the menu is extended by 10 seconds every time a new frame and/or amplifier is discovered.

   Therefore, it takes additional 10 seconds for the list of learned mainframes and amplifiers to be displayed after Learn has completed. Press SELECT if the list is not displayed after 10 seconds.

3. Scroll the amplifier mainframe list and confirm that the VIPEDIA-12 found all mainframes and amplifiers and that their configuration is correct.

If the mainframe or amplifier configuration is incorrect, check the mainframe hardware configuration:

- The Mainframe ID is correctly set on the front panel rotary switches
- Slot is fitted with correct amplifier type
- Interface card type and setting) are correct

and then repeat the steps above.

Notes:

The VIPEDIA-12 only reports faults for frames and amplifiers that are present in the system configuration.

4. Press **SELECT** to commission the installed/updated frame so that the frame recognises the current amplifier installation as the correct one.

4.9.2 Viewing Configured Mainframes

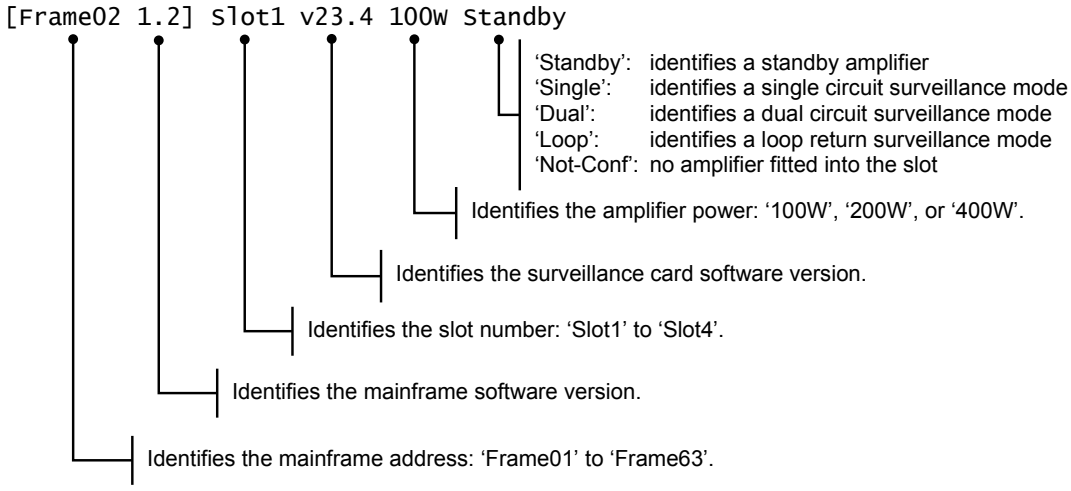
4.9.2.1 Verbose View

The verbose view provides a mainframe's software version, as well as each amplifier's software version number, power rating, and surveillance mode.

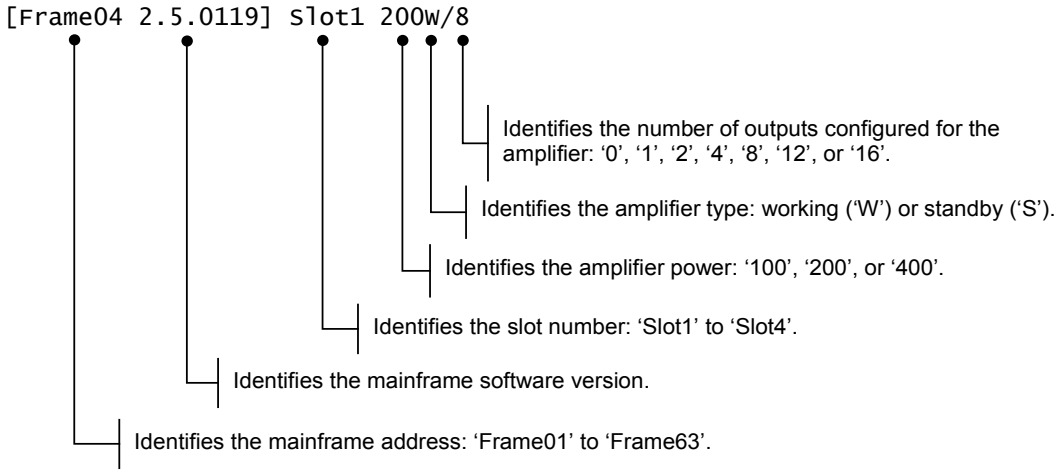
Follow the instructions below to view the details of an amplifier mainframe.

To view the amplifier mainframes:

1. Select **Configuration→Frames→View→Verbose**.
2. A list of configured mainframes is displayed.
   - V400 Amplifier Mainframe:



   - X400 Amplifier Mainframe:



Notes:

1) If the software version is available, then is shown as in the above example, else "V?.? " is displayed.
2) Pressing the **DEFAULT** key will display the Slot 1 configuration.

3. Scroll the mainframe list (left field) to view another mainframe configuration, or scroll the slot field (right field) to view a different slot configuration within the currently selected mainframe.

4.9.2.2 Terse View

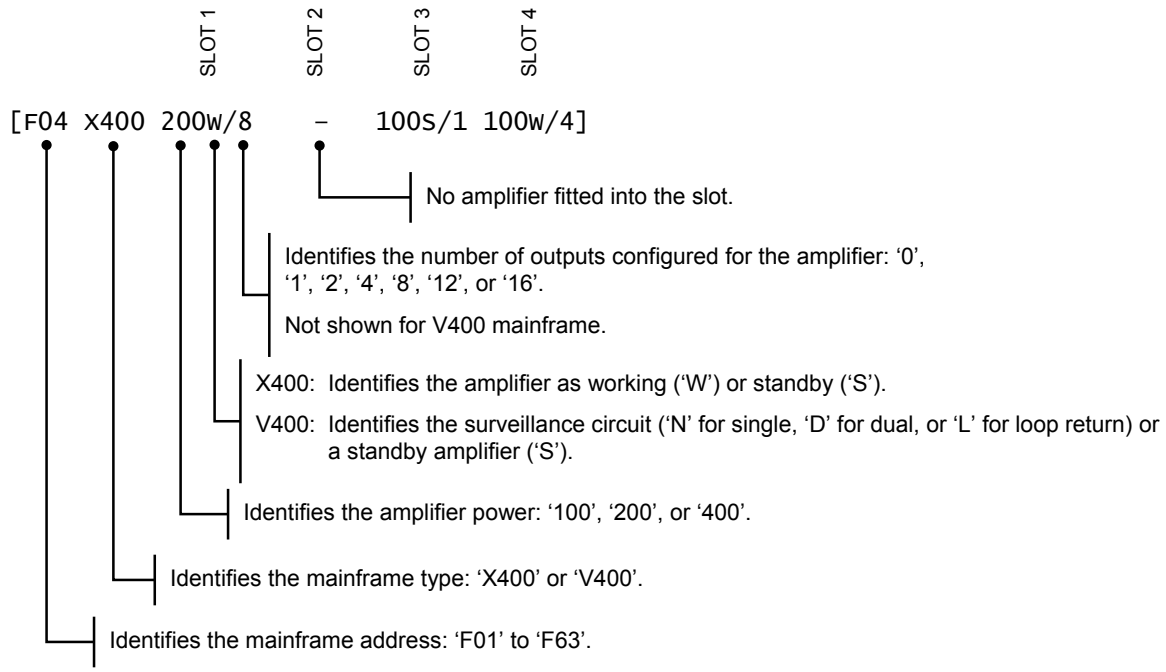
The terse view provides a single list of configured mainframes with the amplifier power rating and surveillance mode compressed into a single line.

Follow the instructions below to view an amplifier mainframe.

To view the amplifier mainframes:

1. Select **Configuration→Frames→View→Terse**.

2. A list of configured mainframes is displayed.



4.9.3 Configuring the Mainframe Temperature Alarm

Each mainframe can monitor its ambient temperature if required, and will then report a fault if the temperature exceeds the configured over-temperature alarm value.

Menu: **Configuration→Frames→Frame #**nn**→Temp**.

Possible values: "Not-Conf" / "Config'd" and "15" to "99"°C

System default configuration: V400: "Config'd" and "70" / X400: "Not-Conf" and "70"

4.9.4 Commissioning an Amplifier Slot

Each amplifier mainframe houses up to four amplifiers, each inserted into one of the four available amplifier slots. These slots are referred to as Slot 1, Slot 2, Slot 3 and Slot 4 at the VIPEDIA-12.

Each amplifier may be commissioned for AC internal audio path surveillance, loudspeaker line surveillance, and Earth Leakage detection as described in the following sections.

4.9.4.1 Editing an Amplifier Slot Description

A description can be assigned to each amplifier slot. This name is for reference only, and is only shown in menus accessing mainframe slots, such as, amplifier slot commissioning and test menus.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Desc**

Possible values: alphanumeric string of up to 12 characters

System default configuration: blank

4.9.4.2 Configuring the Amplifier Type (X400 only)

The X400 Amplifier Mainframe requires that the amplifier type (Working or Standby) be configured for each of the installed amplifiers.

On the V400 Amplifier Mainframe the amplifier type is detected and commissioned using the "Learn" function, as described in Section "4.9.1 Learning Connected V400 and X400 Amplifier Mainframes" (page 23).

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Type**

Possible values: "Working" and "Standby"

System default configuration: "Working"

4.9.4.3 Configuring the Number of Outputs Driven by an Amplifier (X400 only)

As standard, each amplifier module fitted into a X400 feeds 4 outputs (A, B, C, and D). Alternatively, amplifiers can be fitted feeding 8, 12, or 16 outputs. This is achieved by fitting the required amplifier into an amplifier slot that is ganged to one or more adjacent slots. Note that only amplifiers fitted to slots 1 and 3 can be ganged to adjacent slots and that ganged slots require inter-channel link to be fitted as shown in Table 4 (page 28) and Figure 5 (page 29).

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Slots→No Output**

Possible values: "No Output", "1-Output", "2-Outputs", "4-Outputs", "8-Outputs", and "16-Outputs"

System default configuration: "No Output"

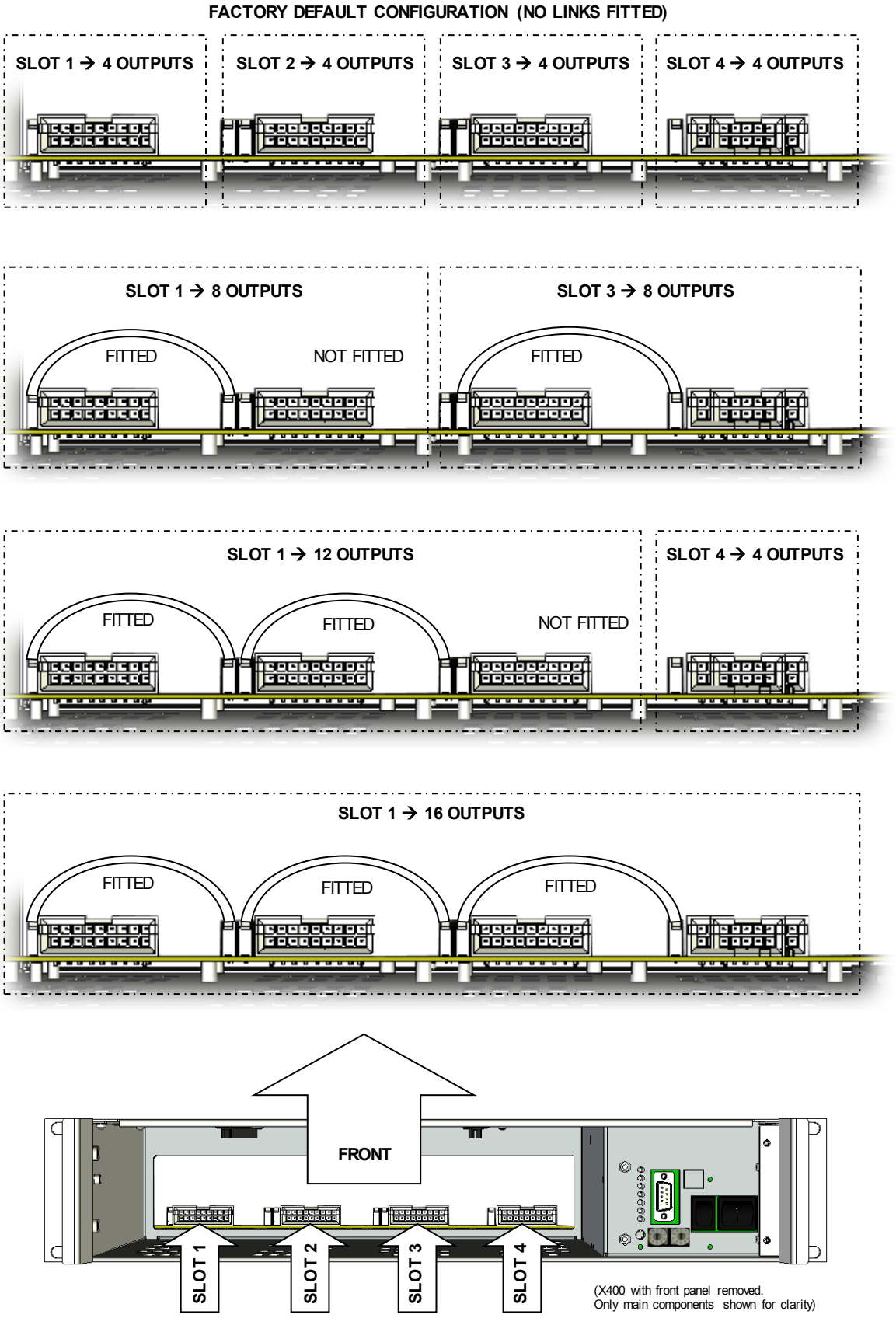
1) Only 1 and 2-Outputs configurations can be used for AC Line Monitoring with AEL01/AEL02.
2) The number of outputs on a standby amplifier must be "1-Output", and this is automatically set by the system.
3) The number of ganged slots is automatically updated by the VIPEDIA-12.
4) If more than one ganged slot is configured:
   - inter-channel links must be fitted on the amplifier motherboard as described in Table 4 (page 28) and Figure 5 (page 29).
   - Impedance Monitoring, then the load should be distributed across the ganged slots each feeding independent speaker circuits.
5) The outputs are sequentially numbered at the VIPEDIA-12so that:
   - "O/P #1" corresponds to "output A" of the slot which the amplifier is fitted to (first ganged slot)
   - "O/P #5" corresponds to "output A" of the second ganged slot (if any)
   - "O/P #9" corresponds to "output A" of the third ganged slot (if any)
   - "O/P #10" corresponds to "output A" of the fourth ganged slot (if any)

X400 Amplifier Configuration

Table 4 X400 amplifier configuration options

Amplifier Type	Can be fitted into slots	Number of Ganged Slots	Number of Outputs	Inter-channel Links (see Figure 5)
MX100	Slot 1	1	4 (standard)	None
		2	8	to slot 2
		3	12	to slots 2 and 3
		4	16	to slots 2, 3, and 4
	Slot 2	1	4 (standard)	None
	Slot 3	1	4 (standard)	None
		2	8	Slot 4
	Slot 4	1	4 (standard)	None
MX200	Slot 1	1	4 (standard)	None
		2	8	to slot 2
		3	12	to slots 2 and 3
		4	16	to slots 2, 3, and 4
	Slot 3	1	4 (standard)	None
		2	8	to slot 4
MX400	Slot 1	1	4 (standard)	None
		2	8	to slot 2
		3	12	to slots 2 and 3
		4	16	to slots 2, 3, and 4

Figure 5 X400 inter-channel link settings



4.9.4.4 Commissioning an Amplifier's Internal Audio Path AC Surveillance

The amplifier's internal audio path surveillance is accomplished by detection of infrasonic tones at the amplifier output and input terminals. The surveillance tone level is monitored at the amplifier input and output, and any reduction from the configured threshold levels will be reported as a fault.

1) The VIPEDIA-12 should be configured to generate the required surveillance tone; see Section "4.2.3.3.2 Configuring the Output Surveillance Tone" (page 103).
2) VIPEDIA-12 outputs connected to ASL Amplifier Mainframes (V400 and X400) should have the Hard Clipper enabled at +2dBu; see Section "5.3.3.9 Configuring the Hard Clipper" (page 118). The Hard Clipper limits the programme audio so it does not intermodulate with the surveillance tone.
3) For EN 54-16 and BS 5839-8 compliance and where the amplifier's internal audio path AC surveillance is required, the AC surveillance must be enabled and all parameters must be configured and commissioned for all amplifiers, including all standby amplifiers.

To commission the AC surveillance:

1. Set surveillance tone frequency type to "LF" for each amplifier (working and standby).

Menu: **Configuration→Frames→Frame #**nn**→Slot** nn**→Surveillance→Amplifier→Type→LF Surv**

Possible values: "No Surv", "LF Surv", "HF Surv"

System default configuration: "LF Surv"

- "Not Surv"

  The amplifier health is not monitored.

- "LF Surv"

  The amplifier health and internal audio path are monitored by means of a low frequency AC surveillance tone with nominal frequency of 30 Hz which is superimposed on the VIPEDIA-12 output. The surveillance tone level is monitored at the amplifier input and output, and any reduction from the configured threshold levels will be reported as a fault.

  The amplifier health and internal audio path are monitored by means of a low frequency AC surveillance tone with nominal frequency of 30 Hz which is superimposed on the VIPEDIA-12 output. The surveillance tone level is monitored at the amplifier input and output by the built-in surveillance circuit in a X400 mainframe or the Surveillance Interfaces Card fitted to a V400 mainframe, and any reduction from the configured threshold levels will be reported as a fault:

- "HF Surv"

  This setting is used when the surveillance circuit uses a high frequency surveillance tone in order to monitor the connected amplifier, e.g. the ASL Surveillance Interface Card used in customised high frequency applications. Option not supported by the X400 Amplifier Mainframe at the time of the publication of this document. Please refer to ASL for further details.

2. Set the surveillance interval to 20 seconds for each working amplifier.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Amplifier→Interval**

Possible values: "00" to "50" seconds

System default configuration: "20" seconds

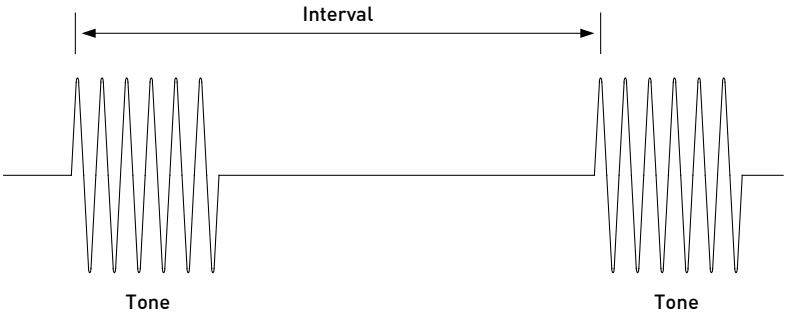
The system must detect pulses at this interval or more regularly; see Figure 6 (page 31). If pulses are not received within this interval, a fault will be reported.

In a typical ASL system the surveillance tone interval is set to 20 seconds.

Notes:

1) If the interval is set to "00" the system must detect a continuous surveillance tone. Otherwise, a fault will be reported.
2) The standby amplifier monitors a continuous surveillance tone generated internally by the amplifier mainframe. The system automatically sets the interval to "00" for a standby amplifier.

Figure 6 Surveillance tone interval



3. Set the input and output AC levels for each amplifier.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Amplifier→Thresholds**

a. The commissioned input and output threshold levels are displayed when the **Thresholds** menu option is selected; see example below.

```
[Read] In(mV)=00000  Out(mV)=00000 SET
```

b. Select the "Read" menu option to display threshold levels being detected by the amplifier mainframe.

The VIPEDIA-12 presents the input and output AC levels based upon a fixed proportion of the levels being detected. Automatic updates of these thresholds are made to the VIPEDIA-12 LCD display after a short delay.

In ASL systems with appropriate surveillance tone level set on the output[1], the typical thresholds values reported by the system are:

- Working amplifiers using DC surveillance with EOL10K resistors:

  V400: Input Threshold = 200 to 250 mV / Output threshold = 600 to 900 mV[2]

  X400: Input Threshold = 230 to 290 mV / Output threshold = 600 to 900 mV[2]
- Working amplifiers using impedance monitoring (X400 only):

  X400: Input Threshold = 230 to 290 mV / Output threshold = 600 to 1200 mV[2, 3]
- Working amplifiers using AC surveillance with AEL01 or ALE02 Active End of Line Devices:

  V400: Input Threshold = 270 to 340 mV / Output threshold = 900 to 1350 mV[2]

  X400: Input Threshold = 315 to 400 mV / Output threshold = 900 to 1350 mV[2]
- The standby amplifier uses an internal surveillance tone that is not user adjustable. Typical thresholds are:

  V400: Input Threshold = 00000 mV / Output threshold = 1323 mV

  X400: Input Threshold = 350 mV / Output threshold = 920 mV

[1] See Section '4.2.3.3.2 Configuring the Output Surveillance Tone' (page 74)

[2] Output threshold value depends on the actual load connected to the loudspeaker line

[3] The surveillance tone may have to be increased up to 2 V RMS for stable impedance readings on low loads, typically below 25 W.

In order to use these readings as the threshold levels press the **SELECT** key – The readings will be loaded into the input and output thresholds.

c. The user can manually adjust the threshold levels using the arrow keys or the rotary switch if required.

d. A "*" next to "SET" indicates that the displayed threshold levels are different from the currently commissioned threshold levels.

e. Commission the input and output thresholds by selecting the "SET*" menu option and then pressing the **SELECT** key.

Note that no action will be performed if the "SET" menu option is selected when a "*" is not displayed next to it.

Any reduction from the commissioned threshold levels will be reported as a fault if the AC surveillance is to be performed.

4.9.4.5 Commissioning the Loudspeaker Line Surveillance

The loudspeaker line surveillance is an essential function in Voice Alarms systems and can be accomplished using DC Line Surveillance, AC Line Surveillance, or Impedance Monitoring:

- DC Line Surveillance: supported by V400 and X400

  DC line surveillance requires all loudspeakers to be fitted with DC blocking capacitors, and one ASL EOL10K End of Line Resistor in parallel with the terminations of the last physical loudspeaker of each loudspeaker line. Any associated spurred cabling runs require additional EOL10K resistors to be fitted.

  See Section "4.9.4.5.1 Commissioning the Loudspeaker Line Surveillance Using DC Surveillance (V400 and X400) " (page 33).

- AC Line Surveillance: supported by V400 and X400

  AC line surveillance requires one ASL AEL01 or AEL02 Active End of Line Device to be fitted at the end on the loudspeaker circuit across the 100 V line.

  The AEL01 and AEL02 enable line monitoring of either single (A) or dual A&B loudspeaker circuits without the need for DC blocking capacitors in the loudspeakers. In dual A&B loudspeaker circuits application the surveillance system identifies and isolates the faulty circuit in the event of short circuit.

  See Section "4.9.4.5.2 Commissioning the Loudspeaker Line Surveillance Using AC Surveillance (V400 and X400) " (page 33).

- Impedance Monitoring: supported by X400 only

  Impedance Monitoring that does not require additional hardware to be fitted to loudspeakers or loudspeaker lines; therefore, can be retrofitted to existing installation where it is not possible to modify the installed loudspeakers.

  Commissioning is described in Section "4.9.4.5.3 Commissioning the Loudspeaker Line Surveillance Using Impedance Monitoring (X400 only) " (page 36).

Loudspeaker line Earth Leakage monitoring is provided in addition to the above loudspeaker line surveillance methods; see Section "4.9.4.6 Commissioning the Loudspeaker Line Earth Leakage Monitoring (V400 and X400)" (page 38).

For EN 54-16, ISO 7240-16 and BS 5839-8 compliance and where the loudspeaker line surveillance is required, one of the above line surveillance methods and the Earth Leakage monitoring must be enabled and commissioned for all working amplifiers.

4.9.4.5.1 Commissioning the Loudspeaker Line Surveillance Using DC Surveillance (V400 and X400)

Open circuit and short circuit faults on loudspeaker lines are detected by the measurement of a small direct current through ASL EOL10K End Of Line resistors. One EOL10K resistor is required in parallel with the terminations of the last physical loudspeaker of each loudspeaker line. Any associated spurred cabling runs require additional EOL10K resistors to be fitted. The system can monitor up to 10 spurs per amplifier slot:

- V400 Amplifier Mainframe: EOL10K resistors (spurs) must be equally split between the two circuits in dual (A&B) circuit applications.
- X400 Amplifier Mainframe: Each circuit in multiple circuit configurations can have different number of EOL10K resistors (or spurs) provided that the total number of EOL10K resistors (or spurs) per amplifier slot does not exceed ten.

All loudspeakers connected to the system must be fitted with DC blocking capacitors.

To commission the DC line surveillance:

1. For X400 Amplifier Mainframe, ensure that the number of ganged slots and outputs is correctly configured before commissioning the loudspeaker line monitoring; see Section "4.9.4.3 Configuring the Number of Outputs Driven by an Amplifier (X400 only)" (page 27).

Notes:

The system may not be able to detect and isolate a line fault if the number of ganged slots or outputs is incorrectly configured or modified after the loudspeaker line monitoring has been commissioned.

2. Set the loudspeaker line monitoring type to "DC Line" to enable the loudspeaker line monitoring using DC surveillance.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Spkr-line→Type=DC Line**

Possible values: "Not-Conf", "DC Line", "Impedance", and "EOL AC Surv"

System default configuration: "Not-Conf"

- "Not-Conf"

  The loudspeaker line monitoring method is not configured. Therefore, the loudspeaker line will not be monitored for open and short circuit faults.

- "DC Line"

  The loudspeaker line monitoring is carried out using DC surveillance with EOL10K resistor fitted at the end of every spur on the loudspeaker circuit. The loudspeakers on the circuit are fitted with DC blocking capacitors. An open or short circuit fault will be reported on any deviation from the configured number of EOL10K resistors on the loudspeaker line.

- "EOL AC Surv"

  The loudspeaker line monitoring is performed with one or two AEL01 or AEL02 units.

  Refer to Section "4.9.4.5.2 Commissioning the Loudspeaker Line Surveillance Using AC Surveillance (V400 and X400)" (page 33) for further details.

- "Impedance"

  The loudspeaker line monitoring is carried out using Impedance monitoring.

  Refer to Section "4.9.4.5.3 Commissioning the Loudspeaker Line Surveillance Using Impedance Monitoring (X400 only)" (page 36) for further details.

3. The total number of EOL10K resistors currently commissioned is displayed.

4. Select the **Read** menu item.

5. The VIPEDIA-12 presents the number of EOL10K resistors currently being detected:

- V400 Amplifier Mainframe:

  ```
  EOL-resistors=00
  ```

- X400 Amplifier Mainframe: the number of EOL10K resistors is shown for each of the ganged-slots.

  ```
  [S#1=01] S#2=02  S#3=3  S#4=0
  ```

Notes:

1) S#1 displays the number of EOL resistors detected for the amplifier slot.
2) S#1 displays the number of EOL resistors detected for the amplifier slot.
3) S#2 to S#4 will only be displayed if the amplifier slot is ganged to adjacent slot(s). Section "4.9.4.3 Configuring the Number of Outputs Driven by an Amplifier (X400 only)" (page 27). describes the available hardware configuration options.
4) During normal operation with no faults, these readings should agree with the number of EOL10K resistors actually fitted. If faults are present, then these readings will not necessarily agree with the number of EOL10K resistors actually fitted. This can be because a short circuit has been detected and the faulty outputs isolated as a result of the fault diagnostic process.
5) The automatic updates to the value displayed in the "Read" function occur at a slow rate of about every 50 seconds.

6. In order to use these readings for configuration of the EOL10K resistors press the **SELECT** key – The sum of EOL10K resistors will be loaded into the "EOL-resistors" field.

It is possible to edit the number of EOL10K resistors as required.

- V400 Amplifier Mainframe: to edit, move to the "EOL-resistors" field and scroll it until the required value is displayed.

  ```
  Read [EOL-resistors=02] Outputs  SET
  ```

- X400 Amplifier Mainframe: to edit, select the "Outputs" field.

  ```
  Read  EOL-resistors=02 [Outputs] SET
  ```

  Note: The system will evenly distribute the number of EOL10K resistors detected by the "Read" menu option for a given slot across the four outputs of that slot. Therefore, always use the "Outputs" menu to set the actual number of EOL10K resistors fitted to each of the configured outputs.

  For each output fed by the amplifier, select the output and then configure the number of EOL10K fitted to the output.

  ```
  [O/P #01] EOL-resistors=02
  ```

  Note: The outputs are sequentially numbered at the VIPEDIA-12 so that:

  - "O/P #1" corresponds to "output A" of the first ganged slot
  - "O/P #5" corresponds to "output A" of the second ganged slot (if any)
  - "O/P #9" corresponds to "output A" of the third ganged slot (if any)
  - "O/P #13" corresponds to "output A" of the fourth ganged slot (if any)

  The EOL10L resistors do not need to be evenly distributed across the outputs, provided that the total number of EOL10K resistors for one given slot does not exceed ten.

  Accept the selected number of EOL10K resistors by pressing the **SELECT** key, or cancel by pressing the **BACK** key.

7. Commission the number of EOL10K resistors by selecting the "SET*" menu option and then pressing the **SELECT** key.

Press the **BACK** key to cancel any changes.

Notes: A "*" next to "SET" indicates that the selected EOL10K resistor configuration is different from the configuration currently commissioned.

Note that no action will be performed if the "SET" menu option is selected when a "*" is not displayed next to it.

4.9.4.5.2 Commissioning the Loudspeaker Line Surveillance Using AC Surveillance (V400 and X400)

The AEL01 and AEL02 Active End of Line Devices operate by utilising 30 Hz and 20 kHz surveillance tones that are superimposed by the VIPEDIA-12 on its outputs. The AEL derives power from the 20 kHz surveillance tone, and monitors the line integrity by detecting the 30 Hz surveillance tone. On detection of the 30 Hz surveillance tone, the unit introduces a periodic signal current which the standard circuit within the ASL amplifier systems unit can detect. If the 30 Hz tone is lost due to open or short circuit, then this periodic signal disappears and a line fault is reported. The earth monitoring circuit within the ASL amplifier system can still detect "real" earth faults. The AEL device is fitted at the end on the loudspeaker circuit across the 100 V line, and with an additional connection to earth.

To commission the AC line surveillance:

1. Ensure that the 30 Hz and 20 kHz surveillance tones are correctly configured on the output feeding the amplifier.

Notes:

The AEL units will not work if the surveillance tones are incorrectly configured.

2. For X400 Amplifier Mainframe, ensure that the number of ganged slots and outputs are correctly commissioned as described in Section "4.9.4.3 Configuring the Number of Outputs Driven by an Amplifier (X400 only)" (page 27).

Notes:

AC Line Monitoring with AEL01/AEL02 can only be used with 1-Output (single A circuit) and 2-Outputs (dual A&B circuits) configurations.

3. Set the loudspeaker line monitoring type to "EOL AC Surv" to enable the loudspeaker line monitoring using DC surveillance.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Spkr-line →Type=EOL AC Surv**

Possible values: "Not-Conf", "DC Line", "Impedance", and "EOL AC Surv"

System default configuration: "Not-Conf"

- "Not-Conf"

  The loudspeaker line monitoring method is not configured. Therefore, the loudspeaker line will not be monitored for open and short circuit faults.

- "DC Line"

  Refer to Section "4.9.4.5.1 Commissioning the Loudspeaker Line Surveillance Using DC Surveillance (V400 and X400)" (page 33) for further details.

- "EOL AC Surv"

  The loudspeaker line monitoring is performed with one or two AEL01 or AEL02 units as described above.

- "Impedance"

  The loudspeaker line monitoring is carried out using Impedance monitoring.

  Refer to Section "4.9.4.5.3 Commissioning the Loudspeaker Line Surveillance Using Impedance Monitoring (X400 only)" (page 36) for further details.

4.9.4.5.3 Commissioning the Loudspeaker Line Surveillance Using Impedance Monitoring (X400 only)

From hardware Build Standard (BS) version 6 with firmware version V2.0 or later, the X400 supports impedance monitoring of the loudspeaker circuits. The impedance monitoring confirms that the loudspeaker circuit load remains within a tolerance window, reporting open or short circuit fault when the detected load is outside the tolerance window.

The impedance monitoring is on a per slot basis as the X400 motherboard hardware allows voltage and current readings to be taken on a per slot basis. Therefore, the monitored impedance is an aggregate of all connected loads on all four outputs of a given slot.

The tolerance window is configurable between 5% to 25%. When the detected load is outside the tolerance window, the system starts a fault diagnostic process using a continuous 30 Hz surveillance tone so that spurious faults due to noise can be filtered out. If the impedance changes to a value above the threshold, a line open circuit fault will be reported. If the impedance falls below the threshold, a line short circuit fault will be reported. Fault is reported within 100 seconds of the fault being induced.

To commission the impedance monitoring line surveillance:

1. Ensure that the 30 Hz surveillance tone is correctly configured on the output feeding the amplifier.

Notes:

Impedance monitoring may not work properly if the surveillance tone is incorrectly configured.

2. Ensure that the number of ganged slots and outputs is correctly configured before commissioning the loudspeaker line monitoring; see Section "4.9.4.3 Configuring the Number of Outputs Driven by an Amplifier (X400 only)" (page 27).

Notes:

The system may not be able to detect and isolate a line fault if the number of ganged slots or outputs is incorrectly configured or modified after the loudspeaker line monitoring has been commissioned.

3. Set the loudspeaker line monitoring type to "EOL AC Surv" to enable the loudspeaker line monitoring using DC surveillance.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Spkr-line →Type=Impedance**

Possible values: "Not-Conf", "DC Line", "Impedance", and "EOL AC Surv"

System default configuration: "Not-Conf"

- "Not-Conf"

  The loudspeaker line monitoring method is not configured. Therefore, the loudspeaker line will not be monitored for open and short circuit faults.

- "DC Line"

  Refer to Section "4.9.4.5.1 Commissioning the Loudspeaker Line Surveillance Using DC Surveillance (V400 and X400)" (page 33) for further details.

- "EOL AC Surv"

  Refer to Section "4.9.4.5.2 Commissioning the Loudspeaker Line Surveillance Using AC Surveillance (V400 and X400)" (page 33) for further details.

- "Impedance"

  The loudspeaker line monitoring is carried out using Impedance monitoring.

  The impedance monitoring is on a per slot basis; thus the monitored impedance is an aggregate of all connected loads on all four outputs of a given slot.

  If the impedance changes to a value above the threshold, a line open circuit fault will be reported. If the impedance falls below the threshold, a line short circuit fault will be reported. Fault is reported within 100 seconds of the fault being induced.

4. Set the reference impedance and the tolerance window for all ganged slots.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Spkr-line →Type=Impedance**

a. The total impedance currently commissioned is displayed when the "Type=Impedance" menu option is selected; see example below.

```
[Read] Impedance=0000  Slots  SET
```

The "Impedance" field is a display only field showing the total parallel impedance configured for the ganged slots, i.e. the total impedance configured via the "Read" or "Slots" menu option. The system automatically updates this field when the configuration is changed via the "Read" or "Outputs" menu option.

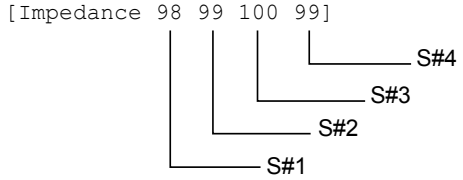
Notes:

The impedance commissioning menu above will not be displayed if the impedance monitoring calibration data is lost – The impedance calibration menu will be displayed instead, as shown below.

```
[Read] SET
```

Should recalibration be needed, please contact ASL for instructions.

b. The "Read" function shows the impedance currently being read for each of the ganged slots and is intended as a check during the commissioning; see example below.



In order to use these readings for configuration of the tolerance window press the **SELECT** key – The total impedance will be loaded into the "Impedance" field. Each individual reading will be loaded into the corresponding slot, which can be accessed via the "Slots" menu option.

Notes:

1) S#1 displays the impedance detected for the amplifier slot.

2) S#2 to S#4 will only be displayed if the amplifier slot is ganged to adjacent slot(s). See Table 4 (page 28) and Figure 5 (page 29) for available hardware configuration options.

3) Because the system uses a 30 Hz surveillance tone to measure the impedance, the impedance measured by the system will typically be lower than that based on the loudspeaker specification, which is generally specified at 1 kHz.

4) All loudspeakers connected to the system should NOT be fitted with DC blocking capacitors as they affect the impedance readings.

c. Select the "Slots" menu option to configure the tolerance window for each slot and adjust the reference impedance if required.

Notes:

1) The tolerance window should be configured according to the actual load connected to each slot, and in principle could enable the system to detect the failure of a single loudspeaker. For example:

   a) One 100 W amplifier feeding 10 x 10 W loudspeakers connected to a single slot: a 10% tolerance window would be required to detect the failure of a single loudspeaker.

   b) One 100 W amplifier feeding two ganged slots where 5 x 10 W loudspeakers are connected to one slot, and 5 x 10 W loudspeakers are connected to the second slot: a 20% tolerance window would be required on each slot to detect the failure of a single loudspeaker.

2) For correct operation of the impedance monitoring, all slots configured for an amplifier should have load connected.

3) In practice, it is generally not possible to set windows sufficiently tight to detect individual loudspeaker failure because temperature effects will cause a natural variation

d. A "*" next to "SET" indicates that impedance and/or window settings are different from the configuration currently configured.

e. Commission the impedance and window by selecting the "SET*" menu option and then pressing the **SELECT** key.

Note that no action will be performed if the "SET" menu option is selected when a "*" is not displayed next to it.

4.9.4.6 Commissioning the Loudspeaker Line Earth Leakage Monitoring (V400 and X400)

Both loudspeaker line phase conductors can be monitored for resistance to earth. No current flows to earth when the loudspeaker wiring is intact. Current will flow when the loudspeaker wiring is faulty or there is ingress of water.

When the Earth Leakage monitoring is enabled, an earth leakage fault will be reported when the measured resistance is below the threshold value (50 kΩ). This value allows minimal water ingress to be tolerated, minimising "nuisance" fault reports.

For EN 54-16 and BS 5839-8 compliance and where the loudspeaker line surveillance, the Earth Leakage monitoring must be enabled for all working amplifiers.

Menu: **Configuration→Frames→Frame #**nn**→Slot #**nn**→Surveillance→Spkr-line→Earth→Surveyed**

Possible values: "Not Surv", "Surveyed"

System default configuration: "Surveyed"

- "Not Surv"

  The earth leakage resistance will not be monitored. Therefore, no earth leakage fault will be reported.

- "Surveyed"

  The earth leakage monitoring is enabled.

  Both loudspeaker line phase conductors are monitored for resistance to earth. An earth leakage fault will be reported when the measured resistance is below the threshold value.

4.10 Fault Monitoring

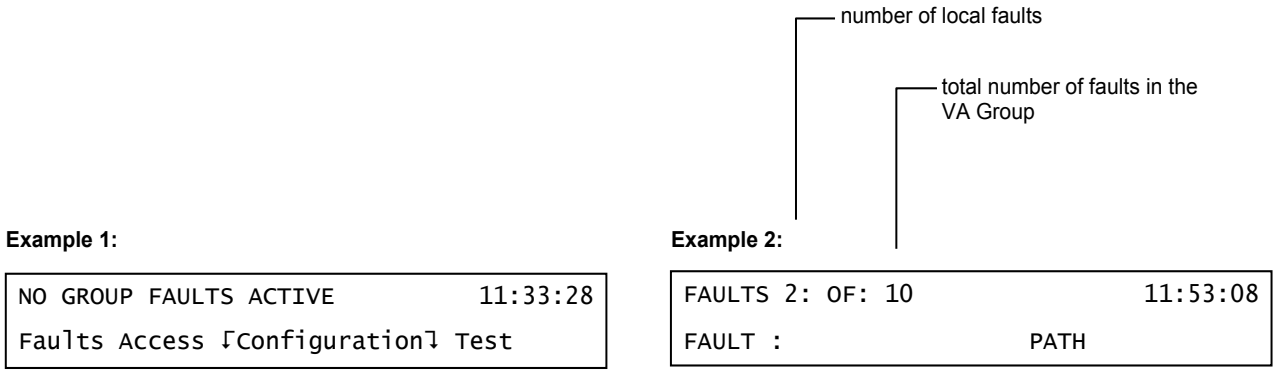
Active faults and the fault logs can be viewed on the LCD display. Active faults can be accepted and cleared through the front panel **FAULT ACCEPT** and **FAULT CLEAR** keys.

All VIPEDIA-12 units display fault count summaries from all other VIPEDIA-12 units in their VA group and the detailed report of local faults:

- The top line of the top-level menu displays the fault count on the left-hand side; see Example 1 in Figure 7 (page 39):
  - NO GROUP FAULTS ACTIVE
  - FAULTS: <number of local faults> OF: <number of faults in the VA group>

  Note: VIPxxx and FRMxxx OFF LINE faults are not included in the fault count.
- The **Faults→Active Faults** menu option lists the current active local faults in detail and a fault count summary for each VIPEDIA-12 unit in the VA Group; see examples in Figure 8 (page 41).

Figure 7 Fault display examples



When a fault is detected locally or on any other VIPEDIA-12 unit in the VA Group, the front panel "fault" LED flashes, and the built-in loudspeaker emits an alarm tone.

The built-in loudspeaker will only emit an alarm tone for a fault event if the VIPEDIA-12 is configured as fault master.

If a fault is triggered by a failure of any processor or memory, critical to the Voice Alarm system, including those of the VIPEDIA-12 itself, the front panel "system fault" LED illuminates. A communication fault between the VIPEDIA-12 and any equipment or device that has been configured at the VIPEDIA-12 and that is critical to Voice Alarm functions will also trigger a system fault. A system fault requires immediate action as part(s) of the system used for emergency functions may have been affected. A system fault will always cause the "fault" LED to be lit as well.

The bottom line of the LCD display also displays the appropriate text (POWER, EARTH, FUSE and/or PATH) if the detected fault is a power, earth, fuse or path fault reported that affects the Voice Alarm system; see Example 2 in Figure 7 (page 39). The text will persists until a user presses any key on the VIPEDIA-12 front panel, when the previous menu text will be restored.

EN 54 fault indications ("system fault" LED and POWER, EARTH, FUSE and PATH faults) are generated from local faults and the shared with other VIPEDIA-12 units in the VA Group. This means that every VIPEDIA-12 unit will display the VA Group summary status.

Faults are time and date stamped as they occur, and can be individually viewed in the active fault list. Multiple faults can be examined by scrolling through the list by means of the front panel switches or rotary knob; see Section "4.10.1 Viewing the Active Fault List" (page 41).

The "fault" LED can be steadied and the alarm sounder muted by pressing the front panel **FAULT ACCEPT** key; see Section "4.10.2 Accepting Faults" (page 41).

Newly occurring faults cause the sounder to resume operation, the "fault" LED to resume flashing, the "system fault" LED to illuminate for any of the above system faults, and the bottom line of the LCD display to display the appropriated text as described above.

Once a fault is physically fixed it is still latched on the LCD display. It is removed from the latched display by pressing the front panel **FAULT CLEAR** key; see Section "4.10.3 Clear" (page 41). If a fault cleared in this way still persists, then the fault warning condition will be restored within 100 seconds.

Pressing the **FAULT CLEAR** key also releases any active amplifier standby switching to reset the system to a known state.

The user must be logged on at Access Level 2 or 3 in order to be able to clear faults.

1) "fault" and "system fault" LEDs and Active Fault list are available on MPS/EMS microphones connected to any VIPEDIA-12 unit in the system. The MPS/EMS microphones will provide the same fault information as the VIPEDIA-12 that they connect to.
2) Faults can also be accepted from any MPS/EMS microphones.
3) Faults can also be cleared from an EMS microphone that is connected to a fault master.
4) Faults can also be cleared from a switched MPS microphone that is connected to a fault master and with keyswitch in the on position.
5) In order to enable the FAULT ACCEPT and FAULT CLEAR functions, the EMERGENCY MODE option on the MPS/EMS microphones must be enabled from the microphone configuration menu (MISC SETTINGS tab).

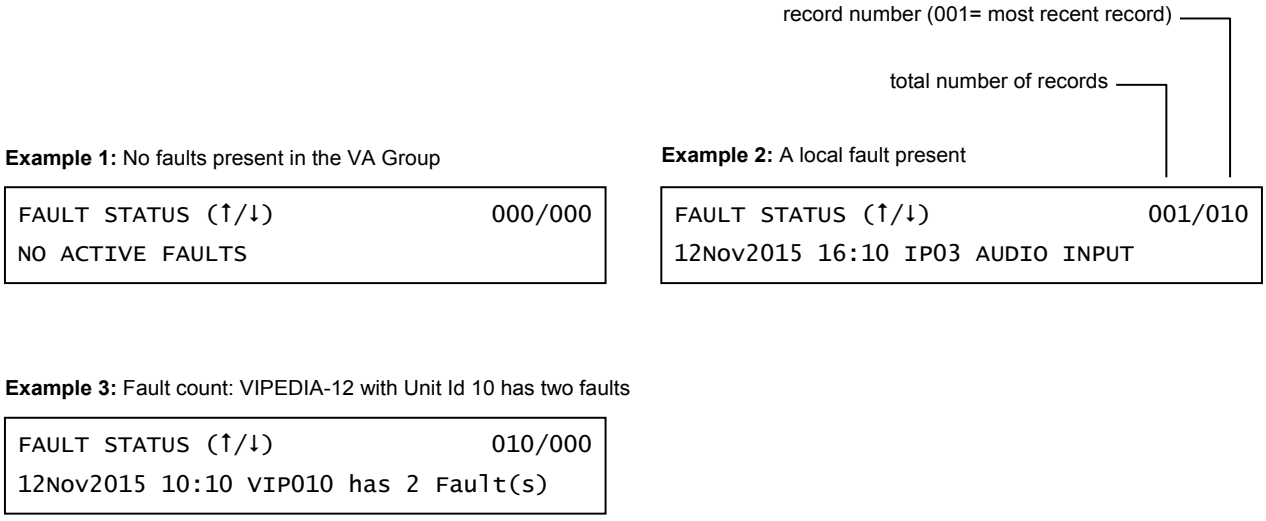
FAULT ACCEPT and FAULT CLEAR from VIPEDIA-12 front panel, MPS/EMS microphone or software tools such as the VIPEDIA-12 Dynamic Configuration Tool are group wide in operation, i.e., accepting or clearing faults from one unit will accept and clear faults on all units in the VA Group.

4.10.1 Viewing the Active Fault List

To view the active fault list:

1. Select **Faults→Active Faults**.
2. The active fault list will be displayed; see examples in Figure 8 (page 41).
3. Use the up and down arrows or the rotary knob to scroll the fault list.

Figure 8 Active fault list examples



4.10.2 Accepting Faults

FAULT ACCEPT is a group wide function. This means that accepting local faults will also accept all active faults in all other VIPEDIA-12 units in the VA Group.

To accept faults:

1. Press the **FAULT ACCEPT** key on the front panel.
2. All active faults will be accepted (acknowledged), the "fault" LED steadied, and the alarm sounder muted.

4.10.3 Clearing Faults

FAULT CLEAR is a group wide function. This means that clearing local faults will also clear all active faults in all other VIPEDIA-12 units in the VA Group. If a fault cleared in this way still persists, then the fault warning condition will be restored within 100 seconds.

To clear faults:

1. Log on with Access Level 2 (or Access Level 3) access code via **Configuration→Access** menu option if not already done
2. Press the **FAULT CLEAR** key on the front panel.
3. All faults will be cleared setting the VIPEDIA-12 and all connected equipment to the 'no faults' state. Any amplifier changeovers in effect will also be cancelled.

4.10.4 Router Fault Log

The VIPEDIA-12 unit maintains a time-stamped 500 event fault log in non-volatile memory, this include powering up, fault acceptance and clearance, and user logging in and out times.

For V400 Amplifier Mainframe all mainframe-specific faults are logged on separate mainframe fault logs which is retained by each mainframe. These faults will also be stored in the system fault log retained by the VIPEDIA-12.

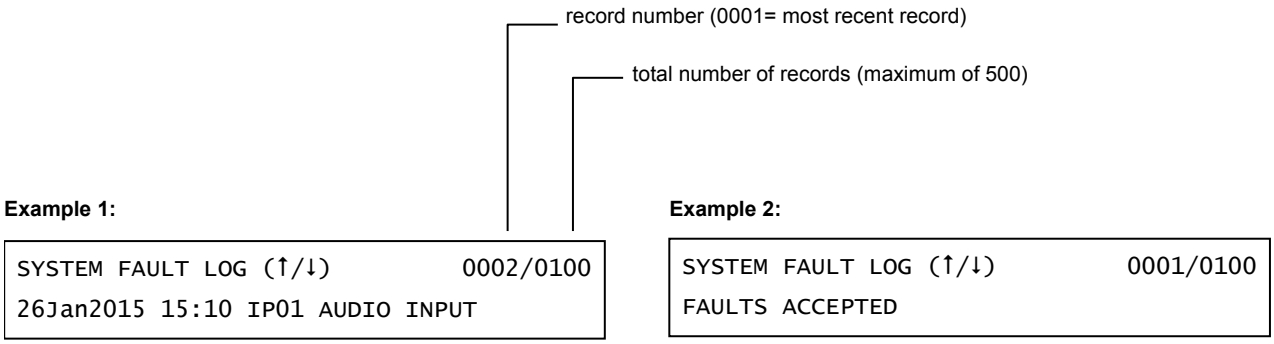
To prevent intermittent or frequently recurring faults from rapidly causing excessive write operations to the memory, faults are latched so that a recurring fault is logged in its first instance, and thereafter any repetitions are not recorded, unless a physical manual fault "clear" has taken place.

The fault log is continuously checked, and, if it is found to be corrupted, it is erased and a new "LOG CLEARED" fault is logged. A manual fault log clearing function is also provided.

To view the VIPEDIA-12 fault log:

1. Select **Faults→Fault Logs→Router**.
2. The fault log will be displayed; see examples in Figure 9 (page 42).

Figure 9 VIPEDIA-12 fault log example



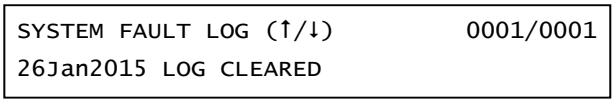
Non-fault events in the system fault log:

- POWERED UP
- LOG ON
- LOG OFF
- FAULTS ACCEPTED
- FAULTS CLEARED
- LOG CLEARED

To clear the VIPEDIA-12 fault log:

1. Select **Faults→Fault Logs→Clear Router Log**.
2. The history of the last 500 records is cleared and a new fault "LOG CLEARED" is logged; see Figure 10 (page 42).

Figure 10 VIPEDIA-12 fault log cleared



4.10.5 Mainframe Fault Log

All amplifier mainframe-specific faults are logged on a fault log retained by each mainframe.

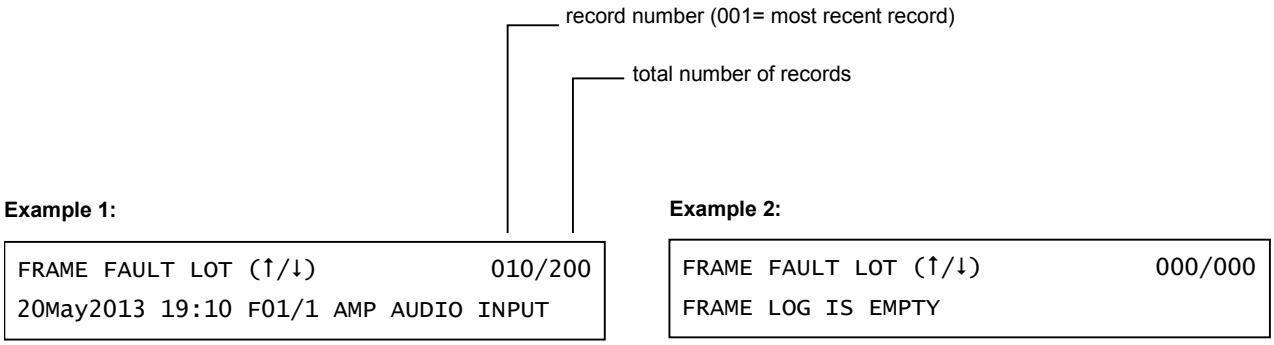
To prevent intermittent or frequently recurring faults from rapidly causing excessive write operations to the memory, faults are latched so that a recurring fault is logged in its first instance, and thereafter any repetitions are not recorded, unless a physical manual fault "clear" has taken place.

The fault log is only available for the V400 Amplifier Mainframe at the time of publication of this document.

To view an amplifier mainframe fault log:

1. Select **Faults→Fault Logs→Frame #**nn.
2. The fault log for the selected mainframe will be displayed; see examples in Figure 11 (page 43).

Figure 11 Mainframe fault log example

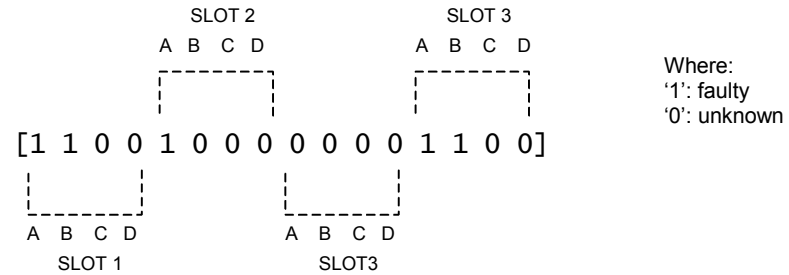


4.10.6 Viewing Fault Status of X400 Outputs

The X400 Amplifier Mainframe features 16 relay isolated outputs to enable multiple small speaker runs to be fed from single amplifiers. The X400 is fully configurable in terms of the mapping of the amplifiers to the outputs. For example, 4 amplifiers may be fitted, each feeding 4 outputs. Alternatively, a single amplifier may be fitted feeding up to 16 outputs. Loudspeaker line faults reported to the VIPEDIA-12 identifies the amplifier feeding these outputs. The faulty outputs may be identified through the VIPEDIA-12 front panel display.

To view fault status of the X400 outputs:

1. Select **Configuration→Frames→Frame #**nn**→View→Fault O/Ps**.
2. The fault status of all 16 outputs of the selected X400 is displayed.



4.10.7 Fault Codes and Suggested Actions

The fault codes described here are correct for the current version of the VIPEDIA-12 at the time of the publication of this document (Host CP V2.1).

If the VIPEDIA-12 in your system has a later (or earlier) version of software, then it may mean that some of the fault codes may be subtly different from the fault code described here, or that the new fault codes have been added.

If any difficulties are encountered, contact ASL or an appointed ASL distributor, quoting the Build Standard and software versions of your VIPEDIA-12 unit; see Section "6.2.1 Build Standard and Software Versions" (page 134).

Table 5 VIPEDIA-12 faults

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
24V SUPPLY-1 FAULT 24V SUPPLY-2 FAULT	OFF	POWER	Indicates that the power supply inputs is out of tolerance (18 V to 40 V).	Check the power supply to the unit.
12V RAIL-1 FAULT 12V RAIL-2 FAULT 1V8 RAIL FAULT 1V2 RAIL FAULT 3V3 RAIL FAULT 5V BYPASS RAIL FAULT 5V RAIL FAULT AVCC RAIL FAULT DSP VOLTAGE FAULT MIC VOLTAGE FAULT PHANTOM POWER FAULT	OFF	POWER	Indicates an internal supply voltage out of tolerance.	Replace the VIPEDIA-12.
CHECKSUM FAILED	ON	-	Indicates that the Host CP code is invalid.	Download the Host CP code; refer to Section "6.2.4 Loading the VIPEDIA-12 and VIPEDIA-NET Firmware" (page 135) for further details.
TFTP ERROR	ON	-	File transfer error fault. Indicates a connection error during firmware download.	Check the IP address settings are correct both on the host PC and VIPEDIA-12 unit and repeat the firmware upload. Refer to Section "6.2.4 Loading the VIPEDIA-12 and VIPEDIA-NET Firmware" (page 135) for further details.

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
INTERNAL ERROR	ON	-	Indicates an internal software error.	Power cycle the unit. Reload the software package (Host CP, DSP and FPGA). Reload the DVAs. Reload the configuration. Replace the VIPEDIA-12.
MEMORY CARD FAULT	ON	-	Micro-SD card fault	Replace the Micro-SD card.
DSP COMMS FAULT	ON	-	Communication failure with the router audio processor (DSP)	Replace the VIPEDIA-12.
UIP COMMS FAULT	ON	-	Communication failure with the user interface processor (UIP)	Replace the VIPEDIA-12.
WATCHDOG STATUS FAULT	ON	-	Watchdog fault	Indicates that the watchdog may not be working correctly. Replace the VIPEDIA-12.
NVM DEFAULTS SET FAULT	ON	-	Indicates that the dynamic configuration (audio settings, surveillance settings, unit Id, etc.) has been reset.	Re-configure the unit Id/Name, Frame Learn Check, UTC offset (if used) and users' PIN from the front panel menu options: • Unit Id: **Configuration→Router→Identity→Unit Identity→Id** • Unit Name: **Configuration→Router→Identity→Unit Identity→Name** • Frame Learn Check fault: **Faults→System→Learn Check** • UTC offset: **Configuration→Router→Identity→Unit Identity→UTC offset** • Users' PIN: **Configuration→Access→Change-PIN** Download the audio settings into the unit using the Audio Settings Manager; see Section "5.5 Extracting and Injecting Audio Settings to/from a File" (page 122).

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
NVM FAULT	ON	-	Indicates a fault in the non-volatile memory (NVM).	Replace the VIPEDIA-12.
CPU RESET	ON	-	Indicates an unexpected control processor reset (i.e. reset without power cycling).	A one of occurrence may be experienced due to EMI or transients. Repeated occurrences indicate faulty electronics. The VIPEDIA-12 will enter safe state (unrecoverable INTERNAL ERROR) after 3 resets within 1 hour of each other. Replace the VIPEDIA-12.
STATIC CONFIG FAULT	ON	-	Indicates that the unit has not been configured or that the static configuration is not valid.	Load the static configuration into the unit; refer to the PAVA System Configuration Tool User's Manual (U-0701-1093) provides general guidance for the system configuration.
INCOMPATIBLE CFG FILES		-	Incompatibiliy between the XML and binary configuration files	Reload the static configuration.
FPGA FAULT	ON	-	Indicates a fault is present in the router digital audio backbone (DBB).	Replace the VIPEDIA-12.
DSP/FPGA LOAD FAULT	ON	-	Indicates that an error in the DSP/FPGA images forced the external flash to be cleared.	Download the DSP and FPGA; see Section "6.2.4 Loading the VIPEDIA-12 and VIPEDIA-NET Firmware" (page 135). Replace the VIPEDIA-12.
ETHERNET STARTUP FAULT	ON	-	Indicates that an error was detected during the initialisation of the Ethernet device and connection	Check the IP settings are set with valid and correct values. Replace the VIPEDIA-12.
ETHERNET COMMS FAULT	ON	PATH	Indicates that the VIPEDIA-12 unit lost Ethernet connection to all VIPEDIA-12 units in the same VA Group.	Check the Ethernet connection.
DBB ETHERNET COMMS FAULT	ON	PATH	Indicates that the DBB member lost Ethernet connection to one or more VIPEDIA-12 units in the same DBB group.	Check the Ethernet connection between the VIPEDIA-12 units in the DBB group.
DBB AUDIO FAULT	ON	-	Indicates a fault in the DBB IN (digital audio backbone input) connection of the unit.	Check the DBB connection to the VIPEDIA-12 unit.

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
CAN COMMS FAULT	ON	-	External CAN bus fault	Check CAN wiring between VIPEDIA-12 and mainframes.
NO LEARN FAULT	OFF	-	Indicates that the "Learn" function hasn't been performed	Perform "Learn' function to detect connected amplifier mainframes or suppress the fault if no mainframes are connected to the VIPEDIA-12.
REQUESTED DVA NOT FOUND	ON	-	Indicates that one or more DVAs are corrupted.	Re-load the DVA messages.
VIPxxx OFF LINE	ON	-	Indicates that the VIPEDIA-12 unit lost Ethernet connection to the VIPxxx VIPEDIA-12 unit. **Note:** This fault is not included in the fault count on the diplay top line.	Check the Ethernet connection between the VIPEDIA-12 units. If VIP000 OFF LINE, then ensure the config has been applied to all units.
VIPxxx has y Fault(s)		-	Fault count for VIPxxx VIPEDIA-12 unit.	Check VIPxxx VIPEDIA-12 unit front panel for fault details.
VIPxxx Faults cleared	-	-	Indicates that VIPxxx faults have been fixed and cleared.	No action
GPS COMMS FAULT	ON	-	Indicates the VIPEDIA-12 unit has a problem communicating with the GPS time source device	Check connection between the GPS device and the VIPEDIA-12. Check GPS device. Replace GPS device.
HCP COMMS FAULT	ON	-	Indicates the VIPEDIA-12 unit has a problem communicating with the HCP host (e.g. ASL VIPA device).	Check HCP Host and connection between Host and VIPEDIA-12 serial port.

Table 6 VIPEDIA-NET Network Card faults

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
VNET BASE VIP OFFLINE VNET LINK FAULT 1:0	ON	-	Indicates that the Network Card has problems communicating with the VIPEDIA-12 unit. This is expected after downloading firmware to the VIPEDIA-12 unit.	Check that the network is confiigured on VIPEDIA-12 unit. Check that the Network Card is correctly configured. Clear faults. Power cycle the VIPEDIA-12 unit.
VNET OFFLINE FAULT	ON	-	Indicates that the VIPEDIA-12 unit has problem communicating with the Network Card.	Check that the Network Card is correctly configured. Power cycle the VIPEDIA-12 unit. Replace the VIPEDIA-12.
VNET NETWORK FAULT 1:y	OFF	-	Ethernet port y not connected	Ethernet Port y not connected (x=0, 3 and 4 where 0 is the internal port). Check the port connection. Power cycle the VIPEDIA-12 unit.
VNET MEMORY FAULT 3:0		-	Site-specific configuration data in memory is corrupt.	Load the configuration. Power cycle the VIPEDIA-12 unit.
VNET STORAGE FAULT 3:y	OFF	-	Configuration file y in /dva/config is missing or corrupt, where y: 0: MD5SUMS-config 2: CurrentConfig.cfg 3: vipediad.xml 4: vipedia-fault-d.xml 5: announce-d.xml 6: aslmicd.xml 7: aslmic-announce-if-d.xml	Reload the configuration using the VCT. Power cycle the VIPEDIA-12 unit.

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
VNET STORAGE FAULT 4:y	OFF	-	Application file y in /dva/bin is missing or corrupt, where y: 1: MD5SUMS-config 8: vipedia-d 9: vipedia-fault-d 10: announce-d 11: aslmicd 12: aslmic-announce-if-d 13: asl-pcdva-oem-telnet 14: file-index-d 15: file-sync-d 16: vipet_setup	Reload the firmware using the VCT.

Table 7 V400 and X400 Mainframe and amplifier faults

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
FRxx GENERAL FAULT xx=Mainframe Address	OFF	-	Indicates an internal fault (X400): • On board voltage reference faults • On board device faults (SPI / IIC / DMA / CAN) • Mezzanine board configuration fault	Replace the amplifier mainframe.
FRxx CPU-RESET xx=Mainframe Address	ON	-	CPU reset	A one of occurrence may be experienced due to EMI or transients. Repeated occurrences indicate faulty electronics. Replace the amplifier mainframe.
FRxx CPU-MEMORY xx=Mainframe Address	ON	-	CPU memory fault or EEPROM failure	Mainframe electronics will need replacing.
FRxx/y CAN COMMS xx=Mainframe Address y=Slot Number	ON	-	Failure of CAN comms to a single amplifier in a mainframe	Check CAN wiring to mainframe and status of front panel isolator switches i.e. is it turned off?
FRxx MAINS xx=Mainframe Address	OFF	POWER	Failure of AC mains supply	Check mains wiring, mains fuse in IEC inlet and front panel isolator switch on specified mainframe. If all seems ok, there may be an internal fault with the unit's power supply.
FRxx BATTERY xx=Mainframe Address	OFF	POWER	Failure of battery supply	Check DC wiring, rear panel DC fuse and front panel isolator switch on specified mainframe.
FRxx AUX xx=Mainframe Address	OFF	FUSE	Failure of mainframe auxiliary output	Check rear panel AUX fuse on mainframe.
FRxx TEMP xx=Mainframe Address	OFF	-	Over temperature alarm	Check the ambient temperature in the equipment room and investigate amplifier loading and drive conditions.
FRxx FUSE FAULT xx=Mainframe Address	OFF	FUSE	Internal fuse	Check internal fuse (F5 on V400).
FRxx CHARGER FAIL xx=Mainframe Address	OFF	POWER	X400 charger fault (for future use)	No action.

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
FRxx AMPy CPU-RESET xx=Mainframe Address y=Slot Number	ON	-	Surveillance interface CPU reset	A one of occurrence may be experienced due to EMI or transients. Repeated occurrences indicate faulty electronics. Replace the amplifier mainframe.
FRxx AMPy CPU-MEMORY xx=Mainframe Address y=Slot Number	ON	-	Surveillance interface CPU memory	Suspect Surveillance Interface electronics. Replace the Surveillance Interface card.
FRxx AMPy IF-COMMS xx=Mainframe Address y=Slot Number	ON	-	Cannot communicate with surveillance interface	Check whether the Surveillance Interface or its amplifier module has been removed. If all seems ok then the surveillance card electronics should be suspected. Replace the Surveillance Interface card.
FRxx AMPy IF-WRONG xx=Mainframe Address y=Slot Number	OFF	-	Different surveillance interface or amplifier fitted from that commissioned	Indicates that the Amplifier or Surveillance Interface have been changed to different type from that learnt.
FRxx AMPy FAIL xx=Mainframe Address y=Slot Number	OFF	-	Amplifier failure	Indicates faulty amplifier module. Replace the amplifier module.
FRxx AMPy LINE-EARTH xx=Mainframe Address y=Slot Number	OFF	EARTH	Earth leakage fault	Indicates an earth leakage path of <50kΩ exists between either conductor of the speaker circuit and ground. Speaker wiring and loudspeakers need to be checked.
FRxx AMPy LINE-OPEN xx=Mainframe Address y=Slot Number	OFF	-	Open circuit line fault	DC line monitoring: one or more spurs have been lost from the commissioned setting. AC line monitoring: monitoring signal is not being detected indicating an open circuit. Impedance monitoring: detected load is above the commissioned threshold In all cases check the correct fault threshold is commissioned, the speaker wiring and loudspeakers.

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
FRxx AMPy LINE-SHORT xx=Mainframe Address y=Slot Number	OFF	-	Short circuit line fault	DC line monitoring: the DC line resistance has fallen below the commissioned value indicating a full or partial short circuit. AC line monitoring: monitoring signal is not being detected indicating a short circuit. Impedance monitoring: detected load has fallen below the commissioned threshold indicating a full or partial short circuit. In all cases check the correct fault threshold is commissioned, the speaker wiring and loudspeakers.
FRxx AMPy INPUT xx=Mainframe Address y=Slot Number	OFF	-	Loss of audio at input	Check cabling from the VIPEDIA-12 to the input of the amplifier surveillance interface.
FRxx AMPy OUTPUT xx=Mainframe Address y=Slot Number	OFF	-	Loss of audio at output	This fault is normally reported with: • FRxx AMPy FAIL • FRxx AMPy LINE-SHORT • FRxx AMPy INPUT
FRxx AMPy STANDBY FAIL xx=Mainframe Address y=Slot Number	OFF	-	External standby amplifier failure	Indicates faulty standby amplifier module. (Only for an external standby amplifier connected to a X400) Replace the standby amplifier module.

Table 8 V2000 Mainframe and amplifier faults

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
FRMxxx RESET xxx=Mainframe Address	ON	-	CPU reset	A one of occurrence may be experienced due to EMI or transients. Repeated occurrences indicate a firmware issue or faulty electronics. Update the mainframe controller firmware. Replace the amplifier mainframe.
FRMxxx CONFIG xxx=Mainframe Address	OFF	-	Invalid static configuration Incompatibiliy between the XML and binary configuration files	Reload the static configuration.
FRMxxx NETWORK xxx=Mainframe Address	OFF	-	Indicates that the V2000 lost Ethernet connection to one or more VIPEDIA-12 units that feed audio to the V2000. It also indicates that the V2000 lost Ethernet connection to the V2000 containing the standby amplifier.	Check the network connection on both V2000 and VIPEDIA-12 units.
FRMxxx BATTERY xxx=Mainframe Address	OFF	POWER	Indicates a fault with the battery power supply (if used): • BATTERY front panel switch turned off • Temperature sensor fault • Battery power lost • Battery voltage out of range • Battery high temperature • Battery high impedance	Check front BATTTERY switch. Check correct batteries fitted. Check battery power supply. Check battery connection cables are the correct length and diameter.
FRMxxx PSU xxx=Mainframe Address	OFF	POWER	Indicates a fault with the internal PSU: • Auxiliary output voltage out of range • PSU high temperature • PSU fan failure • PSU comms failure	Check front "aux supply". Check the rack ventilation / cooling and spacing above and below V2000 unit is correct. Clear faults and confirm the fan operates. There may be an firmware issue or internal fault with the unit's power supply. Update the mainframe controller firmware. Replace the amplifier mainframe.

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
FRMxxx AUX OUTPUT xxx=Mainframe Address	OFF	POWER	Indicates a fault with the auxiliary DC output.	Check the auxiliary supply is not overloaded (2 A limit).
FRMxxx AC POWER xxx=Mainframe Address	OFF	POWER	Indicates a fault with the mains power supply: • MAINS front panel switch turned off • Mains power lost	Check front MAINS switch. Check mains power supply.
FRMxxx OFF LINE xxx=Mainframe Address	ON	PATH	Indicates that the VIPEDIA-12 unit lost Ethernet connection to the V2000 unit. **Note:** This fault is not included in the fault count on the diplay top line.	Check the network connections of both units. Check the V2000 frame is operational ("processor" LED is flashing).
FRMxxx/AMPyy INPUT FAULT xxx=Mainframe Address yy=Slot Number	OFF	-	Loss of audio at input	Check cabling from the VIPEDIA-12 to the input of the amplifier surveillance interface.
FRMxxx/AMPyy AMP FAIL xxx=Mainframe Address yy=Slot Number	OFF	PATH	Indicates a fault with the amplifier: • Incorrect amplifire type • Loss of audio input • Faulty amplifier • Amplifier temperature alarm	Check correct amplifier type is configured on the V2000. Check input connection from VIPEDIA-12 to the amplifier slot. Check VIPEDIA-12 output surveillance tone. Check the V2000 output surveillance tone. Check the rack ventilation, spacing above and below V2000 unit is correct, and amplifier audio load. Replace amplifier.
FRMxxx/AMPyy SURV CARD xxx=Mainframe Address yy=Slot Number	OFF	-	Indicates a fault with the LSZDC surveillance card: • Comms fail • LSZDC CPU reset • LSZDC CPU memory	Check the LSZDC is fitted correctly. • A one off occurrence may be experienced due to EMI or transients. Repeated occurrences indicate faulty electronics. • Replace LSZDC.

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
FRMxxx/AMPyy LINE A xxx=Mainframe Address yy=Slot Number	OFF	PATH and/or EARTH	Indicates a fault with speaker line A • Open circuit • Short circuit • Earth leakage	If PATH: check the V2000 Dynamic Tool DC-EOL: O/C – One or more spurs have been lost indicating an open circuit. DC-EOL: S/C – The number of spurs has increased, indicating a short circuit. Impedance: O/C – Detected impedance has decreased, indicating an open circuit. Impedance: S/C – Detected impedance has increased, indicating a short circuit. Loop Return: O/C – The received tone has decreased, indicating an open circuit. Loop Return: S/C – The received tone has increased, indicating a short circuit. If EARTH: Indicates an earth leakage path exists between line A of the speaker circuit and ground. In all cases check the correct fault threshold is commissioned, the speaker wiring and loudspeakers.
FRMxxx/AMPyy LINE B xxx=Mainframe Address yy=Slot Number	OFF	PATH and/or EARTH	Indicates a fault with speaker line B • Open circuit • Short circuit • Earth leakage	If PATH: check the V2000 Dynamic Tool DC-EOL: O/C – One or more spurs have been lost indicating an open circuit. DC-EOL: S/C – The number of spurs has increased, indicating a short circuit. Impedance: O/C – Detected impedance has decreased, indicating an open circuit. Impedance: S/C – Detected impedance has increased, indicating a short circuit. If EARTH: Indicates an earth leakage path exists between line A of the speaker circuit and ground. In all cases check the correct fault threshold is commissioned, the speaker wiring and loudspeakers.
FRMxxx/AMPyy RCD xxx=Mainframe Address yy=Slot Number	OFF	EARTH	RCD fault on either A or B speaker lines.	Check speaker wiring and loudspeakers. Replace amplifier.

Table 9 Analogue input and microphone faults

Fault Code(s) (front panel Faults menu)	System Fault LED	EARTH/PATH/POWER/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
IPxx AUDIO INPUT xx=01 to 12	OFF	PATH (for microphone only)	Indicates that the surveillance tone from the audio device is not being detected.	Check audio cabling and power supply cabling between microphone and VIPEDIA-12. Replace the audio device (typically a microphone).
IPxx AUDIO INPUT S/C xx=01 to 12	OFF	PATH (for EN 54 Emergency Microphone only)	Indicates that a short-circuit is present between the data and audio wiring(s).	Check audio and data cabling between microphone and VIPEDIA-12.
MICxx COMMS xx=01 to 12	ON	PATH	Microphone comms fault	Check data cabling or power supply cabling between microphone and VIPEDIA-12.
MICxx CAPSULE xx=01 to 12	OFF	PATH	Microphone capsule fault	Check continuity of microphone capsule and any associated wiring.
MICxx SYSTEM (*) xx=01 to 12	ON	-	Indicates that the microphone has a critical fault (memory, configuration, button board).	A one-off occurrence may be experienced due to EMI or transients.
MICxx GENERAL (*) xx=01 to 12	OFF	-	Indicates the microphone has a fault: • NVM fault • Capsule fault • Fist PTT fault (if fitted) • Stuck PTT • Stuck zone select button • Host comms fault (up to MPS V1.9.xxxx only)	If PTT is stuck, then press the centre of the navigation wheel to reset the PTT button. If zone select button is stuck, power cycle the microphone. Microphone will need replacing.
MICxx POWER xx=01 to 12	OFF	POWER	Power supply fault (dual host interface microphones)	Check power supply cabling between the microphone and system rack and VIPEDIA-12. Check DIN rail power supply terminals on the microphone back box.
MICxx PTT xx=01 to 12	OFF	PATH	PTT fault	Check the PTT button on the microphone. If faulty, the microphone will need replacing. If on inputs 1 or 2, check wiring between the fire microphone hardwired PTT and VIPEDIA-12.

Fault Code(s) (front panel Faults menu)	System Fault LED	EARTH/PATH/POWER/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
MICxx RESET xx=01 to 12	ON	-	This fault is normally reported when the comms between the microphone and the VIPEDIA-12 is established and after configuration download. This is used to synchronise the VIPEDIA-12 and the microphone. If a MICxx SYSTEM fault is also reported, then it indicates a microphone processor reset	If no MICxx SYSTEM fault is present, then clear the fault. If MICxx SYSTEM fault is present, a one-off occurrence may be experienced due to EMI or transients. Repeated occurrences indicate faulty microphone electronics in which case microphone will need replacing.
MICxx SPEAK NOW xx=01 to 12	OFF	PATH	LED fault SPEAK-NOW	Check wiring between VIPEDIA-12 and SPEAK-NOW LEDs.

(*): The fault menu on MPS and EMS microphones provides details of the fault.

To view the faults on the MPS/EMS:

1) Ensure the Operation menu is selected on the LCD display.
2) Toggle to the Fault list display by pressing ⓘ.
3) The fault menu will be displayed.
4) Press ◀ or ▶ one or more times to select the **MIC FAULTS** tab.

Table 10 BMB01 Remote I/O Unit and on-board GPIO faults

Fault Code(s) (front panel Faults menu)	System Fault LED	PATH/POWER/EARTH/FUSE (bottom line of LCD display)	Fault Description	Suggested Action
REMxx COMMS xx=Remote I/O Unit Address	ON	-	Remote I/O Unit comms fault	Check the data connection and power wiring to Remote I/O Unit. Check RS485 termination. Check that address of Remote I/O Unit is correct. If all above ok, suspect the unit itself. Check the unit's internal CPU and COMMS LEDs.
REMxx CPU RESET xx=Remote I/O Unit Address	ON	-	Remote I/O Unit reset	A one of occurrence may be experienced due to EMI or transients. Repeated occurrences indicate faulty electronics.
REMxx OVER TEMPERATURE xx=Remote I/O Unit Address	OFF	-	Remote I/O Unit over temperature alarm	Check the ambient temperature in the equipment room and investigate Remote I/O Unit loading and drive conditions.
REMxx 24V POWER OUT xx=Remote I/O Unit Address	OFF	POWER	Remote I/O Unit input voltage is out of tolerance	Check power supply.
REMxx/AINyy ANALOGUE I/P xx=Remote I/O Unit Address (00 indicates an on-board analogue input)) yy=Analogue Input Channel	OFF	-	Analogue input fault (open or short-circuit)	Check wiring of Volume Control, Programme Selector, or ANS on specified analogue channel.
REMxx/DOUTyy DIGITAL O/P xx=Remote I/O Unit Address (00 indicates an on-board digital output)) yy=Digital Output Channel	OFF	-	Digital output fault (load disconnected or over current)	Check load connection on particular digital channel.
Use defined text	OFF	POWER (if contact is configured with Power Fault enabled)	External fault	An analogue or digital input configured as a fault input is in "fault" state.

4.11 Testing

4.11.1 Testing the Indicators and the Alarm Sounder

A test function is available from the front panel that test all LED indicators, LCD display and alarm sounder on the VIPEDIA-12. It also tests the "fault" and "select" LEDs on each amplifier and all LEDs on mainframes.

To run the Lamp Test:

1. Press the **LAMP TEST** key on the front panel.

   All indicators on the VIPEDIA-12 and on all connected mainframe and amplifier units are tested. The sounder and the LCD display are also tested. The display shows "LAMP + LCD + SOUNDER TEST", and then solid black characters. The menu locks for the entire duration of the test.

2. On completion of the test, normal LED and sounder operation resumes.

4.11.2 Monitoring an Audio Input or Output

Any of the audio inputs and outputs on the VIPEDIA-12 can be displayed and monitored by the operation of the Audio Monitoring function. A bargraph will be displayed indicating the detected level; see example in Figure 12 (page 59).

Figure 12 Audio monitoring bargraph example

Example 1:

```
-50  -40  -30  -20  -10   0   +10  +20dB
▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪
```

4.11.3 Audio Output

4.11.3.1 Monitoring an Analogue Output

To monitor the pre-fader level of an analogue output:

Select **Test→Monitor→Audio→Outputs→Analogue→Analogue O/P** nn**→Pre-Fader**.

To monitor the post-mute level of an analogue output:

Select **Test→Monitor→Audio→Outputs→Analogue→Analogue O/P** nn**→Post-Mute**.

4.11.3.2 Monitoring DSP to FPGA Output Level

The audio routed from the DSP to the FPGA is used for internally routing the audio to the DBB units and Network Card; see Table 11 (page 60).

To monitor the pre-fader level of a DSP to FPGA output:

Select **Test→Monitor→Audio→Outputs→FPGA→Network O/P** nn**→Pre-Fader**.

To monitor the post-mute level of a DSP to FPGA output:

Select **Test→Monitor→Audio→Outputs→FPGA→Network O/P** nn**→Post-Mute**.

Table 11 DSP to FPGA output mapping

TDM Slot		Front Panel	DSP O/P Routing Reference	Default Data	Destination	Network Card Input
TDM 1	1	Network O/P 01	FPGA01	Analogue Input 1	DBB & Network	1
	2	Network O/P 02	FPGA02	Analogue Input 2	DBB & Network	2
	3	Network O/P 03	FPGA03	Analogue Input 3	DBB & Network	3
	4	Network O/P 04	FPGA04	Analogue Input 4	DBB & Network	4
	5	Network O/P 05	FPGA05	Analogue Input 5	DBB & Network	5
	6	Network O/P 06	FPGA06	Analogue Input 6	DBB & Network	6
	7	Network O/P 07	FPGA07	Analogue Input 7	DBB & Network	7
	8	Network O/P 08	FPGA08	Analogue Input 8	DBB & Network	8
	9	Network O/P 09	FPGA09	Analogue Input 9	DBB & Network	Not available
	10	Network O/P 10	FPGA10	Analogue Input 10	DBB & Network	Not available
	11	Network O/P 11	FPGA11	Analogue Input 11	DBB & Network	Not available
	12	Network O/P 12	FPGA12	Analogue Input 12	DBB & Network	Not available
	13	Network O/P 13	FPGA13	DVA Player 1	DBB & Network	Not available
	14	Network O/P 14	FPGA14	DVA Player 2	DBB & Network	Not available
	15	Network O/P 15	FPGA15	DVA Player 3	DBB & Network	Not available
	16	Network O/P 16	FPGA16	DVA Player 4	DBB & Network	Not available
TDM 2	1	Network O/P 17	FPGA17	DVA Player 5	DBB & Network	Not available
	2	Network O/P 18	FPGA18	DVA Player 6	DBB & Network	Not available
	3	Network O/P 19	FPGA19	DVA Player 7	DBB & Network	Not available
	4	Network O/P 20	FPGA20	DVA Player 8	DBB & Network	Not available
	5	Network O/P 21	FPGA21	Listen-In Mixer 1	DBB & Network	Not available
	6	Network O/P 22	FPGA22	Listen-In Mixer 2	DBB & Network	Not available
	7	Network O/P 23	FPGA23	PMC1 (Loopback To DBB)	DBB & Network	Not available
	8	Network O/P 24	FPGA24	PMC2 (Loopback To DBB)	DBB & Network	Not available
	9	Network O/P 25	FPGA25	PMC1 (Output)	Host & Network	9
	10	Network O/P 26	FPGA26	PMC2 (Output)	Host & Network	10
	11	Network O/P 27	FPGA27	Analogue Output 1	Network	11
	12	Network O/P 28	FPGA28	Analogue Output 2	Network	12
	13	Network O/P 29	FPGA29	Analogue Output 3	Network	13
	14	Network O/P 30	FPGA30	Analogue Output 4	Network	14
	15	Network O/P 31	FPGA31	Analogue Output 5	Network	15
	16	Network O/P 32	FPGA32	Analogue Output 6	Network	16

4.11.3.3 Monitoring PMC Output Level

To monitor the pre-fader level of a PMC output:

Select **Test→Monitor→Audio→Outputs→PMC→PMC O/P** nn**→Pre-Fader**.

To monitor the post-mute level of a PMC output:

Select **Test→Monitor→Audio→Outputs→PMC→PMC O/P** nn**→Post-Mute**.

4.11.3.4 Monitoring an Amplifier Output

When monitoring an amplifier, the audio monitor facility actually monitors the audio feeding the speaker circuit associated with a particular amplifier.

If an amplifier has failed and a standby is in operation, then it is possible to still monitor the audio associated with that speaker circuit, i.e. the audio being monitored is from the standby amplifier, which is feeding the failed amplifier's speaker output.

The system remains monitoring whilst within this menu with regular display refreshes and finishes when the menu times out, the **BACK** key is pressed, or if any new faults occur.

To monitor an amplifier output:

Select **Test→Monitor→Audio→Outputs→Amp audio output→V400** or **V2000→ Frame #**nnn.

4.11.4 Audio Input

4.11.4.1 Monitoring an Analogue Input

To monitor an analogue input level:

Select **Test→Monitor→Audio→Inputs→Analogue→Analogue I/P** nn**→Audio**.

To monitor an analogue input surveillance tone:

Select **Test→Monitor→Audio→Inputs→Analogue→Analogue I/P** nn**→Surveillance**.

4.11.4.2 Monitoring DVA Input Level

To monitor pre-fader level of a DVA input:

Select **Test→Monitor→Audio→Inputs→DVA→DVA** nn**→Pre-Fader**.

To monitor post-fader level of a DVA input:

Select **Test→Monitor→Audio→Inputs→DVA→DVA** nn**→Post-Fader**.

4.11.4.3 Monitoring FPGA to DSP Input Level

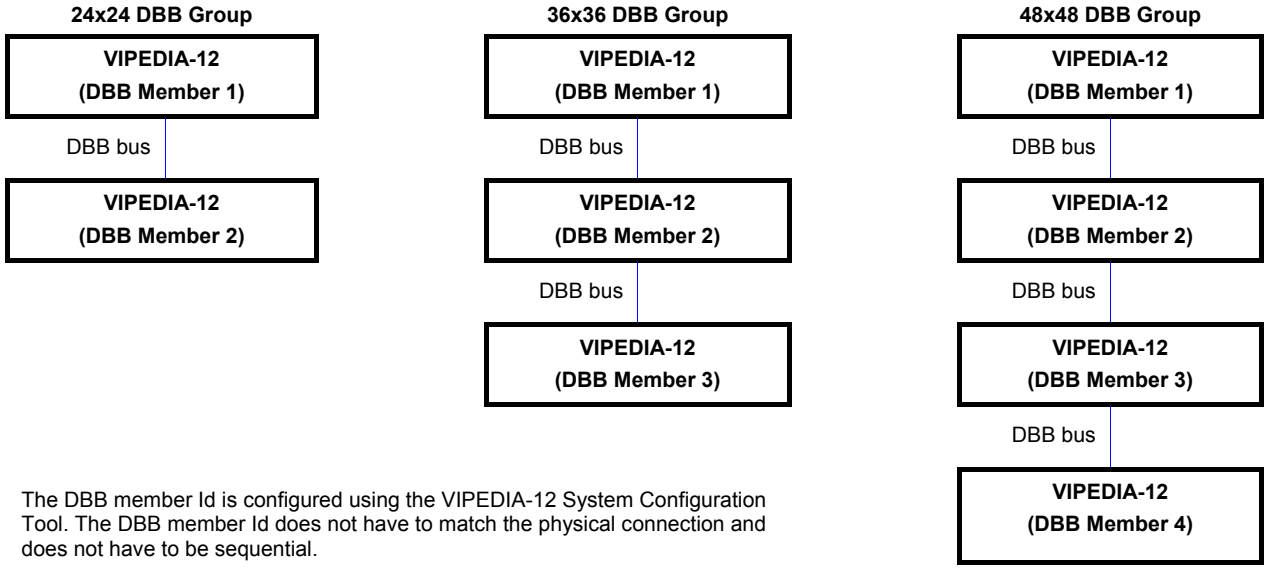
The audio routed from the FPGA to the DSP is internally used for routing the audio between the units in a DBB group.

This test function allows the audio in the DBB bus to be monitored. The Network I/P allocation depends on the DBB member Id of the VIPEDIA-12 unit see examples of DBB group in Figure 13 (page 62).

The Network I/P allocation is described as follows:

- DBB Member 1: see Table 12 (page 63).
- DBB Member 2: see Table 13 (page 65).
- DBB Member 3: see Table 14 (page 67).
- DBB Member 4: see Table 15 (page 69).

Figure 13 DBB group and member Id (example)



The DBB member Id is configured using the VIPEDIA-12 System Configuration Tool. The DBB member Id does not have to match the physical connection and does not have to be sequential.

To monitor a FPGA to DSP input level:

Select **Test→Monitor→Audio→Inputs→FPGA→Network I/P** nn**→Audio**.

To monitor a FPGA to DSP input surveillance tone:

Select **Test→Monitor→Audio→Inputs→FPGA→Network I/P** nn**→Surveillance**.

Table 12 FPGA to DSP input mapping for DBB Member 1

DBB Member 1					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
TDM 1	1	Network I/P 01	FPGA01	DBB Member 2 - Analogue Input 1	DBB
	2	Network I/P 02	FPGA02	DBB Member 2 - Analogue Input 2	DBB
	3	Network I/P 03	FPGA03	DBB Member 2 - Analogue Input 3	DBB
	4	Network I/P 04	FPGA04	DBB Member 2 - Analogue Input 4	DBB
	5	Network I/P 05	FPGA05	DBB Member 2 - Analogue Input 5	DBB
	6	Network I/P 06	FPGA06	DBB Member 2 - Analogue Input 6	DBB
	7	Network I/P 07	FPGA07	DBB Member 2 - Analogue Input 7	DBB
	8	Network I/P 08	FPGA08	DBB Member 2 - Analogue Input 8	DBB
	9	Network I/P 09	FPGA09	DBB Member 2 - Analogue Input 9	DBB
	10	Network I/P 10	FPGA10	DBB Member 2 - Analogue Input 10	DBB
	11	Network I/P 11	FPGA11	DBB Member 2 - Analogue Input 11	DBB
	12	Network I/P 12	FPGA12	DBB Member 2 - Analogue Input 12	DBB
	13	Network I/P 13	FPGA13	DBB Member 2 – DVA Player 1	DBB
	14	Network I/P 14	FPGA14	DBB Member 2 – DVA Player 2	DBB
	15	Network I/P 15	FPGA15	DBB Member 2 – DVA Player 3	DBB
	16	Network I/P 16	FPGA16	DBB Member 2 – DVA Player 4	DBB
TDM 2	1	Network I/P 17	FPGA17	DBB Member 2 – DVA Player 5	DBB
	2	Network I/P 18	FPGA18	DBB Member 2 – DVA Player 6	DBB
	3	Network I/P 19	FPGA19	DBB Member 2 – DVA Player 7	DBB
	4	Network I/P 20	FPGA20	DBB Member 2 – DVA Player 8	DBB
	5	Network I/P 21	FPGA21	DBB Member 2 – Listen-In Mixer 1	DBB
	6	Network I/P 22	FPGA22	DBB Member 2 – Listen-In Mixer 2	DBB
	7	Network I/P 23	FPGA23	DBB Member 2 – PMC1	DBB
	8	Network I/P 24	FPGA24	DBB Member 2 – PMC2	DBB
	9	Network I/P 25	FPGA25	Local PMC1 (Input)	Host
	10	Network I/P 26	FPGA26	Local PMC2 (Input)	Host
	11	Network I/P 27	FPGA27	Spare1	
	12	Network I/P 28	FPGA28	Spare2	
	13	Network I/P 29	FPGA29	Spare3	
	14	Network I/P 30	FPGA30	Spare4	
	15	Network I/P 31	FPGA31	Spare5	
	16	Network I/P 32	FPGA32	Spare6	
TDM 3	1	Network I/P 33	FPGA33	DBB Member 3 - Analogue Input 1	DBB
	2	Network I/P 34	FPGA34	DBB Member 3 - Analogue Input 2	DBB
	3	Network I/P 35	FPGA35	DBB Member 3 - Analogue Input 3	DBB
	4	Network I/P 36	FPGA36	DBB Member 3 - Analogue Input 4	DBB
	5	Network I/P 37	FPGA37	DBB Member 3 - Analogue Input 5	DBB
	6	Network I/P 38	FPGA38	DBB Member 3 - Analogue Input 6	DBB
	7	Network I/P 39	FPGA39	DBB Member 3 - Analogue Input 7	DBB
	8	Network I/P 40	FPGA40	DBB Member 3 - Analogue Input 8	DBB
	9	Network I/P 41	FPGA41	DBB Member 3 - Analogue Input 9	DBB

DBB Member 1					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
	10	Network I/P 42	FPGA42	DBB Member 3 - Analogue Input 10	DBB
	11	Network I/P 43	FPGA43	DBB Member 3 - Analogue Input 11	DBB
	12	Network I/P 44	FPGA44	DBB Member 3 - Analogue Input 12	DBB
	13	Network I/P 45	FPGA45	DBB Member 3 – DVA Player 1	DBB
	14	Network I/P 46	FPGA46	DBB Member 3 – DVA Player 2	DBB
	15	Network I/P 47	FPGA47	DBB Member 3 – DVA Player 3	DBB
	16	Network I/P 48	FPGA48	DBB Member 3 – DVA Player 4	DBB
TDM 4	1	Network I/P 49	FPGA49	DBB Member 3 – DVA Player 5	DBB
	2	Network I/P 50	FPGA50	DBB Member 3 – DVA Player 6	DBB
	3	Network I/P 51	FPGA51	DBB Member 3 – DVA Player 7	DBB
	4	Network I/P 52	FPGA52	DBB Member 3 – DVA Player 8	DBB
	5	Network I/P 53	FPGA53	DBB Member 3 – Listen-In Mixer 1	DBB
	6	Network I/P 54	FPGA54	DBB Member 3 – Listen-In Mixer 2	DBB
	7	Network I/P 55	FPGA55	DBB Member 3 – PMC1	DBB
	8	Network I/P 56	FPGA56	DBB Member 3 – PMC2	DBB
	9	Network I/P 57	FPGA57	DBB Member 4 – DVA Player 5	DBB
	10	Network I/P 58	FPGA58	DBB Member 4 – DVA Player 6	DBB
	11	Network I/P 59	FPGA59	DBB Member 4 – DVA Player 7	DBB
	12	Network I/P 60	FPGA60	DBB Member 4 – DVA Player 8	DBB
	13	Network I/P 61	FPGA61	DBB Member 4 – Listen-In Mixer 1	DBB
	14	Network I/P 62	FPGA62	DBB Member 4 – Listen-In Mixer 2	DBB
	15	Network I/P 63	FPGA63	DBB Member 4 – PMC1	DBB
	16	Network I/P 64	FPGA64	DBB Member 4 – PMC2	DBB
TDM 5	1	Network I/P 65	FPGA65	DBB Member 4 - Analogue Input 1	DBB
	2	Network I/P 66	FPGA66	DBB Member 4 - Analogue Input 2	DBB
	3	Network I/P 67	FPGA67	DBB Member 4 - Analogue Input 3	DBB
	4	Network I/P 68	FPGA68	DBB Member 4 - Analogue Input 4	DBB
	5	Network I/P 69	FPGA69	DBB Member 4 - Analogue Input 5	DBB
	6	Network I/P 70	FPGA70	DBB Member 4 - Analogue Input 6	DBB
	7	Network I/P 71	FPGA71	DBB Member 4 - Analogue Input 7	DBB
	8	Network I/P 72	FPGA72	DBB Member 4 - Analogue Input 8	DBB
	9	Network I/P 73	FPGA73	DBB Member 4 - Analogue Input 9	DBB
	10	Network I/P 74	FPGA74	DBB Member 4 - Analogue Input 10	DBB
	11	Network I/P 75	FPGA75	DBB Member 4 - Analogue Input 11	DBB
	12	Network I/P 76	FPGA76	DBB Member 4 - Analogue Input 12	DBB
	13	Network I/P 77	FPGA77	DBB Member 4 – DVA Player 1	DBB
	14	Network I/P 78	FPGA78	DBB Member 4 – DVA Player 2	DBB
	15	Network I/P 79	FPGA79	DBB Member 4 – DVA Player 3	DBB
	16	Network I/P 80	FPGA80	DBB Member 4 – DVA Player 4	DBB

Table 13 FPGA to DSP input mapping for DBB Member 2

DBB Member 2					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
TDM 1	1	Network I/P 01	FPGA01	DBB Member 1 - Analogue Input 1	DBB
	2	Network I/P 02	FPGA02	DBB Member 1 - Analogue Input 2	DBB
	3	Network I/P 03	FPGA03	DBB Member 1 - Analogue Input 3	DBB
	4	Network I/P 04	FPGA04	DBB Member 1 - Analogue Input 4	DBB
	5	Network I/P 05	FPGA05	DBB Member 1 - Analogue Input 5	DBB
	6	Network I/P 06	FPGA06	DBB Member 1 - Analogue Input 6	DBB
	7	Network I/P 07	FPGA07	DBB Member 1 - Analogue Input 7	DBB
	8	Network I/P 08	FPGA08	DBB Member 1 - Analogue Input 8	DBB
	9	Network I/P 09	FPGA09	DBB Member 1 - Analogue Input 9	DBB
	10	Network I/P 10	FPGA10	DBB Member 1 - Analogue Input 10	DBB
	11	Network I/P 11	FPGA11	DBB Member 1 - Analogue Input 11	DBB
	12	Network I/P 12	FPGA12	DBB Member 1 - Analogue Input 12	DBB
	13	Network I/P 13	FPGA13	DBB Member 1 – DVA Player 1	DBB
	14	Network I/P 14	FPGA14	DBB Member 1 – DVA Player 2	DBB
	15	Network I/P 15	FPGA15	DBB Member 1 – DVA Player 3	DBB
	16	Network I/P 16	FPGA16	DBB Member 1 – DVA Player 4	DBB
TDM 2	1	Network I/P 17	FPGA17	DBB Member 1 – DVA Player 5	DBB
	2	Network I/P 18	FPGA18	DBB Member 1 – DVA Player 6	DBB
	3	Network I/P 19	FPGA19	DBB Member 1 – DVA Player 7	DBB
	4	Network I/P 20	FPGA20	DBB Member 1 – DVA Player 8	DBB
	5	Network I/P 21	FPGA21	DBB Member 1 – Listen-In Mixer 1	DBB
	6	Network I/P 22	FPGA22	DBB Member 1 – Listen-In Mixer 2	DBB
	7	Network I/P 23	FPGA23	DBB Member 1 – PMC1	DBB
	8	Network I/P 24	FPGA24	DBB Member 1 – PMC2	DBB
	9	Network I/P 25	FPGA25	Local PMC1 (Input)	Host
	10	Network I/P 26	FPGA26	Local PMC2 (Input)	Host
	11	Network I/P 27	FPGA27	Spare1	
	12	Network I/P 28	FPGA28	Spare2	
	13	Network I/P 29	FPGA29	Spare3	
	14	Network I/P 30	FPGA30	Spare4	
	15	Network I/P 31	FPGA31	Spare5	
	16	Network I/P 32	FPGA32	Spare6	
TDM 3	1	Network I/P 33	FPGA33	DBB Member 3 - Analogue Input 1	DBB
	2	Network I/P 34	FPGA34	DBB Member 3 - Analogue Input 2	DBB
	3	Network I/P 35	FPGA35	DBB Member 3 - Analogue Input 3	DBB
	4	Network I/P 36	FPGA36	DBB Member 3 - Analogue Input 4	DBB
	5	Network I/P 37	FPGA37	DBB Member 3 - Analogue Input 5	DBB
	6	Network I/P 38	FPGA38	DBB Member 3 - Analogue Input 6	DBB
	7	Network I/P 39	FPGA39	DBB Member 3 - Analogue Input 7	DBB
	8	Network I/P 40	FPGA40	DBB Member 3 - Analogue Input 8	DBB
	9	Network I/P 41	FPGA41	DBB Member 3 - Analogue Input 9	DBB

DBB Member 2					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
	10	Network I/P 42	FPGA42	DBB Member 3 - Analogue Input 10	DBB
	11	Network I/P 43	FPGA43	DBB Member 3 - Analogue Input 11	DBB
	12	Network I/P 44	FPGA44	DBB Member 3 - Analogue Input 12	DBB
	13	Network I/P 45	FPGA45	DBB Member 3 – DVA Player 1	DBB
	14	Network I/P 46	FPGA46	DBB Member 3 – DVA Player 2	DBB
	15	Network I/P 47	FPGA47	DBB Member 3 – DVA Player 3	DBB
	16	Network I/P 48	FPGA48	DBB Member 3 – DVA Player 4	DBB
TDM 4	1	Network I/P 49	FPGA49	DBB Member 3 – DVA Player 5	DBB
	2	Network I/P 50	FPGA50	DBB Member 3 – DVA Player 6	DBB
	3	Network I/P 51	FPGA51	DBB Member 3 – DVA Player 7	DBB
	4	Network I/P 52	FPGA52	DBB Member 3 – DVA Player 8	DBB
	5	Network I/P 53	FPGA53	DBB Member 3 – Listen-In Mixer 1	DBB
	6	Network I/P 54	FPGA54	DBB Member 3 – Listen-In Mixer 2	DBB
	7	Network I/P 55	FPGA55	DBB Member 3 – PMC1	DBB
	8	Network I/P 56	FPGA56	DBB Member 3 – PMC2	DBB
	9	Network I/P 57	FPGA57	DBB Member 4 – DVA Player 5	DBB
	10	Network I/P 58	FPGA58	DBB Member 4 – DVA Player 6	DBB
	11	Network I/P 59	FPGA59	DBB Member 4 – DVA Player 7	DBB
	12	Network I/P 60	FPGA60	DBB Member 4 – DVA Player 8	DBB
	13	Network I/P 61	FPGA61	DBB Member 4 – Listen-In Mixer 1	DBB
	14	Network I/P 62	FPGA62	DBB Member 4 – Listen-In Mixer 2	DBB
	15	Network I/P 63	FPGA63	DBB Member 4 – PMC1	DBB
	16	Network I/P 64	FPGA64	DBB Member 4 – PMC2	DBB
TDM 5	1	Network I/P 65	FPGA65	DBB Member 4 - Analogue Input 1	DBB
	2	Network I/P 66	FPGA66	DBB Member 4 - Analogue Input 2	DBB
	3	Network I/P 67	FPGA67	DBB Member 4 - Analogue Input 3	DBB
	4	Network I/P 68	FPGA68	DBB Member 4 - Analogue Input 4	DBB
	5	Network I/P 69	FPGA69	DBB Member 4 - Analogue Input 5	DBB
	6	Network I/P 70	FPGA70	DBB Member 4 - Analogue Input 6	DBB
	7	Network I/P 71	FPGA71	DBB Member 4 - Analogue Input 7	DBB
	8	Network I/P 72	FPGA72	DBB Member 4 - Analogue Input 8	DBB
	9	Network I/P 73	FPGA73	DBB Member 4 - Analogue Input 9	DBB
	10	Network I/P 74	FPGA74	DBB Member 4 - Analogue Input 10	DBB
	11	Network I/P 75	FPGA75	DBB Member 4 - Analogue Input 11	DBB
	12	Network I/P 76	FPGA76	DBB Member 4 - Analogue Input 12	DBB
	13	Network I/P 77	FPGA77	DBB Member 4 – DVA Player 1	DBB
	14	Network I/P 78	FPGA78	DBB Member 4 – DVA Player 2	DBB
	15	Network I/P 79	FPGA79	DBB Member 4 – DVA Player 3	DBB
	16	Network I/P 80	FPGA80	DBB Member 4 – DVA Player 4	DBB

Table 14 FPGA to DSP input mapping for DBB Member 3

DBB Member 3					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
TDM 1	1	Network I/P 01	FPGA01	DBB Member 1 - Analogue Input 1	DBB
	2	Network I/P 02	FPGA02	DBB Member 1 - Analogue Input 2	DBB
	3	Network I/P 03	FPGA03	DBB Member 1 - Analogue Input 3	DBB
	4	Network I/P 04	FPGA04	DBB Member 1 - Analogue Input 4	DBB
	5	Network I/P 05	FPGA05	DBB Member 1 - Analogue Input 5	DBB
	6	Network I/P 06	FPGA06	DBB Member 1 - Analogue Input 6	DBB
	7	Network I/P 07	FPGA07	DBB Member 1 - Analogue Input 7	DBB
	8	Network I/P 08	FPGA08	DBB Member 1 - Analogue Input 8	DBB
	9	Network I/P 09	FPGA09	DBB Member 1 - Analogue Input 9	DBB
	10	Network I/P 10	FPGA10	DBB Member 1 - Analogue Input 10	DBB
	11	Network I/P 11	FPGA11	DBB Member 1 - Analogue Input 11	DBB
	12	Network I/P 12	FPGA12	DBB Member 1 - Analogue Input 12	DBB
	13	Network I/P 13	FPGA13	DBB Member 1 – DVA Player 1	DBB
	14	Network I/P 14	FPGA14	DBB Member 1 – DVA Player 2	DBB
	15	Network I/P 15	FPGA15	DBB Member 1 – DVA Player 3	DBB
	16	Network I/P 16	FPGA16	DBB Member 1 – DVA Player 4	DBB
TDM 2	1	Network I/P 17	FPGA17	DBB Member 1 – DVA Player 5	DBB
	2	Network I/P 18	FPGA18	DBB Member 1 – DVA Player 6	DBB
	3	Network I/P 19	FPGA19	DBB Member 1 – DVA Player 7	DBB
	4	Network I/P 20	FPGA20	DBB Member 1 – DVA Player 8	DBB
	5	Network I/P 21	FPGA21	DBB Member 1 – Listen-In Mixer 1	DBB
	6	Network I/P 22	FPGA22	DBB Member 1 – Listen-In Mixer 2	DBB
	7	Network I/P 23	FPGA23	DBB Member 1 – PMC1	DBB
	8	Network I/P 24	FPGA24	DBB Member 1 – PMC2	DBB
	9	Network I/P 25	FPGA25	Local PMC1 (Input)	Host
	10	Network I/P 26	FPGA26	Local PMC2 (Input)	Host
	11	Network I/P 27	FPGA27	Spare1	
	12	Network I/P 28	FPGA28	Spare2	
	13	Network I/P 29	FPGA29	Spare3	
	14	Network I/P 30	FPGA30	Spare4	
	15	Network I/P 31	FPGA31	Spare5	
	16	Network I/P 32	FPGA32	Spare6	
TDM 3	1	Network I/P 33	FPGA33	DBB Member 2 - Analogue Input 1	DBB
	2	Network I/P 34	FPGA34	DBB Member 2 - Analogue Input 2	DBB
	3	Network I/P 35	FPGA35	DBB Member 2 - Analogue Input 3	DBB
	4	Network I/P 36	FPGA36	DBB Member 2 - Analogue Input 4	DBB
	5	Network I/P 37	FPGA37	DBB Member 2 - Analogue Input 5	DBB
	6	Network I/P 38	FPGA38	DBB Member 2 - Analogue Input 6	DBB
	7	Network I/P 39	FPGA39	DBB Member 2 - Analogue Input 7	DBB
	8	Network I/P 40	FPGA40	DBB Member 2 - Analogue Input 8	DBB
	9	Network I/P 41	FPGA41	DBB Member 2 - Analogue Input 9	DBB

DBB Member 3					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
	10	Network I/P 42	FPGA42	DBB Member 2 - Analogue Input 10	DBB
	11	Network I/P 43	FPGA43	DBB Member 2 - Analogue Input 11	DBB
	12	Network I/P 44	FPGA44	DBB Member 2 - Analogue Input 12	DBB
	13	Network I/P 45	FPGA45	DBB Member 2 – DVA Player 1	DBB
	14	Network I/P 46	FPGA46	DBB Member 2 – DVA Player 2	DBB
	15	Network I/P 47	FPGA47	DBB Member 2 – DVA Player 3	DBB
	16	Network I/P 48	FPGA48	DBB Member 2 – DVA Player 4	DBB
TDM 4	1	Network I/P 49	FPGA49	DBB Member 2 – DVA Player 5	DBB
	2	Network I/P 50	FPGA50	DBB Member 2 – DVA Player 6	DBB
	3	Network I/P 51	FPGA51	DBB Member 2 – DVA Player 7	DBB
	4	Network I/P 52	FPGA52	DBB Member 2 – DVA Player 8	DBB
	5	Network I/P 53	FPGA53	DBB Member 2 – Listen-In Mixer 1	DBB
	6	Network I/P 54	FPGA54	DBB Member 2 – Listen-In Mixer 2	DBB
	7	Network I/P 55	FPGA55	DBB Member 2 – PMC1	DBB
	8	Network I/P 56	FPGA56	DBB Member 2 – PMC2	DBB
	9	Network I/P 57	FPGA57	DBB Member 4 – DVA Player 5	DBB
	10	Network I/P 58	FPGA58	DBB Member 4 – DVA Player 6	DBB
	11	Network I/P 59	FPGA59	DBB Member 4 – DVA Player 7	DBB
	12	Network I/P 60	FPGA60	DBB Member 4 – DVA Player 8	DBB
	13	Network I/P 61	FPGA61	DBB Member 4 – Listen-In Mixer 1	DBB
	14	Network I/P 62	FPGA62	DBB Member 4 – Listen-In Mixer 2	DBB
	15	Network I/P 63	FPGA63	DBB Member 4 – PMC1	DBB
	16	Network I/P 64	FPGA64	DBB Member 4 – PMC2	DBB
TDM 5	1	Network I/P 65	FPGA65	DBB Member 4 - Analogue Input 1	DBB
	2	Network I/P 66	FPGA66	DBB Member 4 - Analogue Input 2	DBB
	3	Network I/P 67	FPGA67	DBB Member 4 - Analogue Input 3	DBB
	4	Network I/P 68	FPGA68	DBB Member 4 - Analogue Input 4	DBB
	5	Network I/P 69	FPGA69	DBB Member 4 - Analogue Input 5	DBB
	6	Network I/P 70	FPGA70	DBB Member 4 - Analogue Input 6	DBB
	7	Network I/P 71	FPGA71	DBB Member 4 - Analogue Input 7	DBB
	8	Network I/P 72	FPGA72	DBB Member 4 - Analogue Input 8	DBB
	9	Network I/P 73	FPGA73	DBB Member 4 - Analogue Input 9	DBB
	10	Network I/P 74	FPGA74	DBB Member 4 - Analogue Input 10	DBB
	11	Network I/P 75	FPGA75	DBB Member 4 - Analogue Input 11	DBB
	12	Network I/P 76	FPGA76	DBB Member 4 - Analogue Input 12	DBB
	13	Network I/P 77	FPGA77	DBB Member 4 – DVA Player 1	DBB
	14	Network I/P 78	FPGA78	DBB Member 4 – DVA Player 2	DBB
	15	Network I/P 79	FPGA79	DBB Member 4 – DVA Player 3	DBB
	16	Network I/P 80	FPGA80	DBB Member 4 – DVA Player 4	DBB

Table 15 FPGA to DSP input mapping for DBB Member 4

DBB Member 4					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
TDM 1	1	Network I/P 01	FPGA01	DBB Member 1 - Analogue Input 1	DBB
	2	Network I/P 02	FPGA02	DBB Member 1 - Analogue Input 2	DBB
	3	Network I/P 03	FPGA03	DBB Member 1 - Analogue Input 3	DBB
	4	Network I/P 04	FPGA04	DBB Member 1 - Analogue Input 4	DBB
	5	Network I/P 05	FPGA05	DBB Member 1 - Analogue Input 5	DBB
	6	Network I/P 06	FPGA06	DBB Member 1 - Analogue Input 6	DBB
	7	Network I/P 07	FPGA07	DBB Member 1 - Analogue Input 7	DBB
	8	Network I/P 08	FPGA08	DBB Member 1 - Analogue Input 8	DBB
	9	Network I/P 09	FPGA09	DBB Member 1 - Analogue Input 9	DBB
	10	Network I/P 10	FPGA10	DBB Member 1 - Analogue Input 10	DBB
	11	Network I/P 11	FPGA11	DBB Member 1 - Analogue Input 11	DBB
	12	Network I/P 12	FPGA12	DBB Member 1 - Analogue Input 12	DBB
	13	Network I/P 13	FPGA13	DBB Member 1 – DVA Player 1	DBB
	14	Network I/P 14	FPGA14	DBB Member 1 – DVA Player 2	DBB
	15	Network I/P 15	FPGA15	DBB Member 1 – DVA Player 3	DBB
	16	Network I/P 16	FPGA16	DBB Member 1 – DVA Player 4	DBB
TDM 2	1	Network I/P 17	FPGA17	DBB Member 1 – DVA Player 5	DBB
	2	Network I/P 18	FPGA18	DBB Member 1 – DVA Player 6	DBB
	3	Network I/P 19	FPGA19	DBB Member 1 – DVA Player 7	DBB
	4	Network I/P 20	FPGA20	DBB Member 1 – DVA Player 8	DBB
	5	Network I/P 21	FPGA21	DBB Member 1 – Listen-In Mixer 1	DBB
	6	Network I/P 22	FPGA22	DBB Member 1 – Listen-In Mixer 2	DBB
	7	Network I/P 23	FPGA23	DBB Member 1 – PMC1	DBB
	8	Network I/P 24	FPGA24	DBB Member 1 – PMC2	DBB
	9	Network I/P 25	FPGA25	Local PMC1 (Input)	Host
	10	Network I/P 26	FPGA26	Local PMC2 (Input)	Host
	11	Network I/P 27	FPGA27	Spare1	
	12	Network I/P 28	FPGA28	Spare2	
	13	Network I/P 29	FPGA29	Spare3	
	14	Network I/P 30	FPGA30	Spare4	
	15	Network I/P 31	FPGA31	Spare5	
	16	Network I/P 32	FPGA32	Spare6	
TDM 3	1	Network I/P 33	FPGA33	DBB Member 2 - Analogue Input 1	DBB
	2	Network I/P 34	FPGA34	DBB Member 2 - Analogue Input 2	DBB
	3	Network I/P 35	FPGA35	DBB Member 2 - Analogue Input 3	DBB
	4	Network I/P 36	FPGA36	DBB Member 2 - Analogue Input 4	DBB
	5	Network I/P 37	FPGA37	DBB Member 2 - Analogue Input 5	DBB
	6	Network I/P 38	FPGA38	DBB Member 2 - Analogue Input 6	DBB
	7	Network I/P 39	FPGA39	DBB Member 2 - Analogue Input 7	DBB
	8	Network I/P 40	FPGA40	DBB Member 2 - Analogue Input 8	DBB
	9	Network I/P 41	FPGA41	DBB Member 2 - Analogue Input 9	DBB

DBB Member 4					
TDM Slot		**Front Panel**	**DSP I/P Routing Reference**	**Default Data**	**Source**
	10	Network I/P 42	FPGA42	DBB Member 2 - Analogue Input 10	DBB
	11	Network I/P 43	FPGA43	DBB Member 2 - Analogue Input 11	DBB
	12	Network I/P 44	FPGA44	DBB Member 2 - Analogue Input 12	DBB
	13	Network I/P 45	FPGA45	DBB Member 2 – DVA Player 1	DBB
	14	Network I/P 46	FPGA46	DBB Member 2 – DVA Player 2	DBB
	15	Network I/P 47	FPGA47	DBB Member 2 – DVA Player 3	DBB
	16	Network I/P 48	FPGA48	DBB Member 2 – DVA Player 4	DBB
TDM 4	1	Network I/P 49	FPGA49	DBB Member 2 – DVA Player 5	DBB
	2	Network I/P 50	FPGA50	DBB Member 2 – DVA Player 6	DBB
	3	Network I/P 51	FPGA51	DBB Member 2 – DVA Player 7	DBB
	4	Network I/P 52	FPGA52	DBB Member 2 – DVA Player 8	DBB
	5	Network I/P 53	FPGA53	DBB Member 2 – Listen-In Mixer 1	DBB
	6	Network I/P 54	FPGA54	DBB Member 2 – Listen-In Mixer 2	DBB
	7	Network I/P 55	FPGA55	DBB Member 2 – PMC1	DBB
	8	Network I/P 56	FPGA56	DBB Member 2 – PMC2	DBB
	9	Network I/P 57	FPGA57	DBB Member 3 – DVA Player 5	DBB
	10	Network I/P 58	FPGA58	DBB Member 3 – DVA Player 6	DBB
	11	Network I/P 59	FPGA59	DBB Member 3 – DVA Player 7	DBB
	12	Network I/P 60	FPGA60	DBB Member 3 – DVA Player 8	DBB
	13	Network I/P 61	FPGA61	DBB Member 3 – Listen-In Mixer 1	DBB
	14	Network I/P 62	FPGA62	DBB Member 3 – Listen-In Mixer 2	DBB
	15	Network I/P 63	FPGA63	DBB Member 3 – PMC1	DBB
	16	Network I/P 64	FPGA64	DBB Member 3 – PMC2	DBB
TDM 5	1	Network I/P 65	FPGA65	DBB Member 3 - Analogue Input 1	DBB
	2	Network I/P 66	FPGA66	DBB Member 3 - Analogue Input 2	DBB
	3	Network I/P 67	FPGA67	DBB Member 3 - Analogue Input 3	DBB
	4	Network I/P 68	FPGA68	DBB Member 3 - Analogue Input 4	DBB
	5	Network I/P 69	FPGA69	DBB Member 3 - Analogue Input 5	DBB
	6	Network I/P 70	FPGA70	DBB Member 3 - Analogue Input 6	DBB
	7	Network I/P 71	FPGA71	DBB Member 3 - Analogue Input 7	DBB
	8	Network I/P 72	FPGA72	DBB Member 3 - Analogue Input 8	DBB
	9	Network I/P 73	FPGA73	DBB Member 3 - Analogue Input 9	DBB
	10	Network I/P 74	FPGA74	DBB Member 3 - Analogue Input 10	DBB
	11	Network I/P 75	FPGA75	DBB Member 3 - Analogue Input 11	DBB
	12	Network I/P 76	FPGA76	DBB Member 3 - Analogue Input 12	DBB
	13	Network I/P 77	FPGA77	DBB Member 3 – DVA Player 1	DBB
	14	Network I/P 78	FPGA78	DBB Member 3 – DVA Player 2	DBB
	15	Network I/P 79	FPGA79	DBB Member 3 – DVA Player 3	DBB
	16	Network I/P 80	FPGA80	DBB Member 3 – DVA Player 4	DBB

4.11.4.4 Monitoring a PMC Input Level

To monitor a PMC input level:

Select **Test→Monitor→Audio→Inputs→PMC→PMC I/P** nn.

5 VIPEDIA-12 Dynamic Configuration Tool

The VIPEDIA-12 Dynamic Configuration Tool (VIPEDIA-12 DCT) tool enables users to commission the VIPEDIA-12 audio settings and to load DVA messages into VIPEDIA-12 units. It also enables users to read the audio settings from a VIPEDIA-12 unit into a file and to write the audio settings from a file into a VIPEDIA-12 unit.

This section provides information on the operation of the VIPEDIA-12 DCT.

Only qualified personnel who are very familiar with the VIPEDIA-12 equipment, the installation and its configuration requirements should alter the system configuration.

Any adjustment of audio parameters may leave the system in a dangerous state where it will not correctly respond to alarm inputs or may not produce adequate sound pressure levels or intelligibility to comply with Voice Alarm Standards.

Similarly, it is possible for the untrained operator to inadvertently disable system surveillance functions that are mandated by Voice Alarm standards.

If required, contact ASL or an appointed ASL distributor for support.

1) The VIPEDIA-12 DCT is part of the PAVA System Configuration Tool (PAVA SCT) which is installed as described in "APPENDIX B – Installing the PAVA System Configuration Tool (PAVA SCT)" (page 159).

2) The operation described here is correct for the current version of the VIPEDIA-12 DCT at the time of the publication of this document (V2.1.2.2).

   If the VIPEDIA-12 in your system has a later (or earlier) version of software, then it may mean that some aspects of the operation of the matching VIPEDIA-12 DCT are subtly different from the operation described in this document, or that enhanced features have been added.

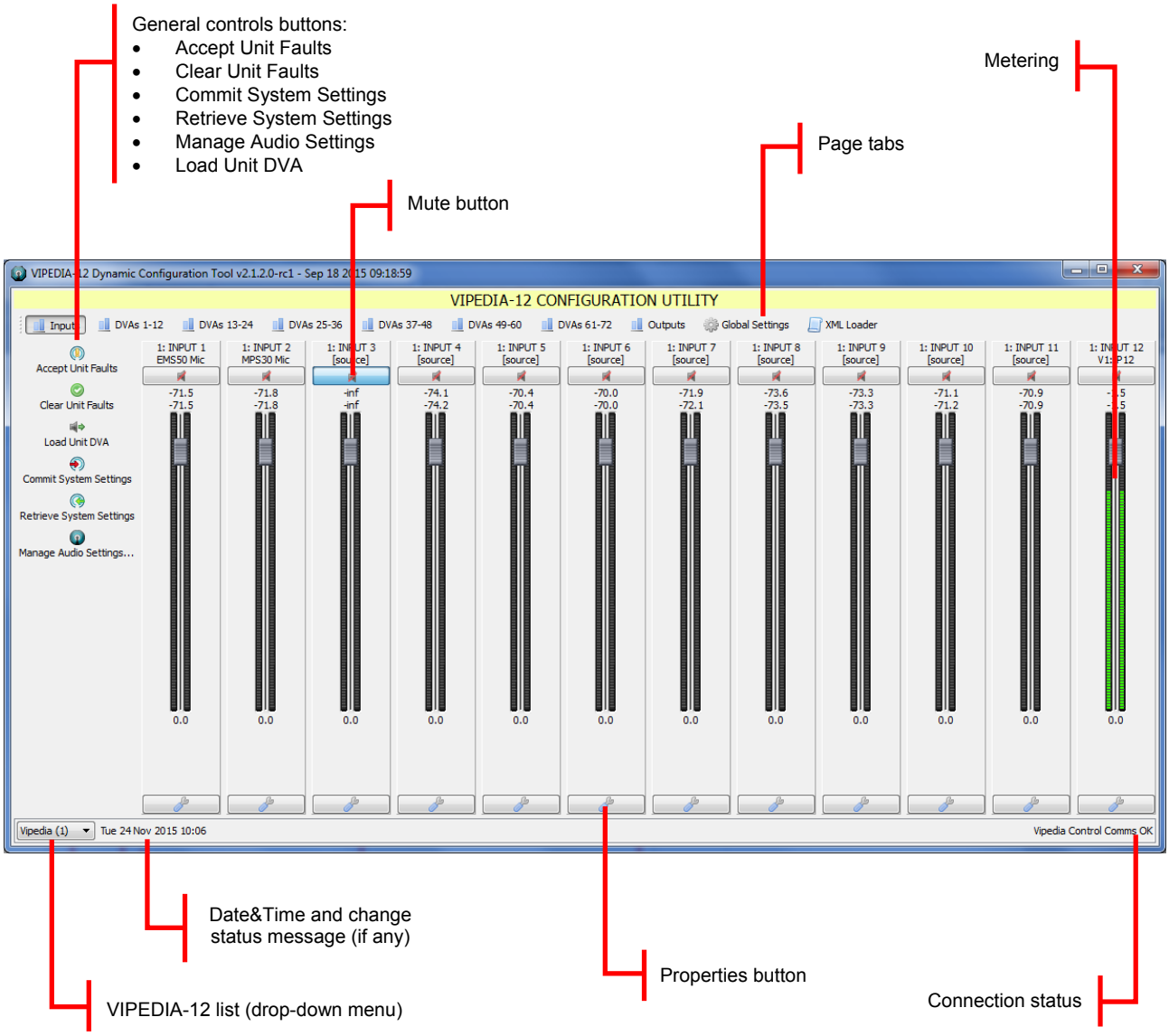
   If any difficulties are encountered, contact ASL or an appointed ASL distributor, quoting the Build Standard and software versions of your VIPEDIA-12 unit and the VIPEDIA-12 DCT; see Section "6.2.1 Build Standard and Software Versions" (page 134).

5.1 Overview of the GUI Elements

5.1.1 Main GUI Elements

The main GUI elements are shown in Figure 14 (page 73) and briefly described in Table 16 (page 74).

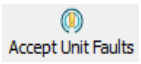
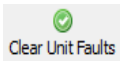
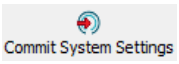
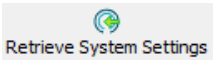
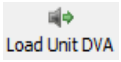
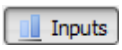
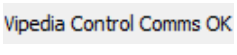
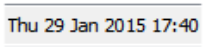
Figure 14 Main GUI elements

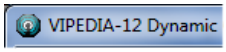


Note:

The **Inputs**, **DVAs** and **Outputs** pages either display only the inputs, DVAs and outputs that are present in the system configuration along with their names. Refer to Section "5.2 Starting and Closing the Application" (page 77) for further details.

Table 16 Elements of the main GUI

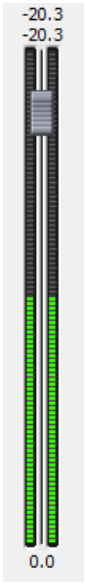
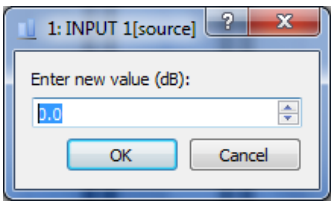
Element		Description
Accept Unit Faults button		Accepts all current faults on all units in the VA Group. It also steadies the flashing fault LED indication, and turns off the audible alarm until a new fault condition occurs.
Clear Unit Faults button		Clears all faults on all units in the VA Group. It also sets all connected equipment to the 'no faults' state, which also cancels any amplifier changeovers in effect. If there are any faults present in the system, then they are detected anew, and reported again.
Commit System Settings button		Commits all live settings to NVM. Applies to all units in the system.
Retrieve System Settings button		Rolls back to the settings last saved into NVM. Applies to all units in the system.
Manage Audio Settings… button		Launches the Audio Settings Manager tool which enables the audio settings to be extracted from a VIPEDIA-12 unit into a file. It also enables the audio settings to be downloaded from a file into a VIPEDIA-12 unit. Refer to Section "5.5 Extracting and Injecting Audio Settings to/from a File" (page 122).
Load Unit DVA button		Loads DVA messages (from the Micro-SD) into the selected VIPEDIA-12 unit. Refer to Section "5.6 Loading DVA Messages" (page 125).
Mute button		Mutes an input or output.
Metering bars		①: displays the detected level at an input or output: • input: post-fader and post-mute level • output: post-fader level ②: displays the detected attenuation The detected level is displayed above the metering bars: • The top numerical value is the RMS dB value with a peak hold. • The bottom numerical value is the current RMS dB value.
Properties button		Opens the Properties window for an input or output.
VIPEDIA-12 list		List of all VIPEDIA-12 units (bottom-left corner).
Page tabs		Labels the user interface's pages, and gives access to them.
Connection status		Displays the status of the connection between the application and the currently selected VIPEDIA-12 unit (right-bottom corner).
Date&Time		Displays the current date and time (bottom-left corner). If any setting is changed, it also displays a warning indicating that changes have not been saved into a unit's EEPROM; see example below.

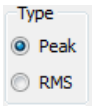
		*** THERE ARE UNCOMMITTED CHANGES ***
Version number		The application version number is displayed with the window title (top-left corner).
Window controls		Standard controls (top-right corner): : closes/exits the application : maximises the application : minimises the application

5.1.2 Data Input Controls

Different types of controls are provided on the main GUI and Properties window; see Table 17 (page 75).

Table 17 Data input controls

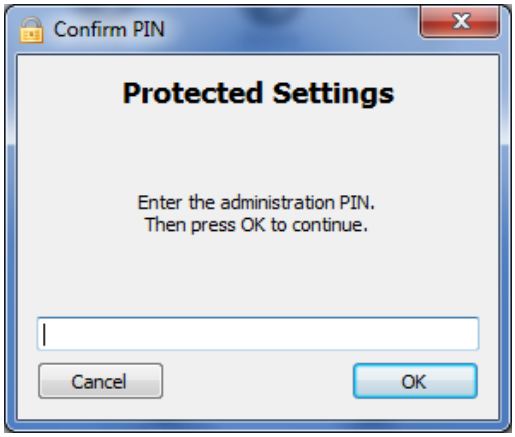
Element		Description
Slider		Allows the user to set a value by moving the indicator up and down. The slider is displayed with the metering bars. The text field at the bottom of a metering bar indicates the current level. The top text field indicates the current measured level. **To adjust a parameter:** **1.** Click and hold the slider. **2.** Drag the slider up and down.
Knob		Allows the user to set a value by moving the indicator up and down. **To adjust a parameter:** **1.** Click and hold the knob. **2.** Drag the knob up to turn it clockwise, down to turn it counterclockwise.
Text field		Allows the user to either type a value directly into the text field or select from a list of existing values. **To adjust a parameter:** **1.** Double-click the displayed value of a parameter. **2.** A data input dialog box will be displayed. **3.** Enter the required value by using the up and down arrows or typing it into the text field.

Check box		Allows the user to enable or disable a function. ☑ (checked): enabled ☐ (unchecked): disabled **To adjust a parameter:** Click the check box to toggle between enabled and disabled.
Radio button		Allows the user to choose only one of a predefined set of options. **To adjust a parameter:** Click the radio button of required option.

5.1.3 Password Protect Parameters and Functions

The adjustment of parameters that may disable system surveillance functions that are mandated by Voice Alarm standards or leave the system in a dangerous state are password protected. The **Commit Settings** function is also protected for the same reasons. The password (PIN) is available from ASL or appointed ASL distributor.

Figure 15 PIN input dialog box



5.2 Starting and Closing the Application

To start the VIPEDIA-12 Dynamic Configuration Tool:

1. First launch the PAVA SCT by clicking the **Start** button in the bottom-left corner of your screen and then selecting the following option.

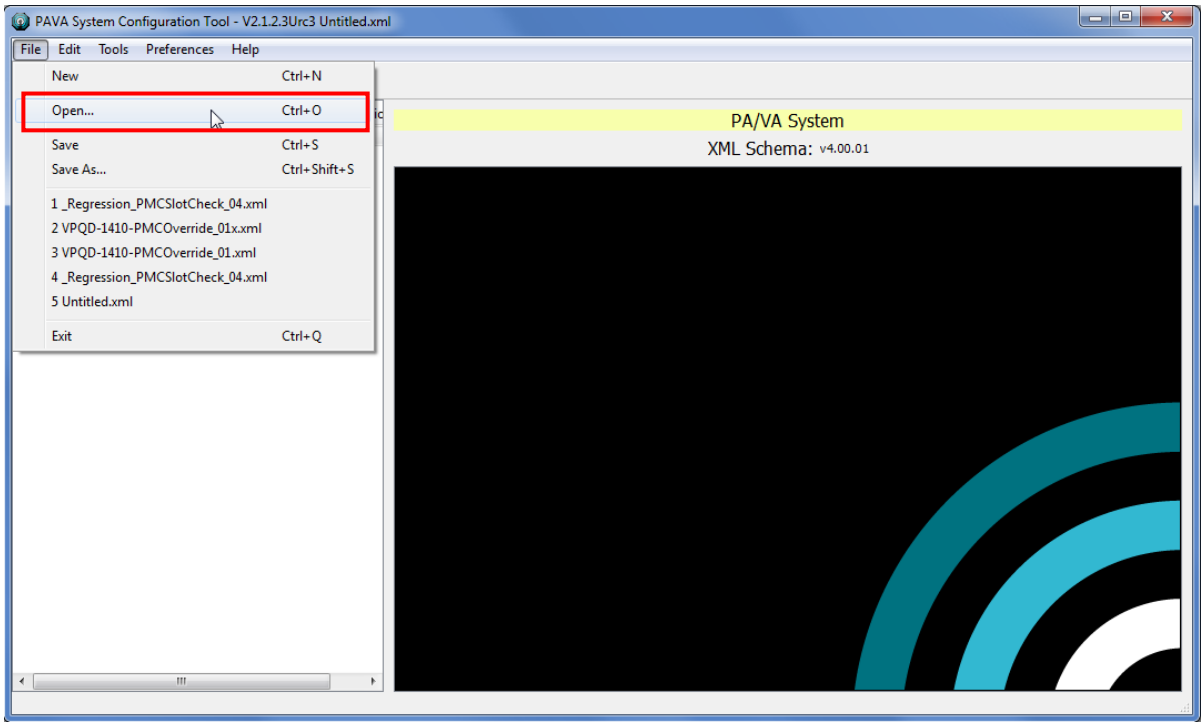
   All Programs→ASL→PAVA System Configuration Tool (*<version>*)→PAVA System Configuration Tool

   Or by double-clicking the application's icon on the desktop

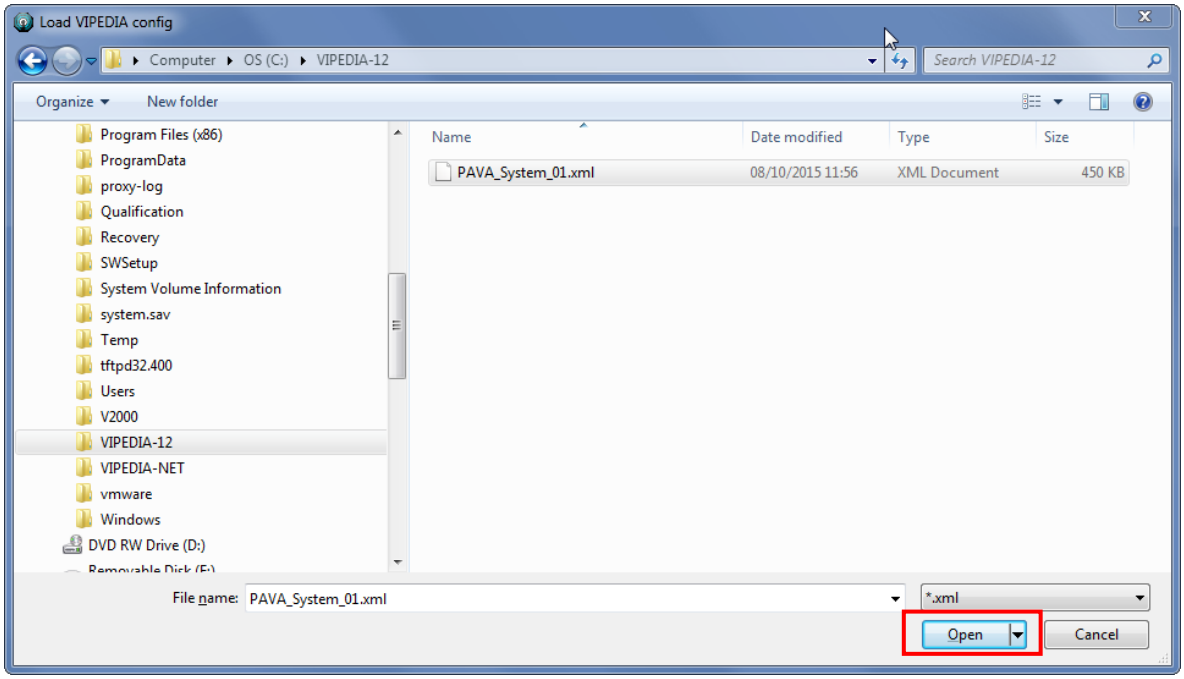
   .

2. Load the system configuration into the PAVA SCT.

   a. Select **File→Open** option on the menubar or toolbar to load the PAVA system configuration.



b. A browser window will be opened. Navigate to system configuration file to be uploaded (*.xml).

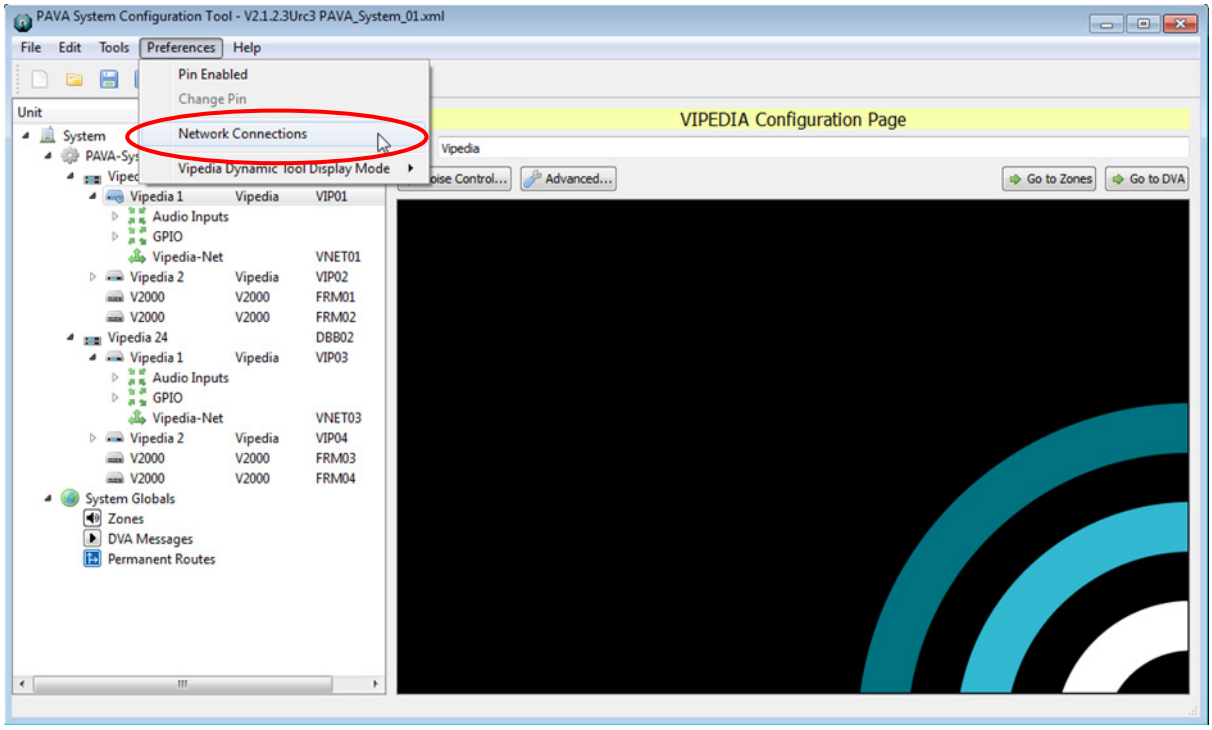


c. Click the **Open** button.

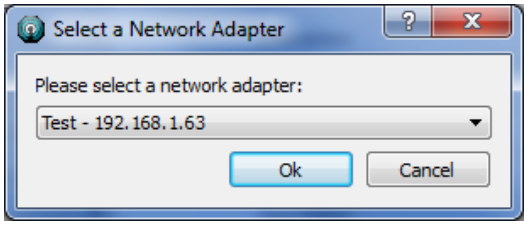
3. Select the PC network interface used to connect to the PAVA system.

a. Ensure that the required network interface is connected to the PAVA system network.

b. Select **Preferences→Network Connections** from the menubar.



c. Select the required network interface, and then click the **Ok** button.



Note that only active network interfaces are displayed for selection.

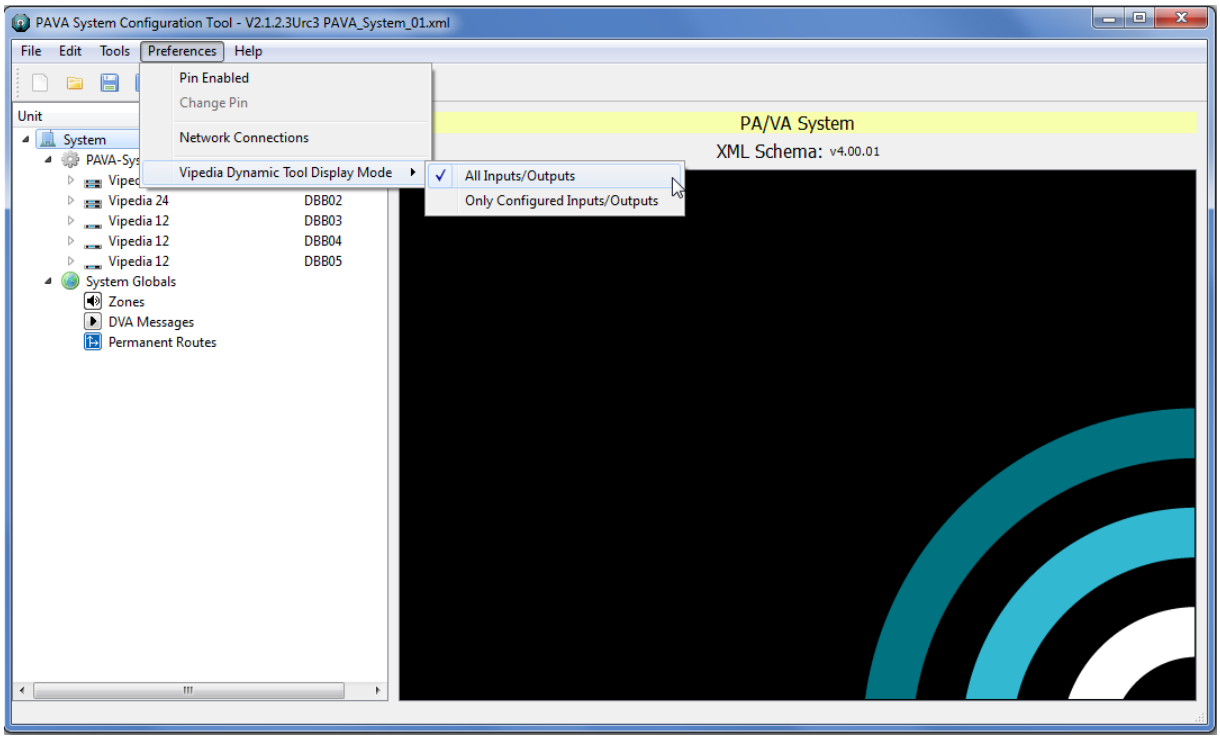
If the required network interface is not displayed, check the network connection between the PC and the PAVA system. Also ensure that the target PAVA units are powered on. Close and re-load the Network Adapter selection dialog box.

4. Select the VIPEDIA-12 DCT display mode.

a. Select **Preferences→Vipedia Dynamic Tool Display Mode** from the menubar.

b. Select the required display mode:

- **All Inputs/Output**: the VIPEDIA-12 DCT displays all inputs and outputs; see Example 1 (page 81).
- **Only Configured Inputs/Outputs**: the VIPEDIA-12 DCT displays only configured inputs and outputs; see Example 2 (page 81).

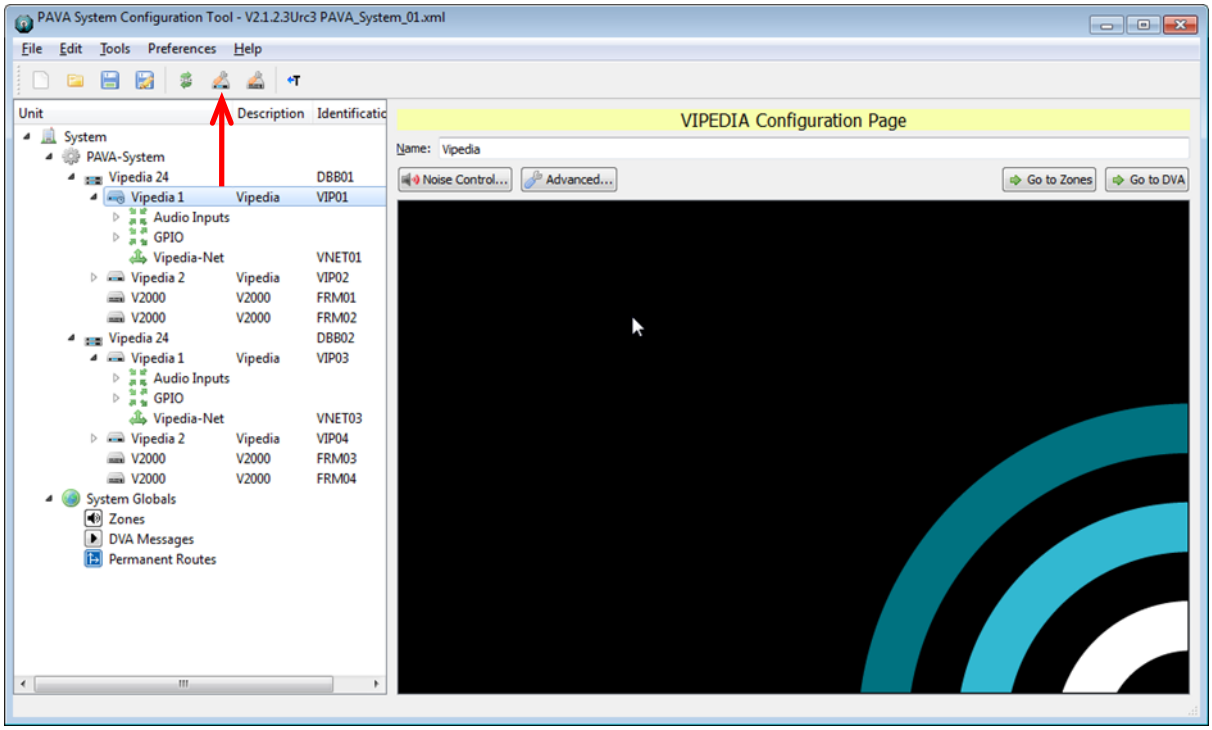


5. Double-click the VIPEDIA-12 DCT application's icon on the toolbar.

Or select the **Tools→VIPEDIA DCT** menubar option:

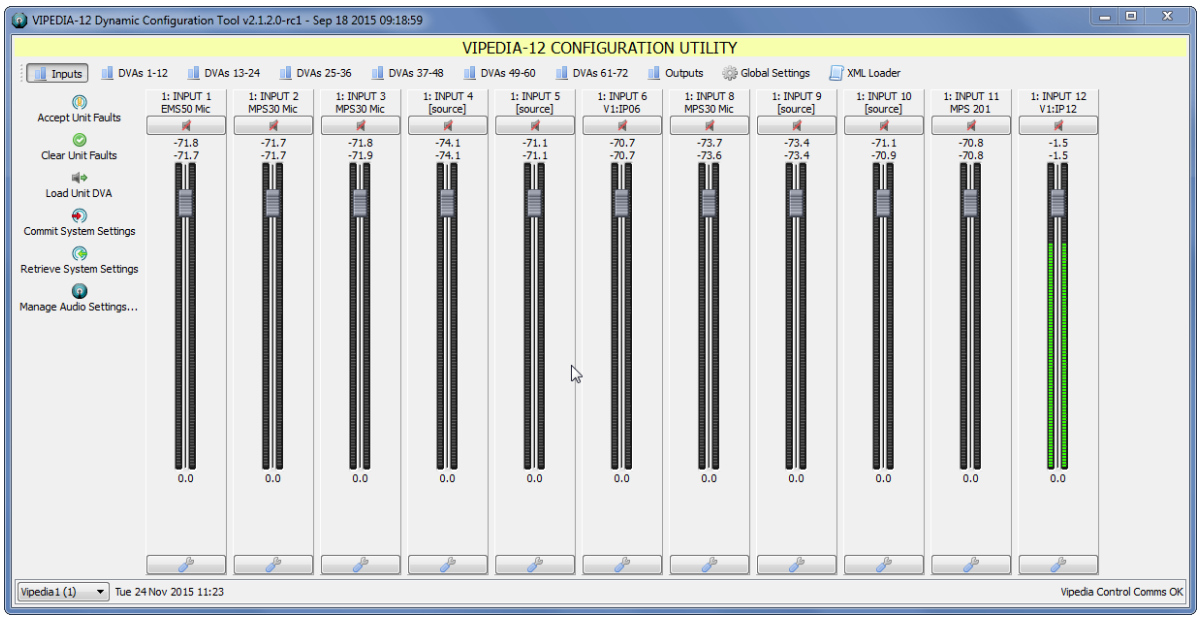
Note:

If no network interface has been selected or the selected interface is inactive, the Network Adapter selection dialog box will be displayed as described above.

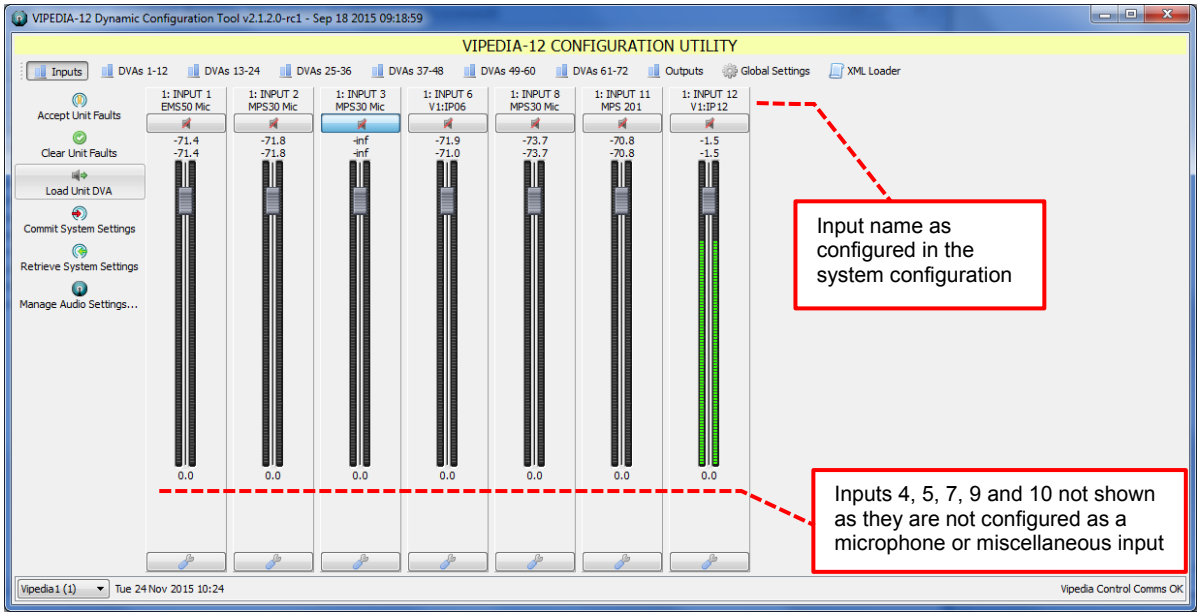


6. The VIPEDIA-12 DCT will launch after a few seconds (up to 15 seconds).

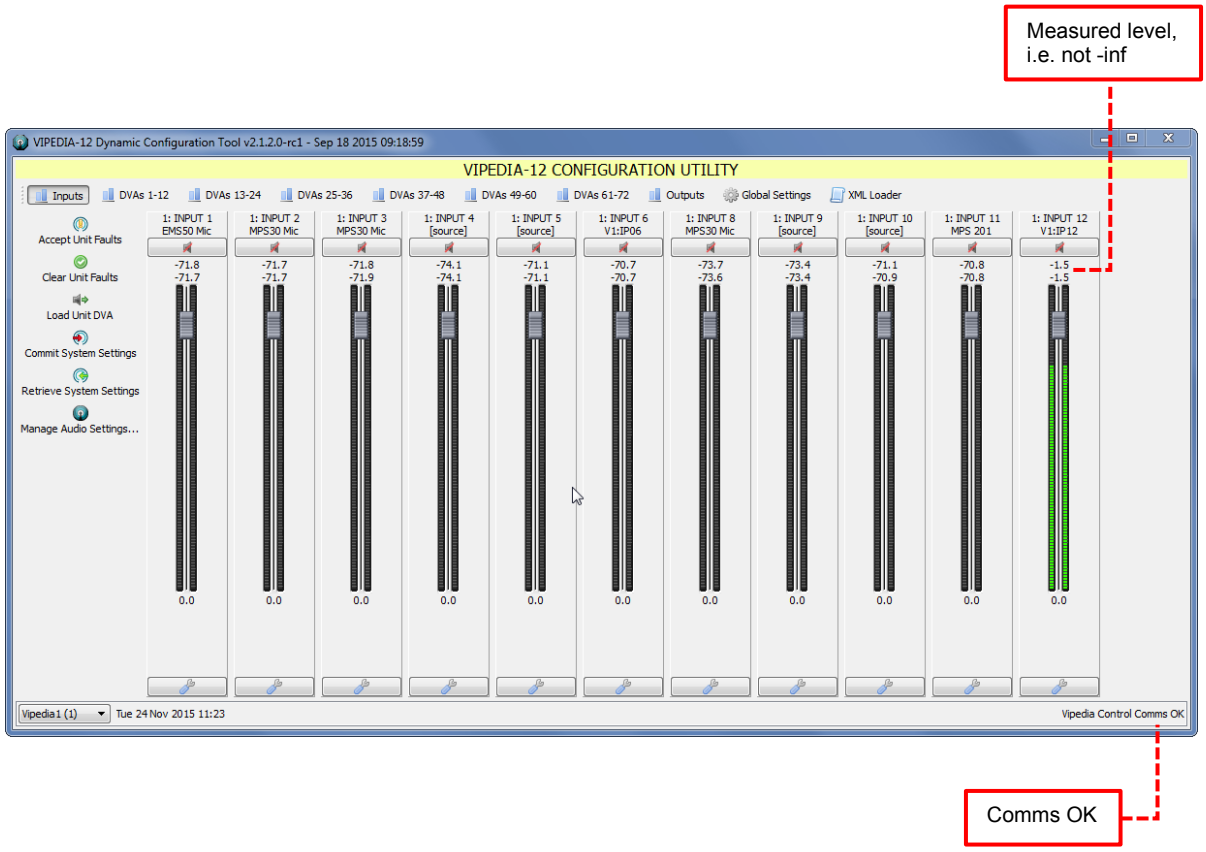
Example 1: All Inputs/Output Display Mode – Inputs Page



Example 2: Only Configured Inputs/Outputs Display Mode - Inputs Page



7. Check the connection between the VIPEDIA-12 DCT and the VIPEDIA-12 units.



   a. Select a VIPEDIA-12 unit from the drop-down menu located on the bottom-left corner of the main GUI.

   b. Confirm that the meter for all inputs indicate the measured level, i.e., not "inf".

   c. Confirm that "Vipedia Control Comms OK" is displayed on the bottom-right corner to the main GUI.

   d. Confirm that the Properties windows display sensible configuration, i.e some check boxes enabled but not all.

   e. In case of any errors, check the IP settings on both target unit and host PC, the network connections including the host PC settings (see "APPENDIX A – PC Requirements" on page 154) and firewall settings.

      Close and re-start the VIPEDIA-12 DCT.

      Note that PC security features (such as antivirus and the Windows firewall) and wireless connections may prevent the correct operation of the VIPEDIA-12 DCT. If required, temporally disable these features.

8. Select the required VIPEDIA-12 unit in the drop-down list on the bottom-left corner of the GUI and perform the required operation as described in the following sections.

To close the VIPEDIA-12 Dynamic Configuration Tool:

1. Click the window close control on the top right corner to the main GUI.

or

2. Press ALT+F4 on the keyboard.

5.3 Commissioning the Audio Settings

1) Only qualified personnel who are very familiar with the VIPEDIA-12 equipment and system commissioning requirements should alter the audio settings.

   Any adjustment of audio parameters may leave the system in a dangerous state where it will not correctly respond to alarm inputs or may not produce adequate sound pressure levels or intelligibility to comply with Voice Alarm Standards.

   Similarly, it is possible for the untrained operator to inadvertently disable system surveillance functions that are mandated by Voice Alarm standards

2) All adjustments work in real time, so it can be experienced immediately on any live routes.

3) All changes are implemented in RAM, and have to be manually transferred from RAM to the NVM via the **Commit Settings** button; see Section "5.3.4 Committing the Live Settings" (page 119).

   Do not turn the VIPEDIA-12 unit off before committing the changes. Otherwise, recent changes to the audio settings will be lost!

   The committed settings should always be extracted to a file via the **Manage Audio Settings…** button. This is to ensure that the commissioned audio settings can be restored in the event that the unit's configuration is accidentally cleared or a replacement unit is commissioned.

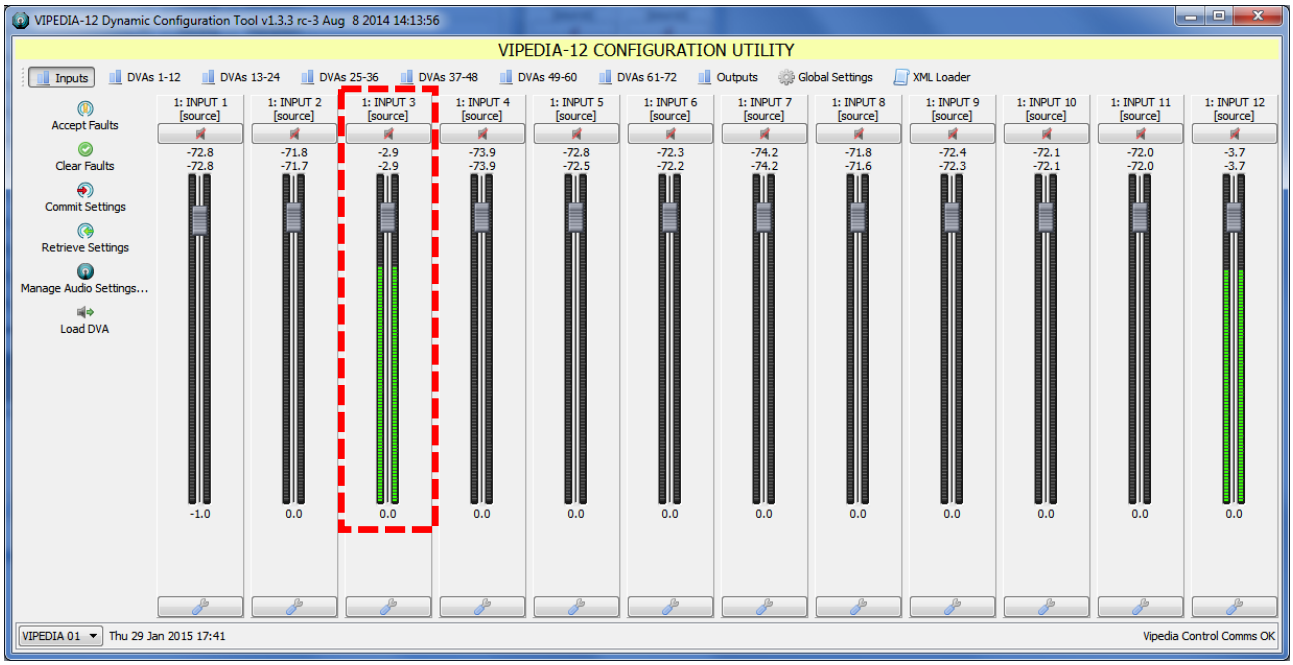
5.3.1 Commissioning an Audio Input

5.3.1.1 Adjusting the Input Level

The fader allows adjustment of the input audio level. A **Mute** button allows the user to mute or unmute the audio input. The associated meter will display the detected level after the trimmer, fader and mute.

The input gain of each audio input should normally be set so that all inputs are balanced, and give the same output level on each of the outputs.

Figure 16 Input – Level and mute



Adjustment range: -90 dB to +10 dB

To adjust the input level:

1. Select the **Inputs** page if not already done.
2. Drag the slider up or down to adjust the level of the required input(s).

   You can also double-click the text field and type in the required value.

   The input gain of each audio input should normally be set so that all inputs are balanced, and give the same output level on each of the outputs.
3. The meter displays the detected the audio level after the trimmer, fader and mute.

   Note that if the input surveillance tone detection has not been enabled, the metering will display the input surveillance tone level.

To mute/unmute the input:

Click the **Mute** button to toggle between muted and unmated settings.

(up): unmuted

(down): muted

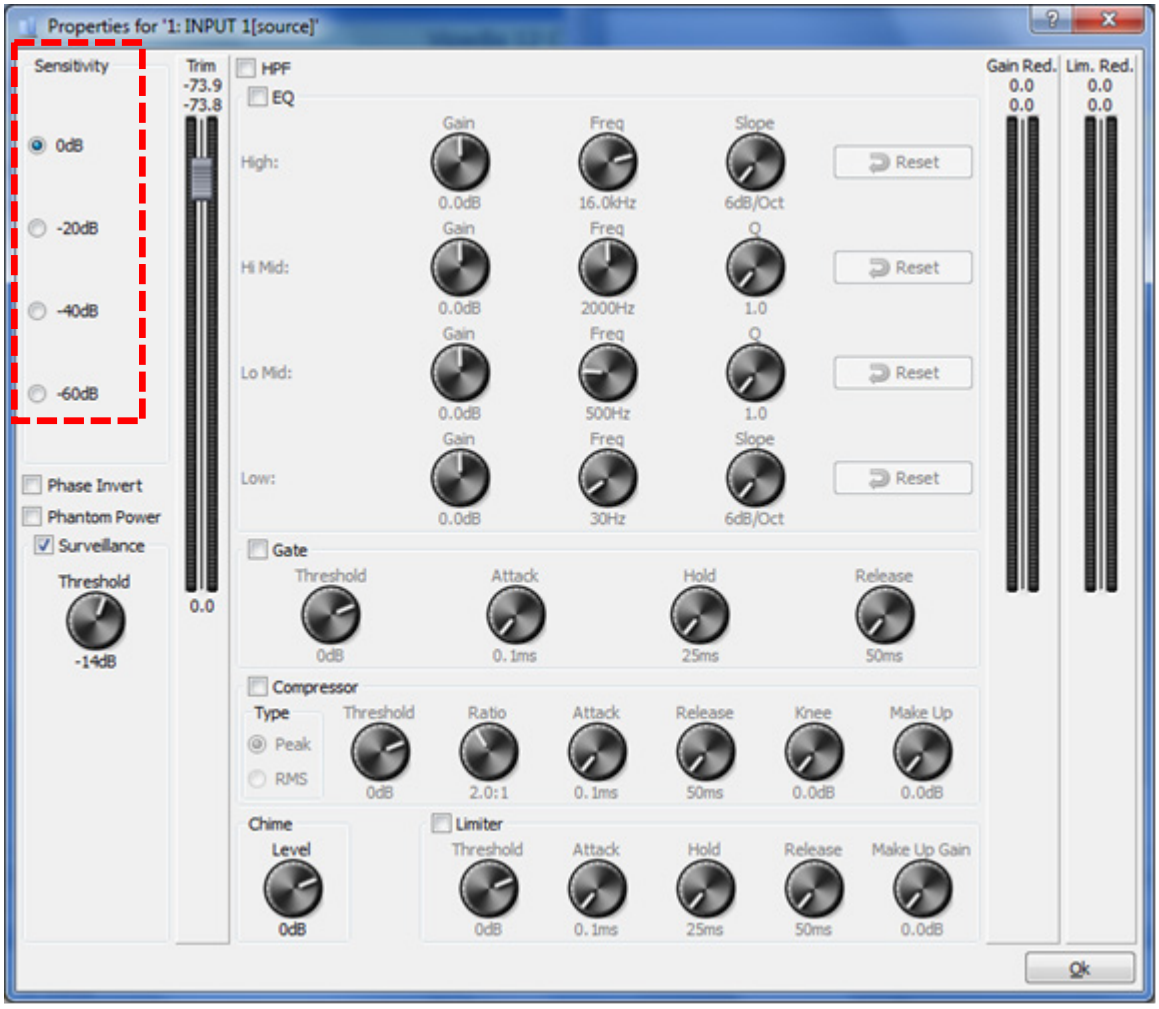
Notes:

The input surveillance should be enabled and the correct fault threshold level commissioned on all emergency microphones in EN 54-16 systems.

5.3.1.2 Configuring the Input Sensitivity

The Sensitivity controls the gain structure at the analogue input stage allowing the user to boost or cut the incoming signal in 20 dB steps.

Figure 17 Input Properties – Sensitivity



Available options: 0, -20 dB, -40 dB or -60 dB

To select the input sensitivity:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click the radio button of the required option.

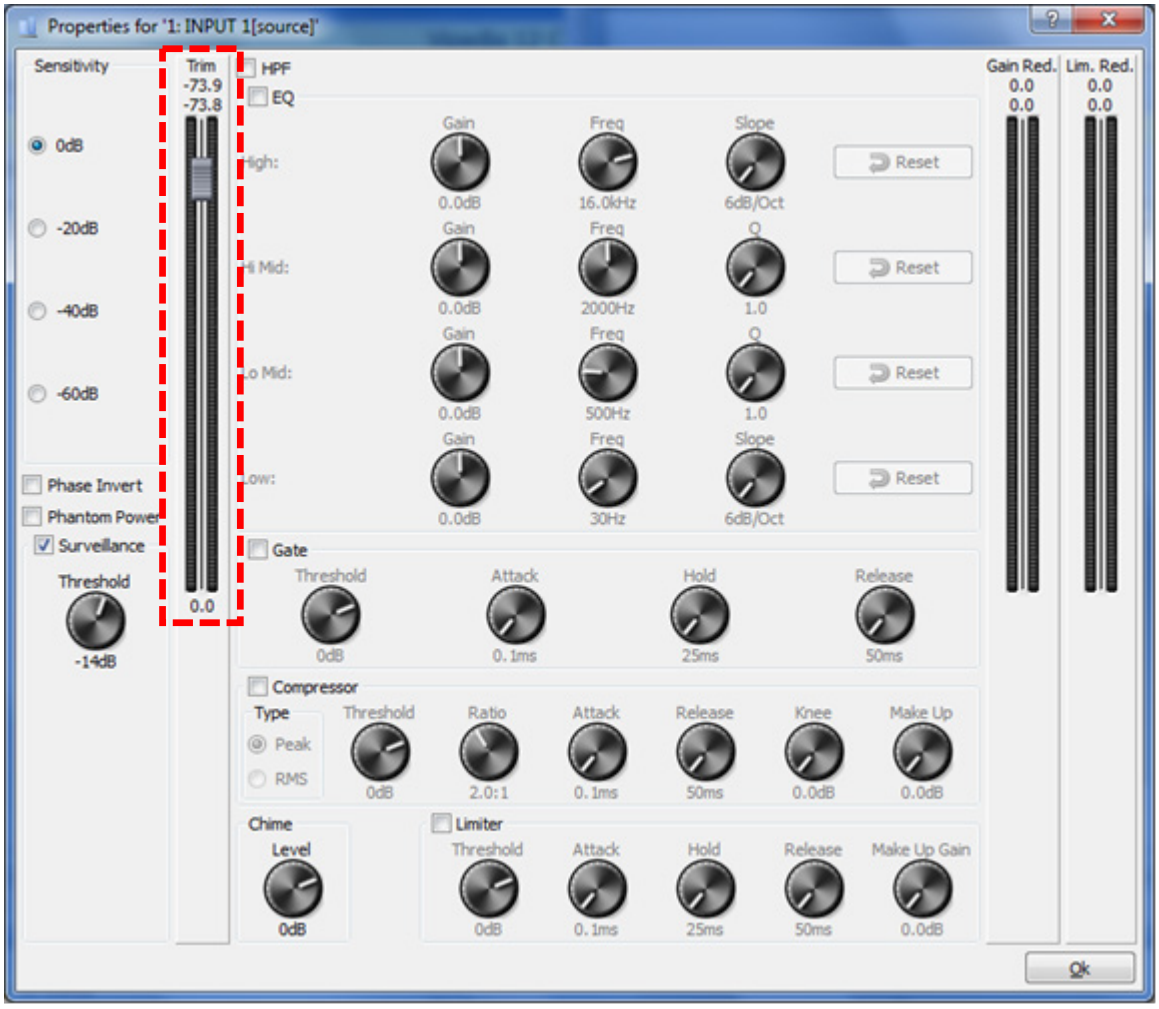
   Warning:

   Inputs connected to ASL microphones should be set with 0 dB sensitivity.

5.3.1.3 Trimming the Input

The input trimmer allows adjustment of the input audio level. The associated meter will display the detected level after the trimmer and before the fader and mute.

Figure 18 Input Properties – Trim



Adjustment range: -90 dB to +10 dB

To trim the input:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Drag the slider up or down as required.

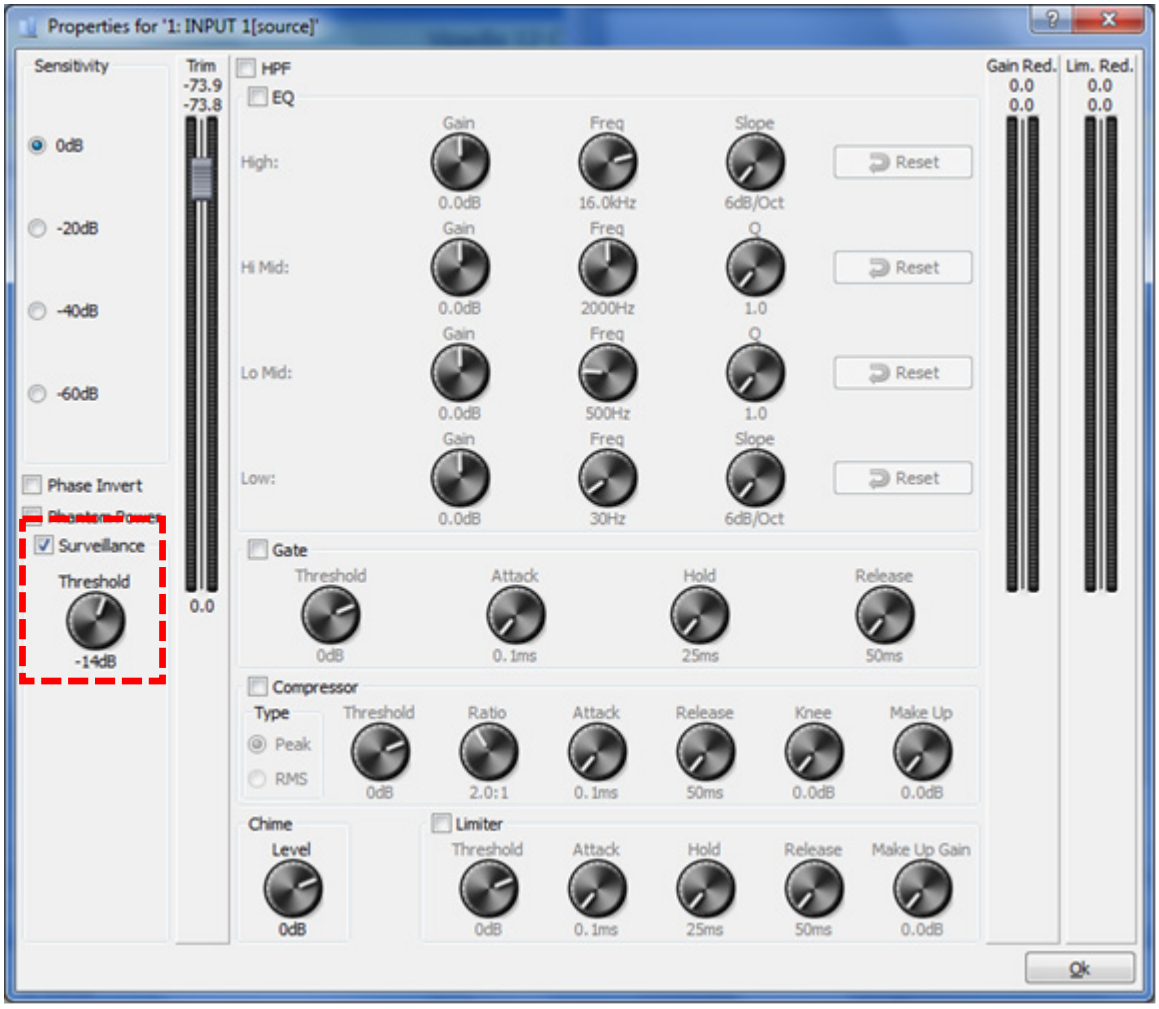
   You can also double-click the text field and type in the required value.
4. The meter displays the detected the audio level after the trimmer and before the fader and mute.

5.3.1.4 Configuring the Input Surveillance Tone

The VIPEDIA-12 is able to detect the presence of a low frequency surveillance tone, nominally 20 Hz to 30 Hz, at the inputs. ASL microphones generate this tone as standard. If this surveillance is enabled, then in the absence of a surveillance tone, an Input Audio fault will be raised and logged.

The input surveillance tone detection can be enabled or disabled per input, and the detection threshold is adjustable per input.

Figure 19 Input Properties – Surveillance tone



Adjustment range: -60 dB to +20 dB

To enable or disable the input surveillance tone detection:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **Surveillance** check box to enable (checked) or disable (unchecked) the input surveillance tone detection.

   Note that disablement of the surveillance tone detection is password protected.

To commission the input surveillance tone threshold for ASL microphones:

1. Adjust threshold level to -60 dB.
2. Clear any existing faults by pressing the **Clear Faults** button on the main GUI (or unit's front panel).
3. Any fault reported by the microphone at this stage should be cleared
4. Raise the surveillance tone level slowly (1 dB step) from -60dB until the "IPxx AUDIO INPUT" fault is reported. Where xx is the input connected to the microphone.
5. Set the surveillance tone level to 4 dB below the level that caused the fault to be reported.

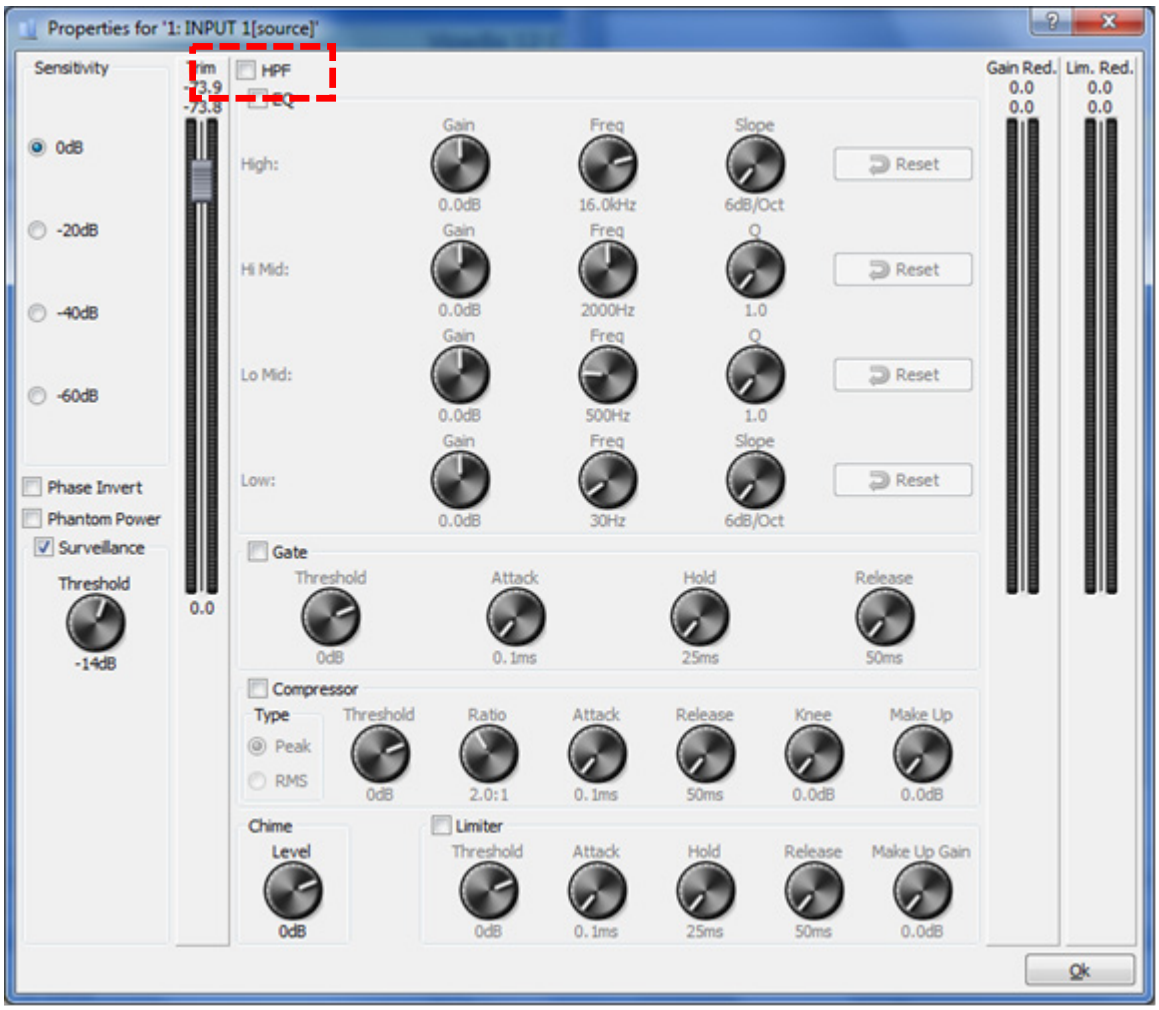
   For example, if a –18 dB level causes the fault, then set the surveillance tone level to –22 dB.

   Typical values for ASL microphones are:

   - MPS/EMS microphones: -14 dB
   - DMS microphones: -9 dB
6. Clear faults and ensure that no faults are reported for the input.

5.3.1.5 Enabling/Disabling the Input High Pass Filter

Figure 20 Input Properties – High Pass Filter



To enable or disable the input High Pass Filter:

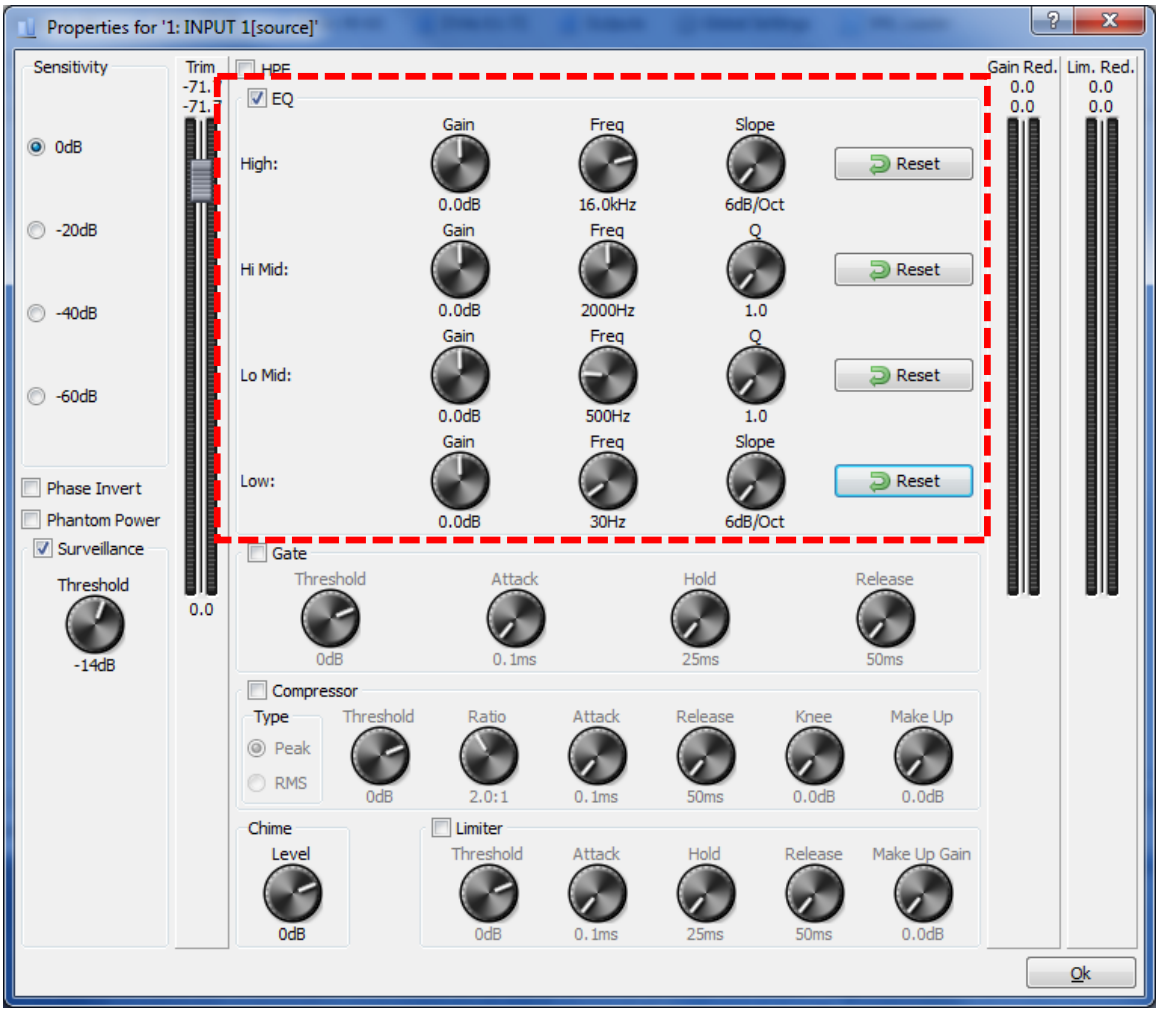
1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **HPF** check box to enable (checked) or disable (unchecked) the High Pass Filter.

5.3.1.6 Configuring the Input Equaliser

A 4-band parametric EQ is configurable for each of the inputs. The high and low bands are shelving filters, whilst the middle bands are peaking.

Note that the input equaliser should not be used to set the equalisation of a particular output. Outputs have their own equalisation settings; see Section "5.3.3.5 Configuring the Output Equaliser" (page 112).

Figure 21 Input Properties – Equaliser



Low band adjustment range:

- Frequency: 20 Hz to 200 Hz
- Gain: -18 dB to +18 dB
- Slope: +6 dB to +12 dB

High and Low Mid band adjustment range:

- Frequency: 200 Hz to 20 kHz
- Gain: -18 dB to +18 dB
- Q: 1.0 to 5.0

High band adjustment range:

- Frequency: 2 kHz to 20 kHz
- Gain: -18 dB to +18 dB
- Slope: +6 dB to +12 dB

To enable or disable the input equaliser:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **EQ** check box to enable (checked) or disable (unchecked) the input equaliser.

To configure a frequency band:

1. Drag the appropriate **Freq** knob up or down to adjust the frequency.
2. Drag the appropriate **Gain** knob up or down to adjust the gain.
3. Drag the appropriate **Slope** or **Q** knob up or down to adjust the slope or Q.
4. You can also double-click the text field and type in the required value.
5. If required, use the **Reset** button to restore the default settings for the frequency band.

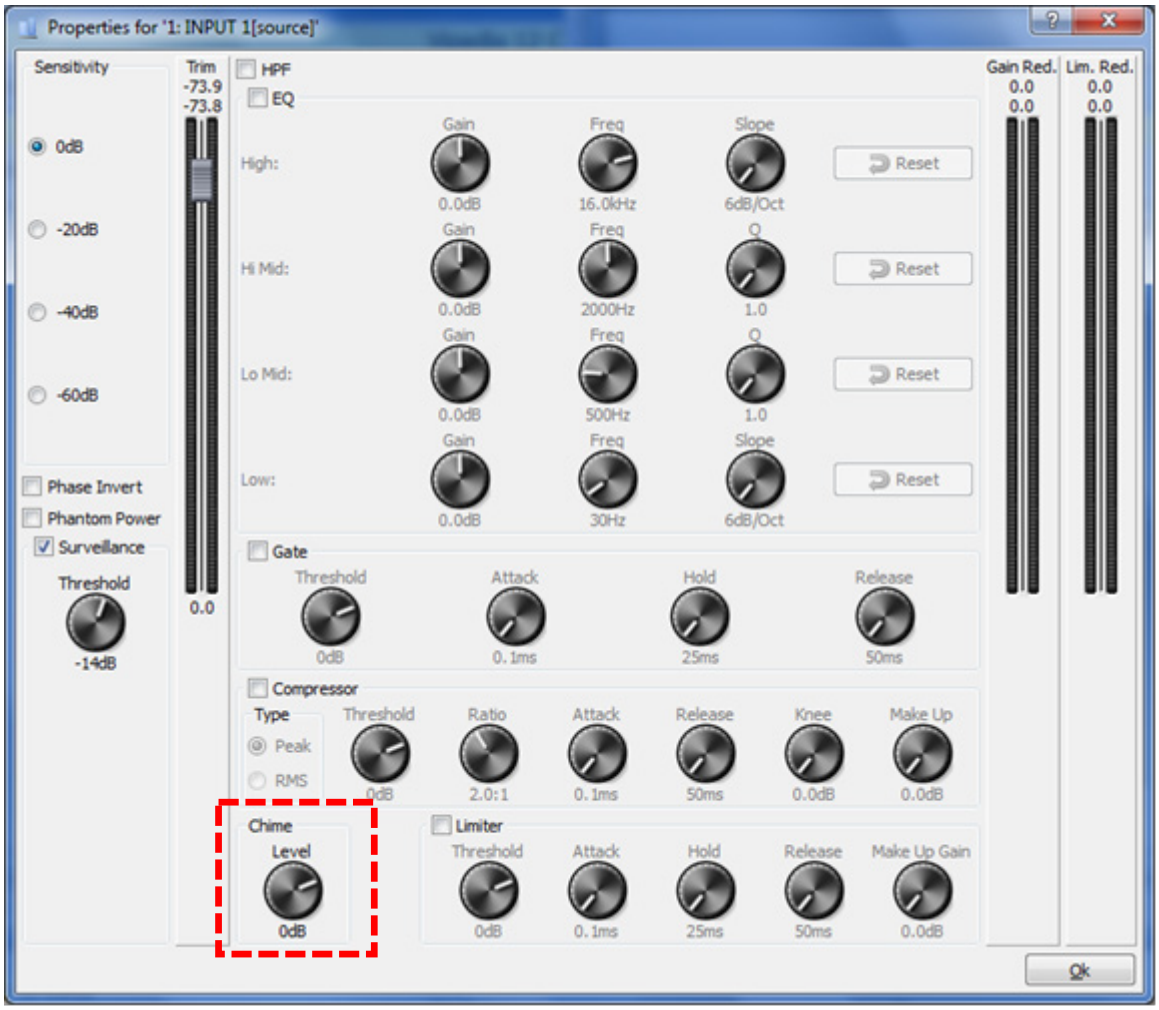
Notes:

The frequency response should be flat for all emergency microphones in EN 54-16 systems. This is achieved by setting the Gain to -3.3 dB at 251 Hz with Q of 1.

5.3.1.7 Configuring the Pre-Announcement Chime

A pre-announcement chime can be configured in the XML system configuration. If configured, then the chime will be triggered when the input source is routed. The actual audio input will only be routed when the chime is complete. Various types of chimes are available and the chime level is configurable using the VIPEDIA-12 Dynamic Configuration Tool.

Figure 22 Input Properties – Chime



Adjustment range: -60 dB to +20 dB

To adjust the chime level:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Drag the **Level** knob up or down as required.

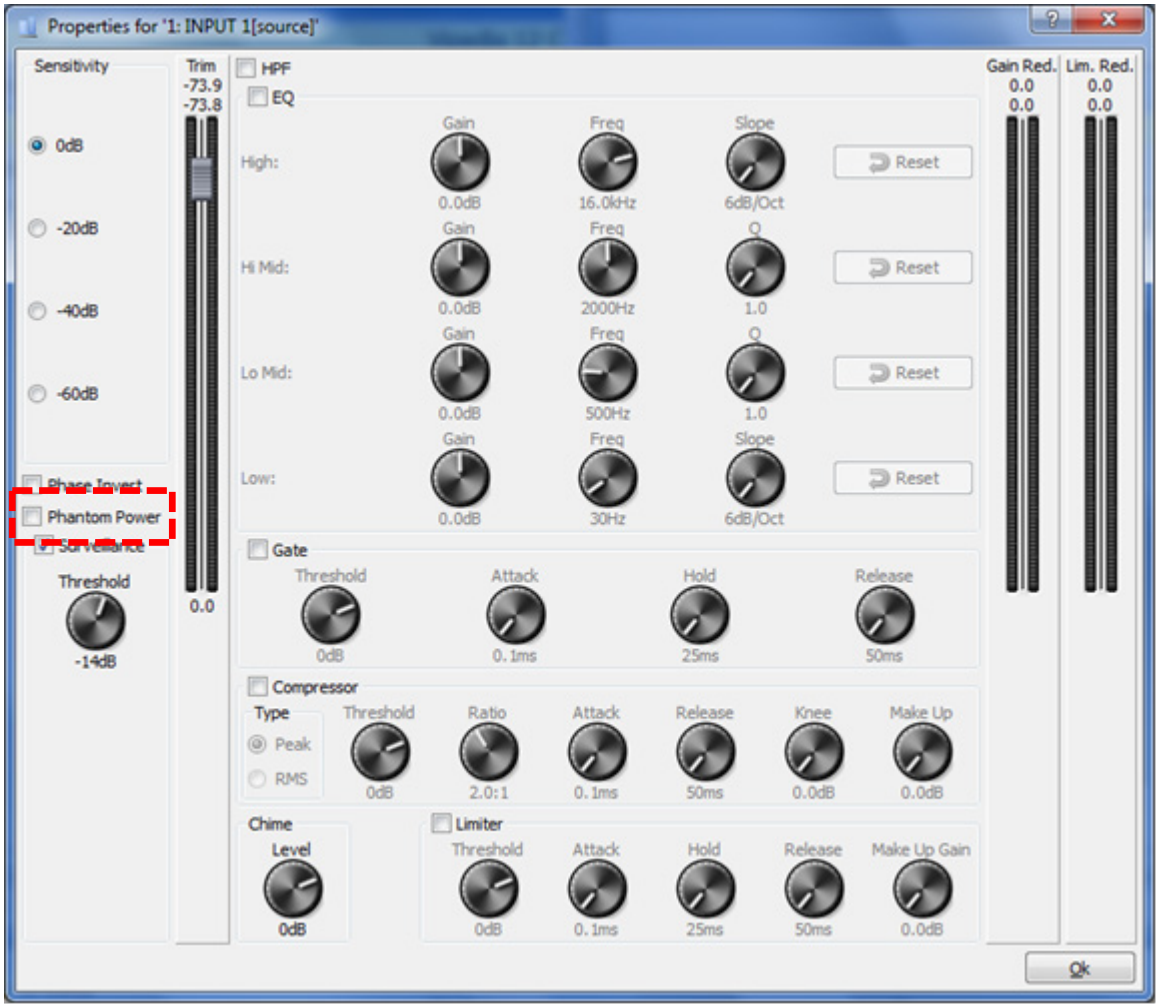
   You can also double-click the text field and type in the required value.

5.3.1.8 Enabling/Disabling the Phantom Power

A +48 V phantom power can be switched on or off for an analogue input.

Note that phantom power is not supported by the VIPEDIA-12's main application at the time of publication of this document.

Figure 23 Input Properties – Phantom Power



To enable or disable the Phantom Power:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **Phantom Power** check box to switch on (checked) or off (unchecked) the phantom power.

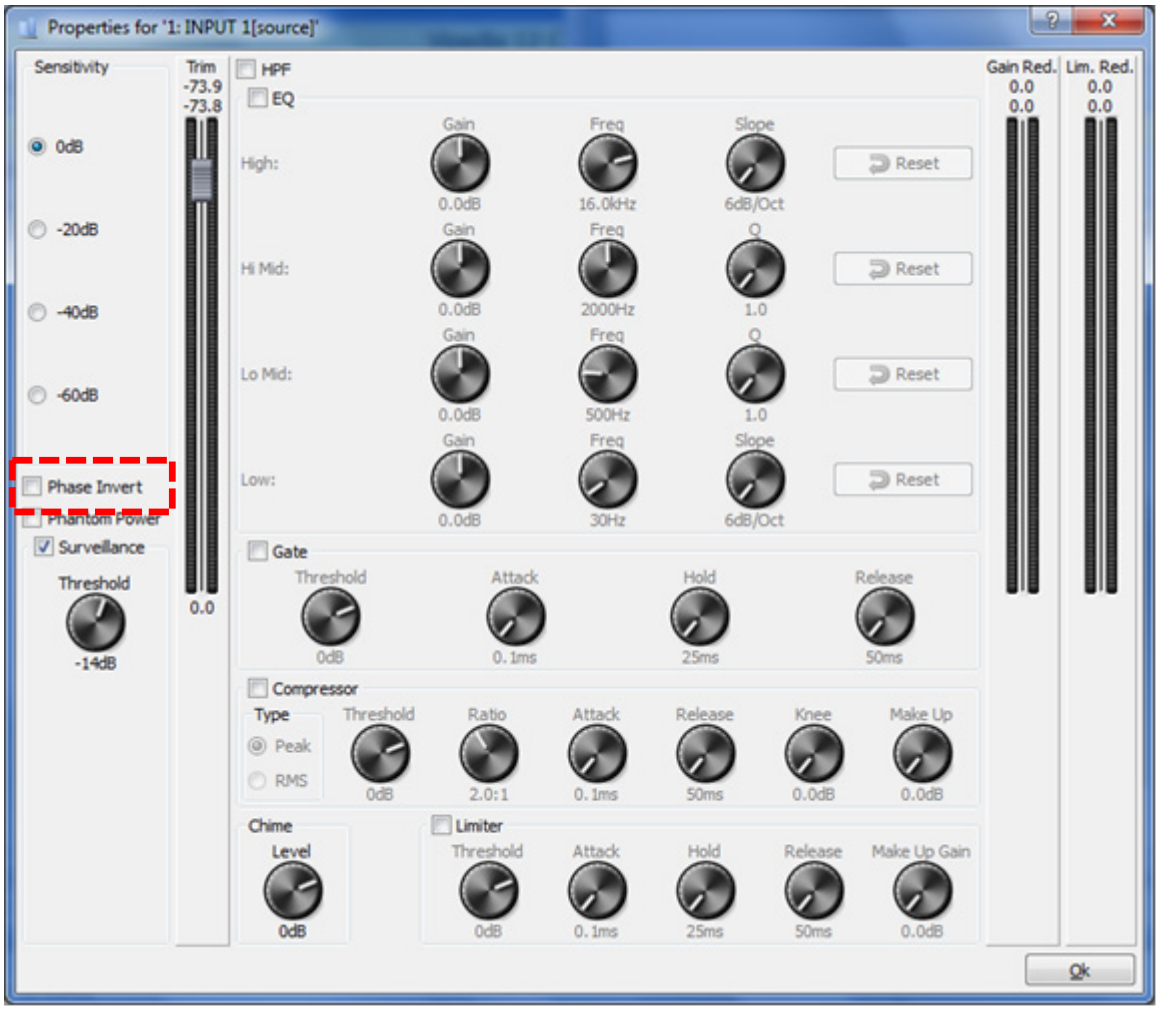
   Note that enablement of phantom power is password protected to prevent accidental damage to unsuitable connected equipment.

   Ensure phantom power is switched off on inputs connected to ASL microphones.

5.3.1.9 Configuring the Input Phase

The phase of an input can be reversed as required, for example, to correct errors in the wiring.

Figure 24 Input Properties – Invert Phase



To change the input phase:

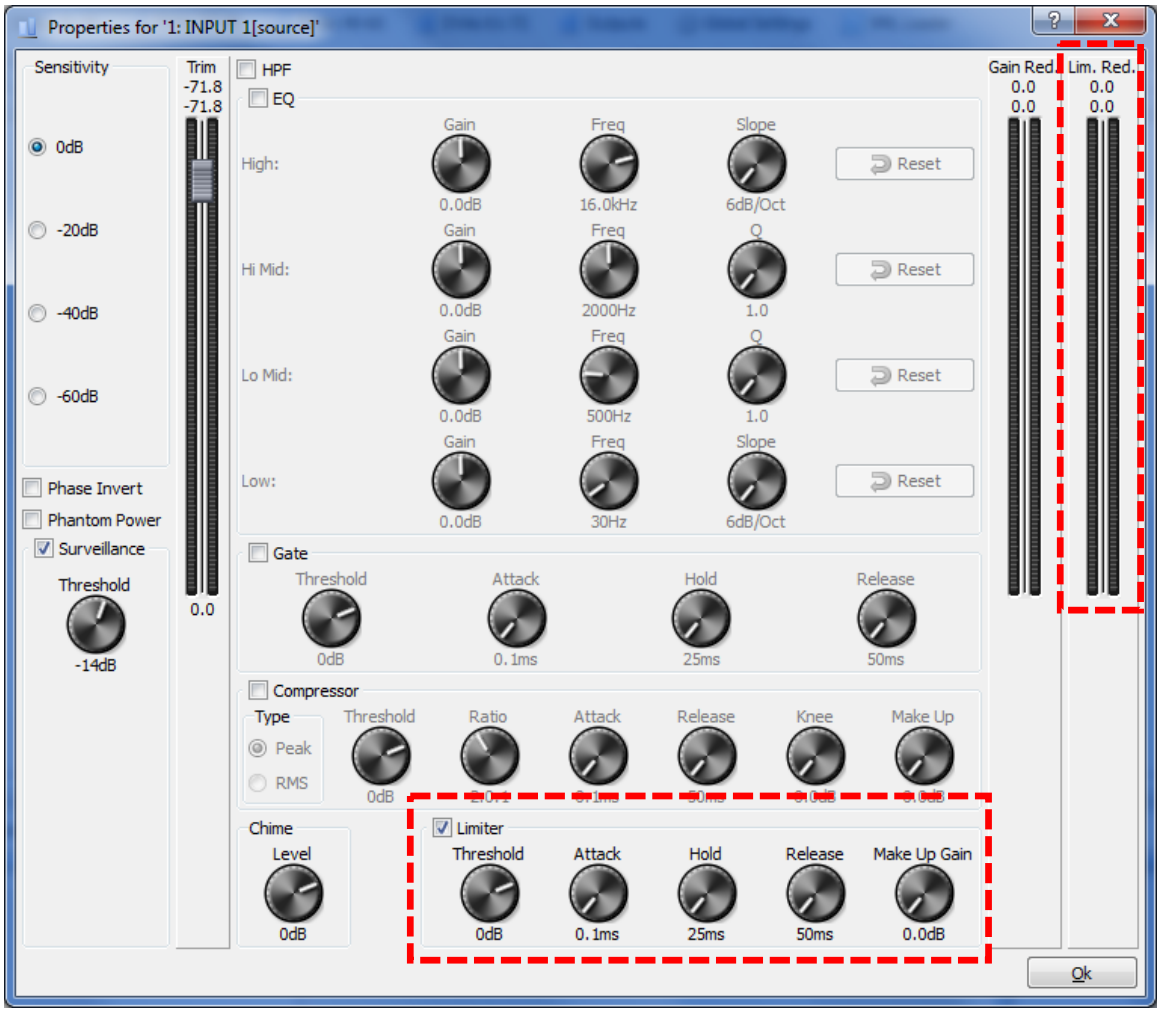
1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **Phase Invert** check box to reverse (checked) or not (unchecked) the input phase.

5.3.1.10 Configuring the Input Limiter

The input limiter is a peak limiter that allows reduction of the input audio level when it exceeds a configurable Threshold. It provides control over how quickly it applies the reduction (Attack time) and restores the input level (Release time). The amount of time (Hold time) the input level remains reduced before it is restored to the normal level is also configurable. Because the limiter is reducing the level, a Make Up Gain is provided to enable a fixed amount of make-up gain to be added to the input level so that an optimum level can be achieved.

The **Lim. Red** meter will display the reduction applied to the input.

Figure 25 Input Properties – Limiter



Adjustment range:

Threshold: -60 dB to +20 dB

Attack: 0.1 ms to 200 ms

Hold: 25 ms to 5 s

Release: 50 ms 3 s

Make up gain: 0 to +20 dB

To enable or disable the input limiter:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **Limiter** check box to enable (checked) or disable (unchecked) the limiter.

To configure the input limiter:

1. Drag the **Threshold** knob up or down to adjust the threshold.
2. Drag the **Attack** knob up or down to adjust the attack time.
3. Drag the **Hold** knob up or down to adjust the hold time.
4. Drag the **Release** knob up or down to adjust the release time.
5. Drag the **Make Up Gain** knob up or down to adjust the make up gain.
6. You can also double-click the text field and type in the required value.

5.3.1.11 Configuring the Input Compressor

The input compressor allows reduction of the input gain when it exceeds a configurable Threshold. It provides control over how quickly it applies the reduction (Attack time) and restores the input level (Release time). The amount of gain reduction is defined by a configurable Ratio. A ratio of 5:1 means that if the input level is 5 dB over the threshold, the input level after the compressor will be 1 dB over the threshold.

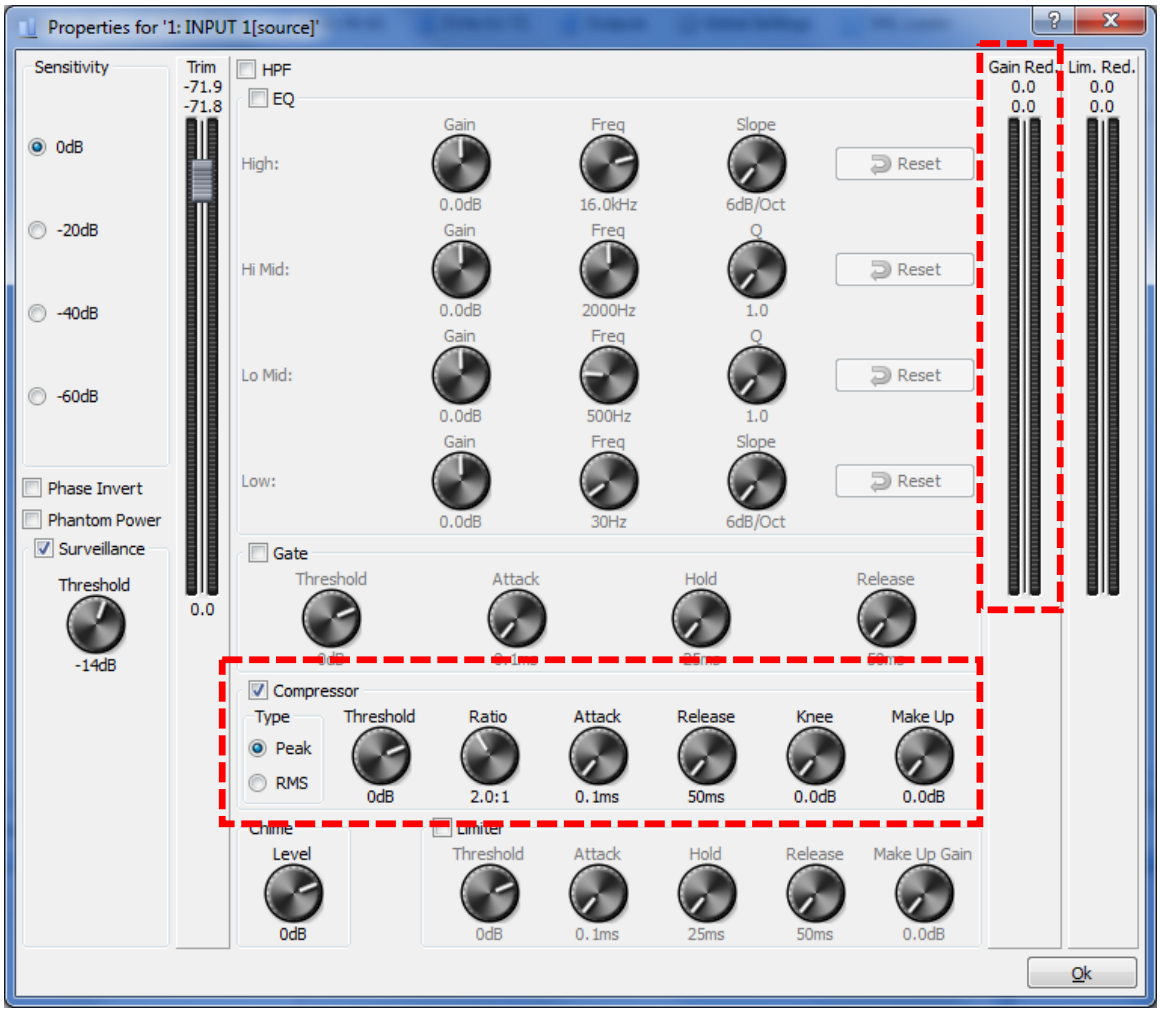
The compressor is configurable to be Peak or RMS. The peak sensing compressor compares the instantaneous level of the input signal with the Threshold. The RMS compressor compares the average (RMS) level of the input signal with the Threshold.

A configurable Knee allows control how the compression ratio is increased as the input level increases and eventually reaches the configured compression ratio. A soft knee provides a smoother transition and, therefore, reduces the audible change from uncompressed to compressed, especially for higher ratios where the changeover is more noticeable.

Because the compressor is reducing the input gain, a Make Up Gain is provided to enable a fixed amount of make-up gain to be added to the input gain so that an optimum level can be achieved.

The **Gain. Red** meter will display the gain reduction applied to the input.

Figure 26 Input Properties – Compressor



Adjustment range:

Threshold: -60 dB to +20 dB

Ratio: 1:1 to ∝:1

Attack: 0.1 ms to 200 ms

Release: 50 ms 3 s

Knee: 0 to +12 dB

Make up gain: 0 to +20 dB

To enable or disable the input compressor:

1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **Compressor** check box to enable (checked) or disable (unchecked) the compressor.

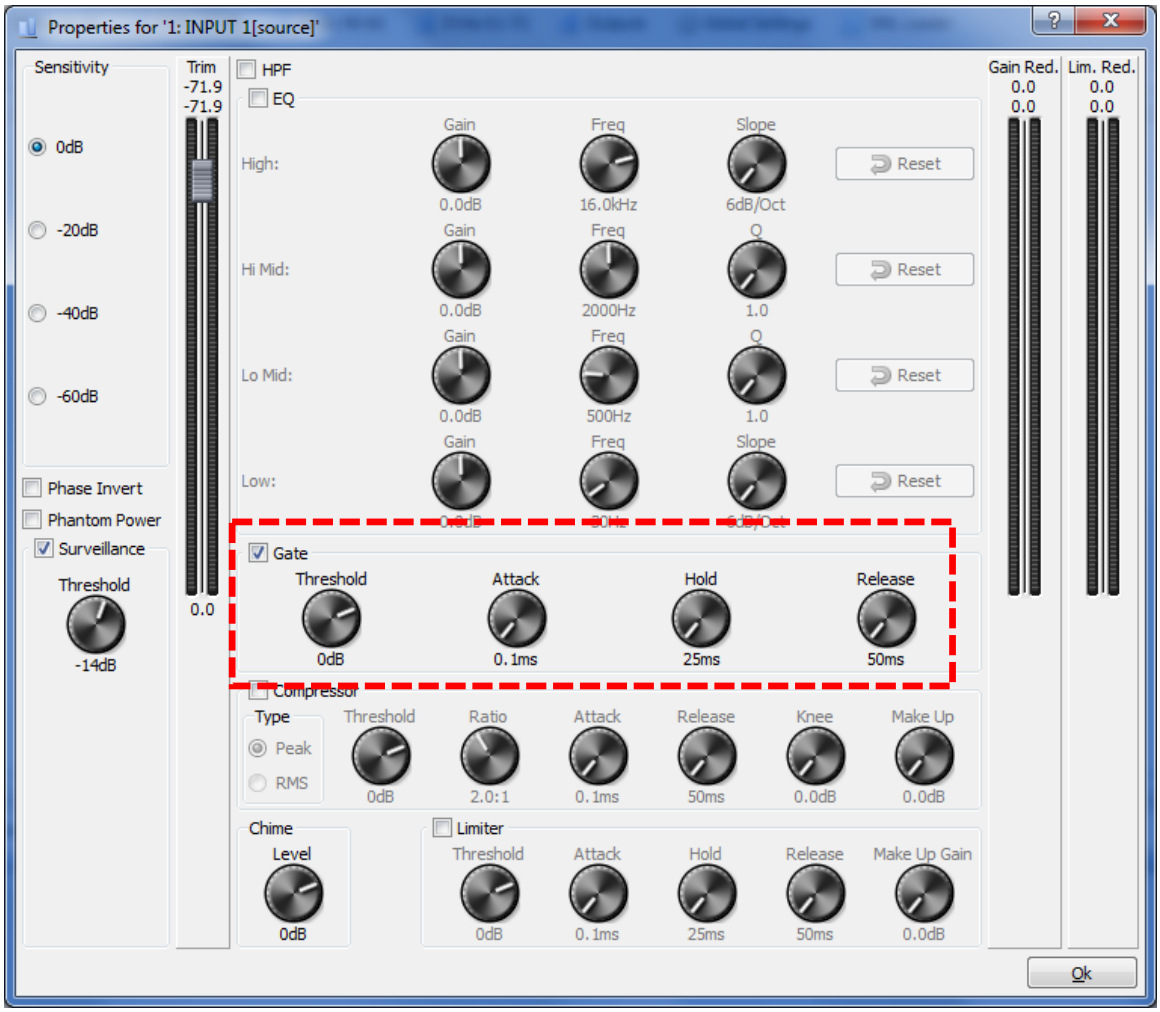
To configure the input compressor:

1. Click the **Peak** or **RMS** type to select the compressor type.
2. Drag the **Threshold** knob up or down to adjust the threshold.
3. Drag the **Ratio** knob up or down to adjust the compressor ratio.
4. Drag the **Attack** knob up or down to adjust the attack time.
5. Drag the **Hold** knob up or down to adjust the hold time.
6. Drag the **Release** knob up or down to adjust the release time.
7. Drag the **Knee** knob up or down to adjust the knee level.
8. Drag the **Make Up Gain** knob up or down to adjust the make up gain.
9. You can also double-click the text field and type in the required value.

5.3.1.12 Configuring the Input Noise Gate

The noise gate allows reduction of the input audio level when it is below a configurable Threshold. It provides control over how quickly it applies the reduction (Release time) and restores the input level (Attack time). The amount of time (Hold time) the input level remains at normal level after the input level falls below the threshold is also configurable.

Figure 27 Input Properties – Gate



Adjustment range:

Threshold: -60 dB to +20 dB

Attack: 0.1 ms to 200 ms

Hold: 25 ms to 5 s

Release: 50 ms 3 s

Make up gain: 0 to +20 dB

To enable or disable the input noise gate:

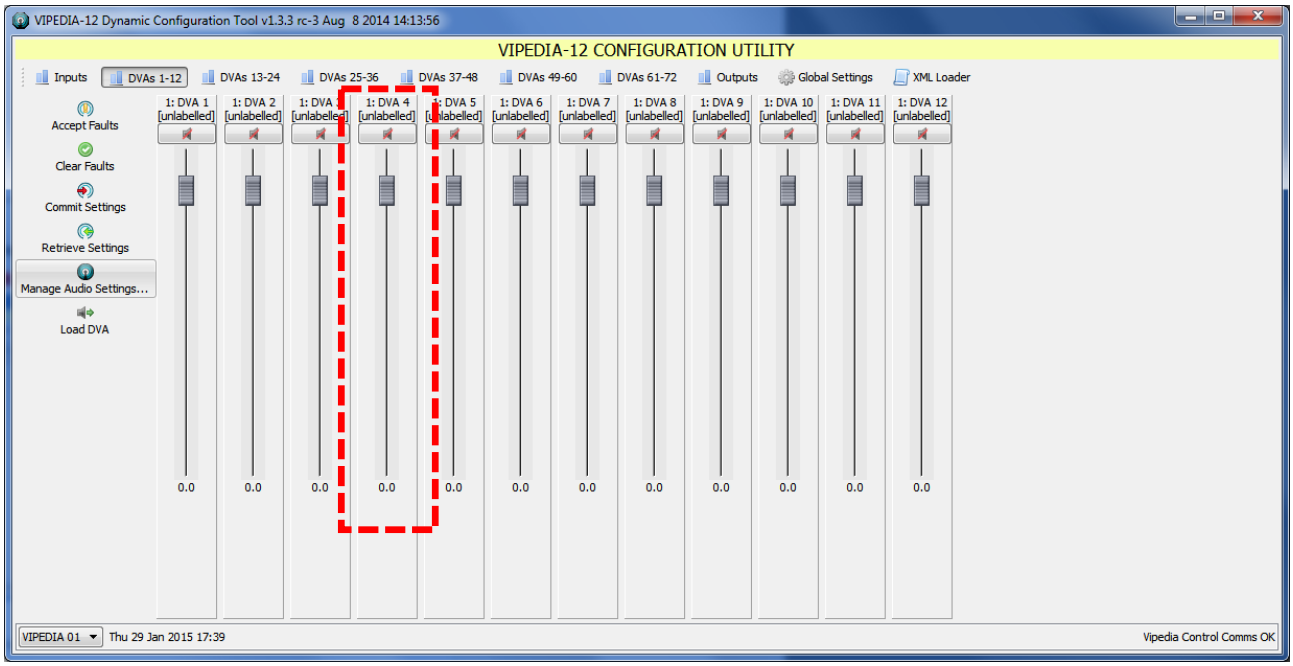
1. Select the **Inputs** page if not already done.
2. Click the **Properties** button of the required input.
3. Click **Gate** check box to enable (checked) or disable (unchecked) the noise gate.

To configure the input noise gate:

1. Drag the **Threshold** knob up or down to adjust the threshold.
2. Drag the **Attack** knob up or down to adjust the attack time.
3. Drag the **Hold** knob up or down to adjust the hold time.
4. Drag the **Release** knob up or down to adjust the release time.
5. You can also double-click the text field and type in the required value.

5.3.2 Adjusting a DVA Input Level

Figure 28 DVA – Level and mute



Adjustment range: -90 dB to +10 dB

To adjust the DVA input level:

1. Select the required **DVA** page if not already done.
2. Drag the slider up or down to adjust the level of the required DVA input(s).
   You can also double-click the text field and type in the required value.

To mute/unmute the DVA input:

Click the **Mute** button to toggle between muted and unmated settings.

(up): unmuted

(down): muted

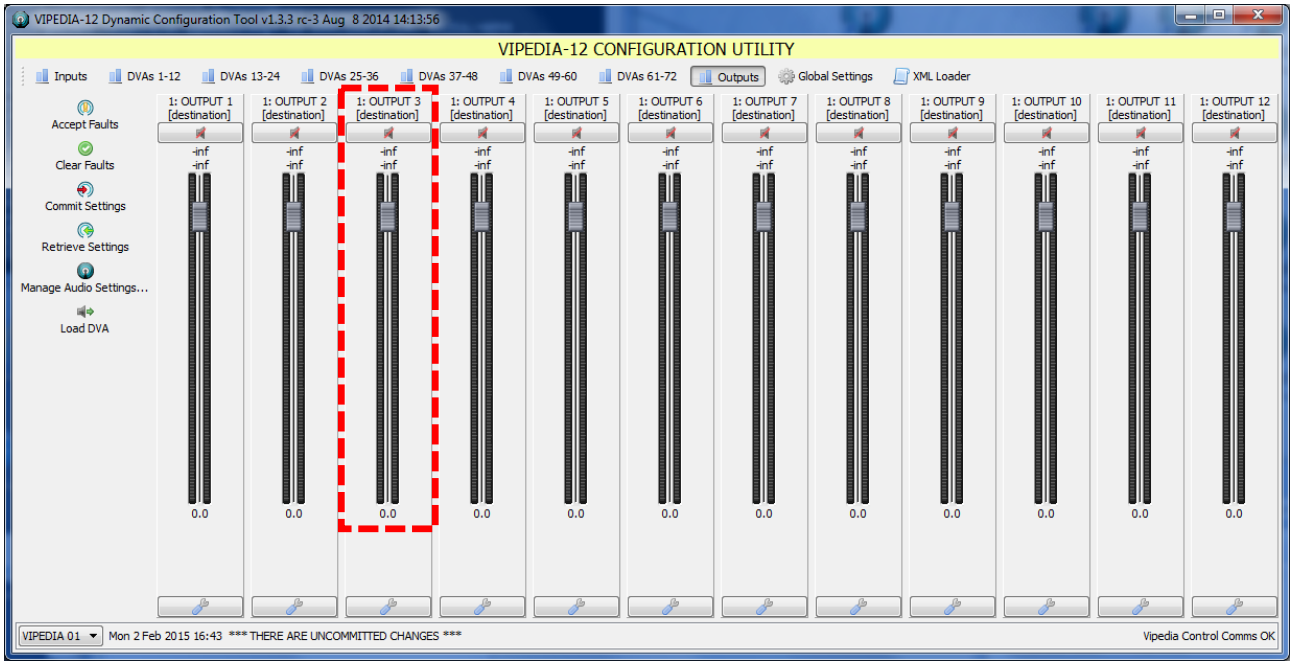
5.3.3 Commissioning an Audio Output

5.3.3.1 Adjusting the Output Level

The fader allows adjustment of the output audio level. A **Mute** button allows the user to mute or unmute the audio output. The associated meter will display the detected output level after the fader and before the mute.

Once all the inputs have been balanced in order to give the same volume as each other, by adjusting the input gain, each output can be set to give the correct sound pressure level in the output zone, by means of its output gain.

Figure 29 Output – Level and mute



Adjustment range: -90 dB to +10 dB

To adjust the output level:

Note that output level adjustments should be performed with volume control functions, such as ANS and Night Time Volume Control disabled on the output.

1. Select the **Outputs** page if not already done.
2. Drag the slider up or down to adjust the level of the required output(s).

   You can also double-click the text field and type in the required value.
3. The meter displays the detected the audio level after the fader and before the mute.

To mute/unmute the input:

Click the **Mute** button to toggle between muted and unmated settings.

(up): unmuted

(down): muted

5.3.3.2 Configuring the Output Surveillance Tone

The VIPEDIA-12 is capable of generating and superimposing up to two surveillance tones at each audio output. Normally a low frequency surveillance tone and a high frequency surveillance tone.

The surveillance tone generation is configurable to "off" (disabled), "on" (continuous), or "pulsed" per output, and the frequency and pulse parameters are configured for the unit as a whole.

Each output can be configured separately to receive either tone (low frequency or high frequency) or the mix of both. The required levels of the two surveillance tone sources are independently configured creating a mix that is available for all outputs.

Note that with earlier version of the VIPEDIA-12 SW the generator frequency and pulse settings are hard-coded and cannot be user defined.[1]

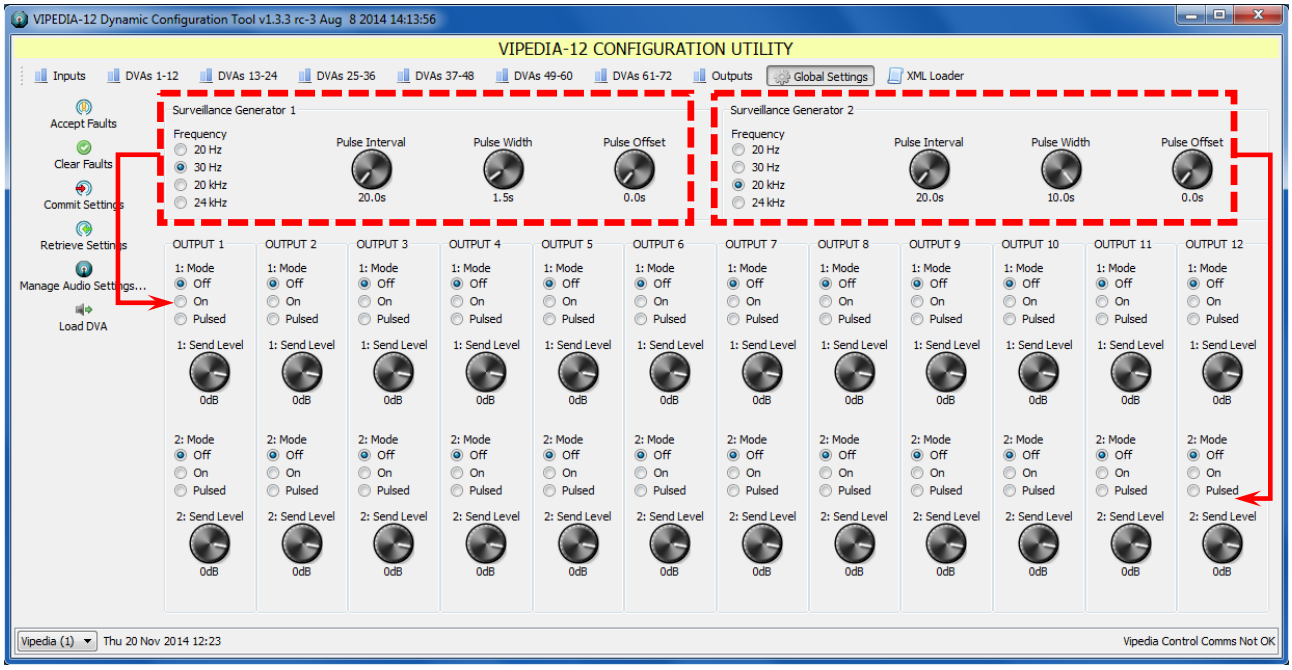
The output surveillances tones are configured in two steps; first the generators, then the outputs.

If surveillance is required, then the advantage of the pulsed mode over the continuous mode is that less power is used by the surveillance function in pulsed mode, while still providing the required surveillance. This is especially important when operating from batteries.

To configure the Surveillance Generators:

1. Select the **Global Settings** page; see Figure 30 (page 103).

Figure 30 Global Settings – Surveillance Generators



[1] For VIPEDIA-12 SW earlier than V1.9, the DSP build number will determine the variant used.

The first two digits of the build number of the DSP code define the variant. The build number is the last field (third) of the DSP code version.

- 0xxx (standard build): LF = 30 Hz (1.5-second pulse) and HF = 24 kHz (10-second pulse)
- 2xxx (20 kHz build): LF = 30 Hz (1.5-second pulse) and HF = 20 kHz (10-second pulse)
- 3xxx (3-second LF build): LF = 30 Hz (3-second pulse) and HF = 24 kHz (10-second pulse)

For example, if the DSP code version is V1.1.2030, the variant is the 20 kHz variant.

2. The configuration of the generator(s) depends on the amplifier mainframe and method of loudspeaker line surveillance being used.

a. V400 and X400:

- DC surveillance with EOL10K resistors: low frequency

  Generator 1:

  Frequency: Pulsed / 30Hz / Pulse Interval: 20.0s / Pulse Width: 1.5s / Pulse Offset: 0.0s

  Generator 2:

  Frequency: Off

- AC surveillance with AEL01 or AEL02 Active End of Line Device(s): low and high frequencies

  Generator 1:

  Frequency: Pulsed / 30Hz / Pulse Interval: 20.0s / Pulse Width: 1.5s / Pulse Offset: 0.0s

  Generator 2:

  Frequency: Pulsed / 20kHz / Pulse Interval: 20.0s / Pulse Width: 10.0s / Pulse Offset: 0.1s

- Impedance monitoring: low frequency

  Generator 1:

  Frequency: Pulsed / 30Hz / Pulse Interval: 20.0s / Pulse Width: 3.0s / Pulse Offset: 0.0s

  Generator 2:

  Frequency: Off

b. V2000: all methods of loudspeaker line monitoring

Generator 1:

Frequency: On / 20Hz / Pulse Interval: 20.0s / Pulse Width: 1.5s / Pulse Offset: 0.0s

Generator 2:

Frequency: Off

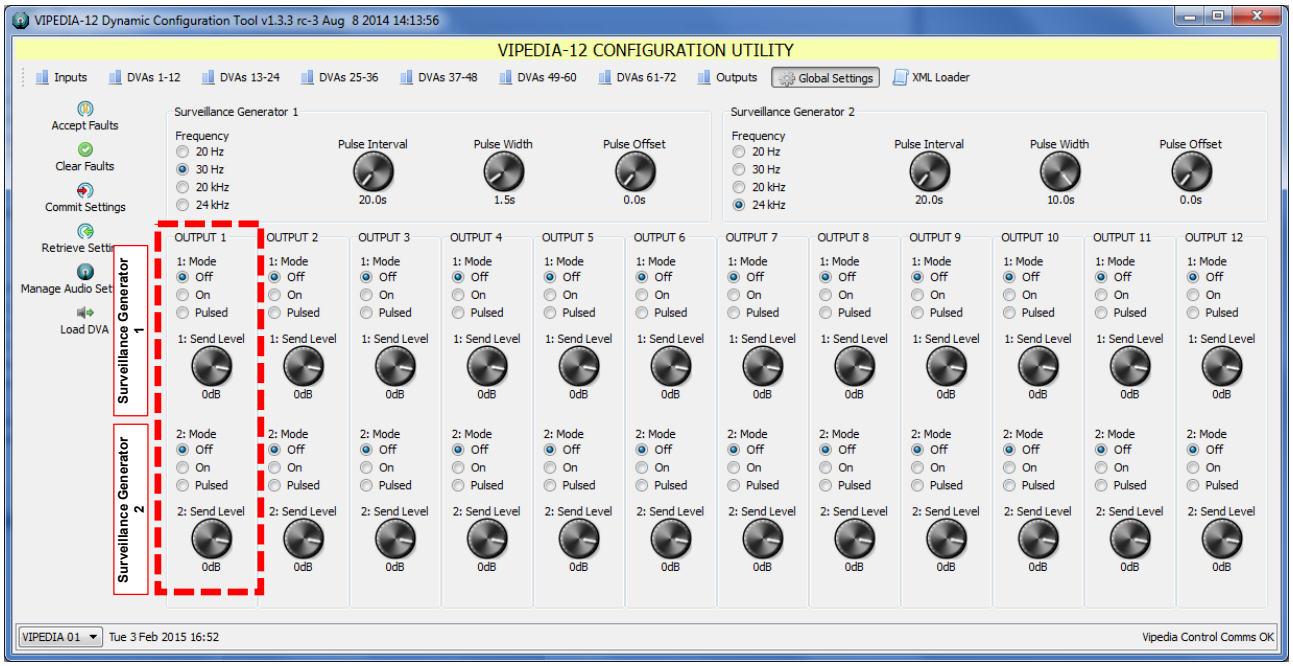
To configure the Outputs:

The outputs can be configured in one of two ways. Either using the global settings page, or in each output's properties window.

To configure the output surveillance tone using the Global Settings page:

1. Select the **Global Settings** page if not already done; see Figure 31 (page 105).

Figure 31 Global Settings – Outputs



2. For V400 and X400, configure the surveillance tone level as required by the loudspeaker line surveillance method being used.

   - DC surveillance with EOL10K resistors:

     a. Choose the correct output and set the low frequency generator to "on" (continuous). Ensure the other generator is set to "off".

     b. Set the **Send Level** to –6 dB (reference level).

     c. Measure the tone on the output and adjust the **Send Level** to ensure a nominal 1 to 1.5 V RMS.

     d. After the levels have been set and the nominal RMS voltage has been achieved at the required outputs, set the outputs to "pulsed". Ensure the other generator is set to "off".

   - AC surveillance with AEL01 or AEL02 Active End of Line Device(s):

     a. Choose the correct output and set the low frequency generator to "on" (continuous). Ensure the other generator is set to "off".

     b. Set the low frequency **Send Level** to –4 dB (reference level).

     c. Measure the tone on the output and adjust the **Send Level** to ensure a nominal 1.5 V RMS tone.

     d. On the same output set the low frequency generator to "off" and the high frequency generator to "on" (continuous).

     e. Set the high frequency **Send Level** to –21 dB (reference level)

     f. Measure the tone on the output and adjust the **Send Level** to ensure a nominal 8 V RMS tone.

     g. After the levels have been set and the nominal RMS voltage has been achieved at the required outputs, set the outputs for both surveillance tone generators to "pulsed".

- Impedance monitoring:
  - **a.** Set the **Send Level** to –6 dB (reference level).
  - **b.** Choose the correct output and set the low frequency generator to "on". Ensure the other generator is set to "off".
  - **c.** Measure the tone on the output and adjust the **Send Level** to ensure a nominal 1 to 1.5 V RMS.
  - **d.** If required, increase the **Send Level** up to 2 V RMS (measured on the output) for stable impedance readings on low loads, typically below 25 W.
  - **e.** After the levels have been set and the nominal RMS voltage has been achieved at the required outputs, set the outputs to "pulsed". Ensure the other generator is set to "off".

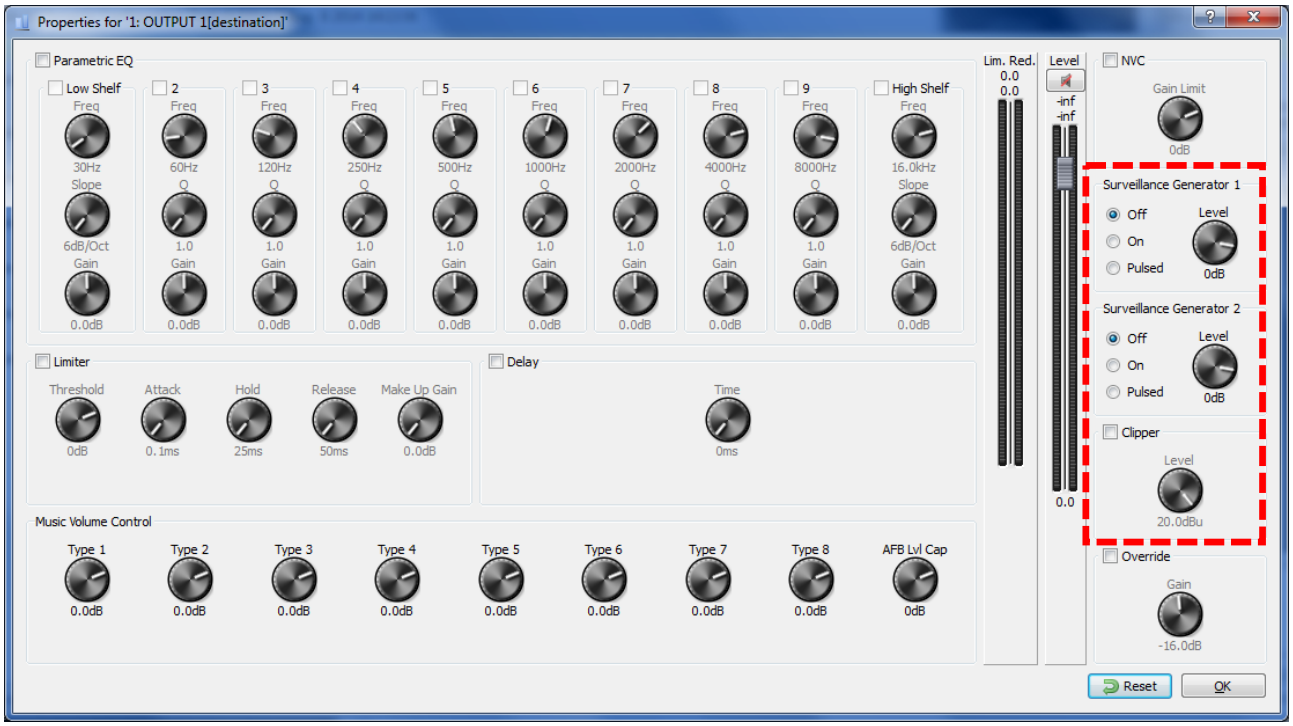
3. For V2000, configure the surveillance tone as follows irrespective of the loudspeaker line surveillance method being used.

- **a.** Choose the correct output and set the low frequency generator to "on".
- **b.** Ensure the other generator is set to "off".
- **c.** Set the **Send Level** to –30 dB (always).
- **d.** Ensure the outputs are set to "on" (continuous). Ensure the other generator is set to "off".

To configure the output surveillance tone using the Output Properties window:

1. Select the **Output** tab if not already done; see Figure 32 (page 106).

Figure 32 Output – Surveillance tone



2. Click the **Properties** button for the appropriate output.

3. Follow the same configuration procedure as for the global settings page above.

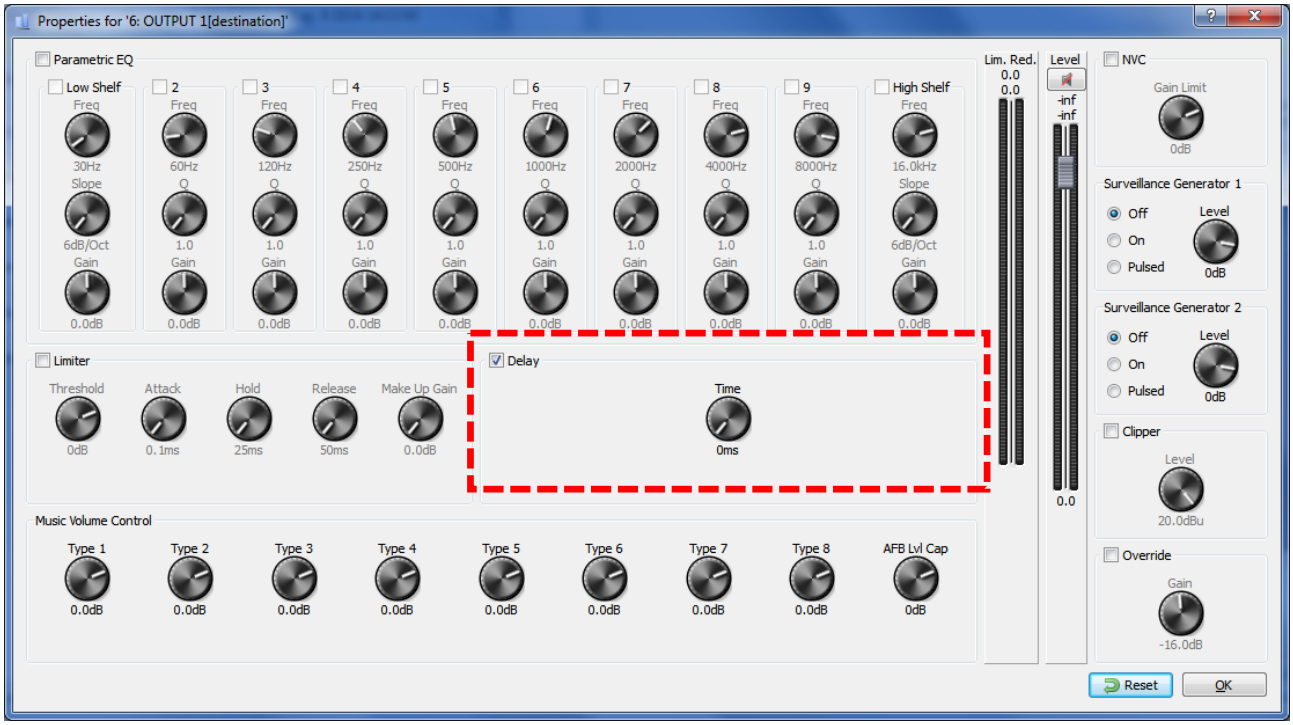
5.3.3.3 Configuring the Output Delay and/or Compensation Delay for Local and Remote Broadcast Synchronisation

An output can be configured to play the audio after a delay (between 1 ms to 5 seconds). This may be useful in a situation where the audio output has to be synchronised with another event in the system.

The output delay is used to set a compensation delay that is required to synchronise broadcasts to local and remote outputs.

The compensation delay for local outputs is set in output 12 of the VIPEDIA-12. The algorithm attempts to add the value set here to the output delay whenever an input is shared with an output PMC channel.

Figure 33 Output Properties – Delay



Adjustment range: 1 ms to 5 s

To adjust the output delay and compensation delay:

The compensation delay is only required on VIPEDIA-12 units fitted with VIPEDIA-12 Network Card and sourcing an audio input (microphone, miscellaneous or DVA).

The compensation delay for local outputs is set in output 12 of the VIPEDIA-12. The algorithm attempts to add the value set here to the output delay whenever an input is shared with an output PMC channel.

It should not matter if the delay is enabled or disabled in the setup for the other outputs, but if an additional delay is not required for a given output, the output delay must be set to 0 ms (outputs 1 to 11).

For example, if no delays are required for operational purposes, set outputs 1 to 11 with 0 ms delay (enabled or disabled state should not matter), and then set output 12 delay to the network compensation delay value. The compensation delay is about 341 ms for default VIPEDIA-NET and it should be adjusted for each system.

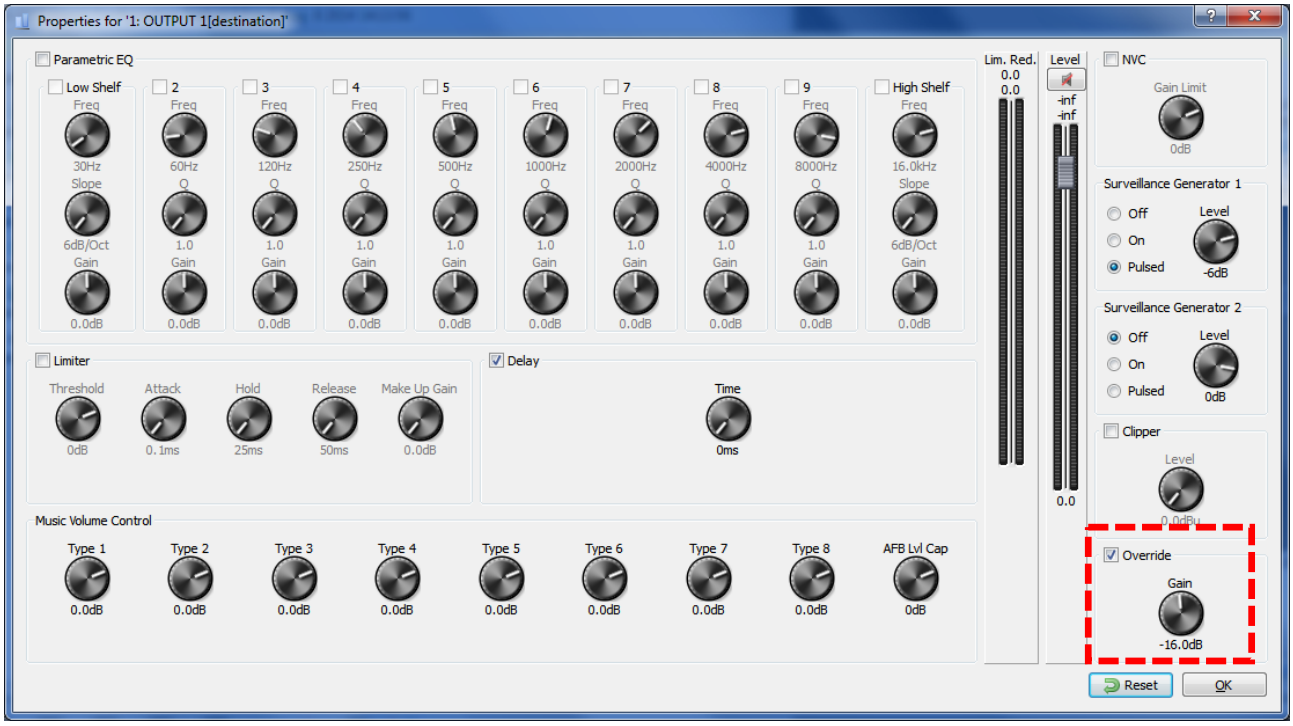
1. Select the **Outputs** page if not already done.
2. Click the **Properties** button of the required output.
3. Click the **Delay** checkbox to enable delay.
4. Drag the **Delay** knob up or down as required.

   You can also double-click the text field and type in the required value.

5.3.3.3.1 Commissioning the Override Gain

The override gain setting enables each zone to be independently adjusted for the level of the audio in the hardware bypass failsafe mode when the VIPEDIA-12 is in the failsafe override mode.

Figure 34 Output Properties – Override



Adjustment range: -31.5 dB to 0 dB

To adjust the override gain:

1. Select the **Outputs** page if not already done.
2. Click the **Properties** button of the required output.
3. Click the **Override** check box to put the VIPEDIA-12 into the hardware bypass failsafe override mode. This is so that if the fire microphone PTT is operated it uses the analogue override path NOT the normal DSP path. Therefore, the fire microphone can be used to demonstrate the effect of adjusting the override gain in order to correctly set the level of the override mode gain.

   Note that the override gain setting is password protected.
4. Drag the **Gain** knob up or down as required.

   You can also double-click the text field and type in the required value.
5. The VIPEDIA-12 will automatically be put back into normal operation mode when the Properties dialog box is closed.

5.3.3.4 Configuring the Night Time Volume Control Cap Level

The VIPEDIA-12 provides a Night Time Volume Control (NVC) function. This is a facility for automatically limiting the volume of announcements at configurable times of the day, usually during the night. The routes subject to the NVC control are configured in the system configuration using the PAVA System Configuration Tool. The NVC control is enabled or disabled and the volume cap is configured using the VIPEDIA-12 Dynamic Configuration Tool.

Any new route established when a NVC period is active will be subject to output volume capping for each output whose volume is controlled by the Night Time Volume Control as follows:

- If the route is not controlled by the NVC, then the nominal output gain is used.
- If the route is controlled by the NVC, then either the nominal output gain or the configured maximum gain for in the NVC is used, whichever is lower.

Where the nominal output gain for an output in dB is the sum of the output gain, the ANS compensation (if applicable), the attenuation by any output gain control mechanism (if applicable), and the attenuation by a Volume Control mechanism (if applicable).

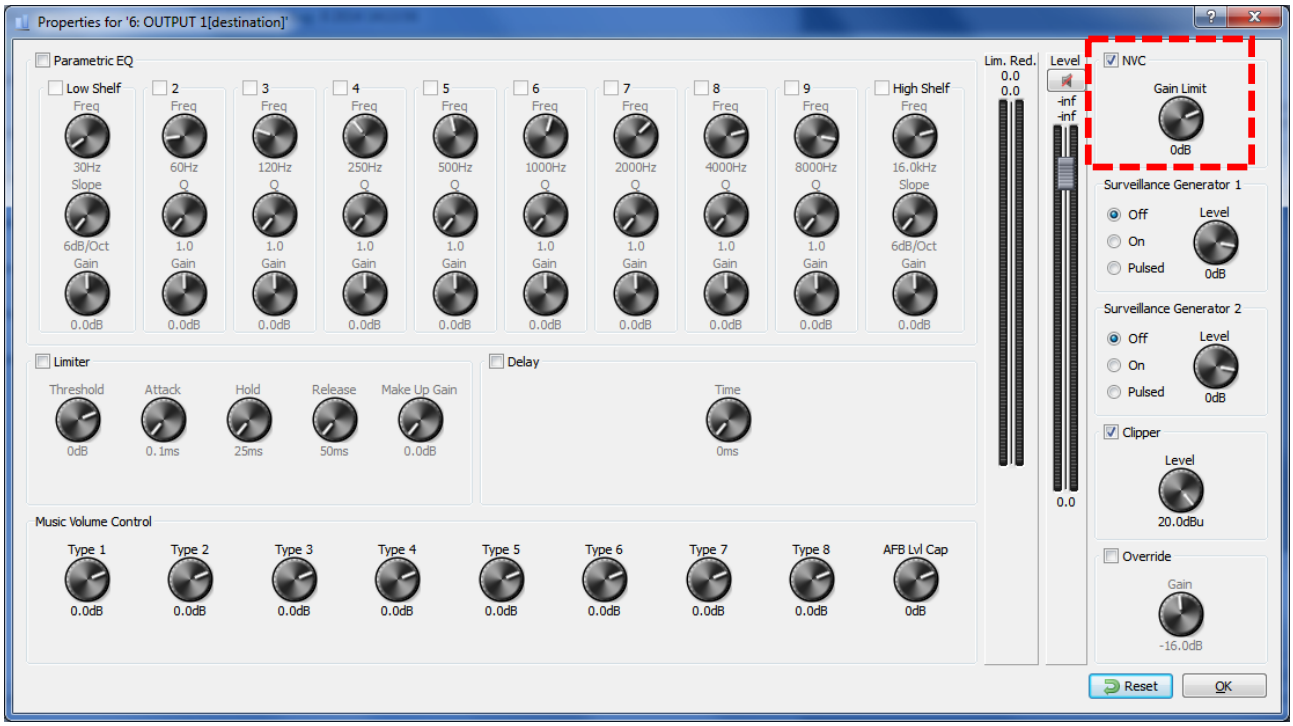
If fitted with a VIPEDIA-NET Network Card the VIPEDIA-12 supports the external overriding of the night volume enablement and volume cap level. Typically the override messages would be sent from an iVENCS control system over IP to the VIPEDIA-12 via the Network Card.

The override settings are non-volatile and do not expire and normal operation can only be restored by the external control. This feature was implemented to ensure that reboots of the VIPEDIA-12 (perhaps by service personnel) did not result in an unexpected change in output level and difficult to trace service calls that NVC levels had spontaneously changed.

The override settings are not saved into NVM immediately after the override. It takes about 15 seconds.

1) The NVC override status is not displayed on the VIPEDIA-12 Dynamic Configuration Tool. The override status is available on the serial monitor ("nvc-override" command).
2) When NVC overrides are in place, the operation of the VIPEDIA-12 DCT may not be obvious. e.g.:
   a) If a level override is in place, the level set by VIPEDIA-12 DCT will have no effect on the current level for that output. The level will however be stored and utilised when/if the override level is restored by the external control.
   b) If a NVC operation override is in place, the setting of the NVC control for that output will have no effect (it will be at the current cap level).

Figure 35 Output Properties – NVC



Adjustment range: -60 dB to +20 dB

To enable or disable the Night Time Volume Control (NVC):

1. Select the **Outputs** page if not already done.
2. Click the **Properties** button of the required output.
3. Click the **NVC** check box to enable (checked) or disable (unchecked) the NVC control.

To adjust the NVC cap level:

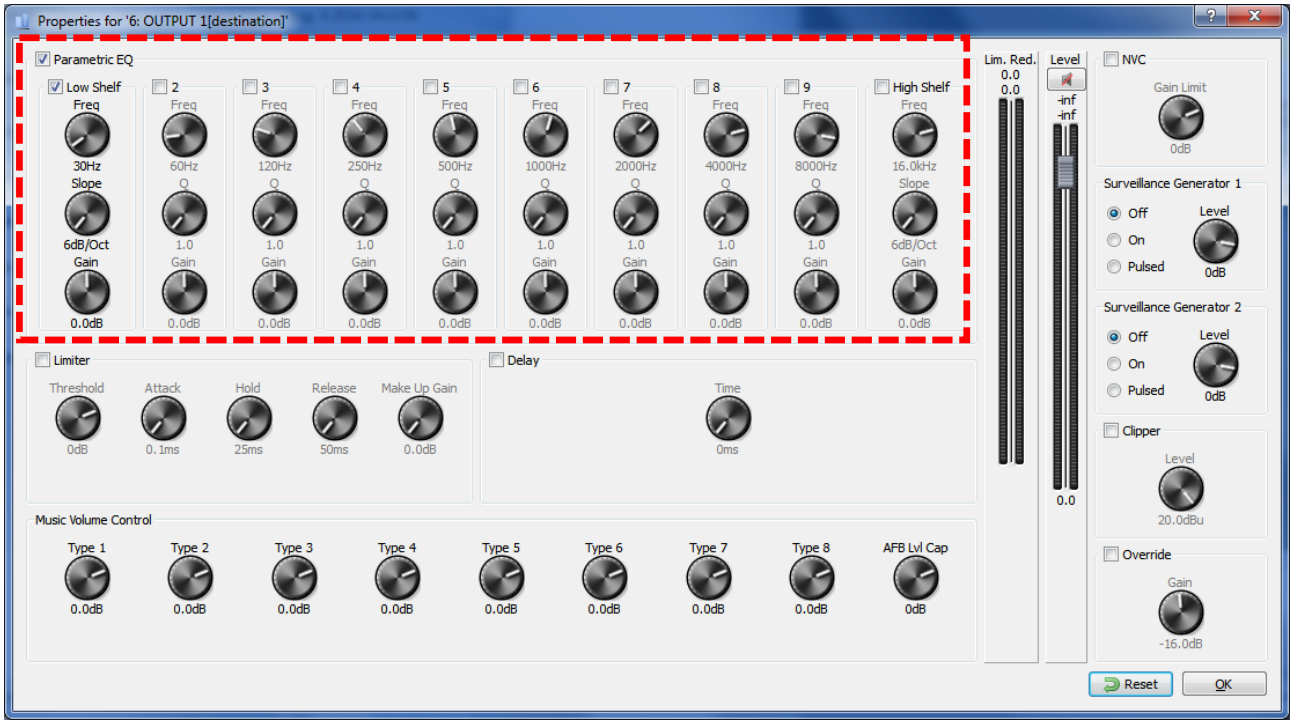
Drag the **Gain Limit** knob up or down as required.

You can also double-click the text field and type in the required value.

5.3.3.5 Configuring the Output Equaliser

A 10-band parametric EQ is configurable for each of the outputs. The highest and lowest bands are shelving filters, whilst the middle 8 bands are peaking. The equaliser can be enabled or disabled as a whole. Each of the frequency bands can be individually enabled or disabled.

Figure 36 Output Properties – Equaliser



Lowest band adjustment range:

- Frequency: 20 Hz to 200 Hz
- Gain: -18 dB to +18 dB
- Slope: +6 dB to +12 dB

Bands 2 to 9 adjustment range:

- Frequency: 20 Hz to 20 kHz
- Gain: -18 dB to +18 dB
- Q: 1.0 to 5.0

Highest band adjustment range:

- Frequency: 2 kHz to 20 kHz
- Gain: -18 dB to +18 dB
- Slope: +6 dB to +12 dB

To enable or disable the output equaliser:

1. Select the **Outputs** page if not already done.
2. Click the **Properties** button of the required output.
3. Click **Parametric EQ** check box to enable (checked) or disable (unchecked) the output equaliser.

To configure a frequency band:

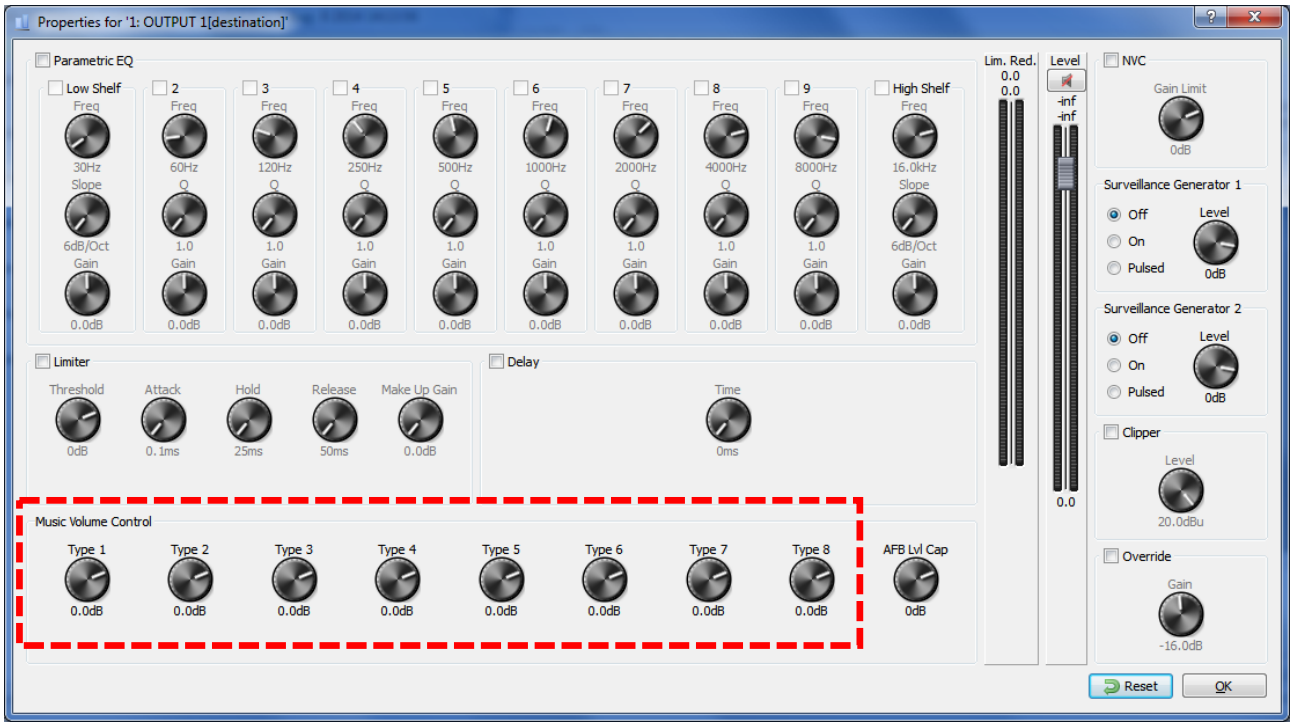
1. Click the appropriate check box to enable (checked) or disable (unchecked) a frequency band.
2. Drag the **Freq** knob up or down to adjust the frequency.
3. Drag the **Gain** knob up or down to adjust the gain.
4. Drag the **Slope** or **Q** knob up or down to adjust the slope or Q.
5. You can also double-click the text field and type in the required value.
6. If required, use the **Reset** button next to the **OK** button on the right-bottom corner to reset the equaliser to a flat response.

5.3.3.6 Configuring the Output Relative Gains

Normally all input gains will be set to "balance" each of the inputs, and the output gain will be set to give the required level at each output. However, if any input is desired to have a different gain in a particular output or outputs, then these inputs can be given a different gain relative to each appropriate output.

A route that requires the output relative gain settings has to be configured to one of the available volume control types (Type 1 to Type 8) in the system configuration using the PAVA System Configuration Tool[1]. The required volume control type on each appropriate output can then be configured to a different gain using the VIPEDIA-12 Dynamic Configuration Tool.

Figure 37 Output Properties – Volume Control



Adjustment range for Type 1 to Type 8: -30 dB to +10 dB

To adjust the output relative gain of an input:

1. Find the volume control type assigned to the input being adjusted (Type 1 to Type 8).
2. Drag the appropriate knob up or down to adjust the relative gain.

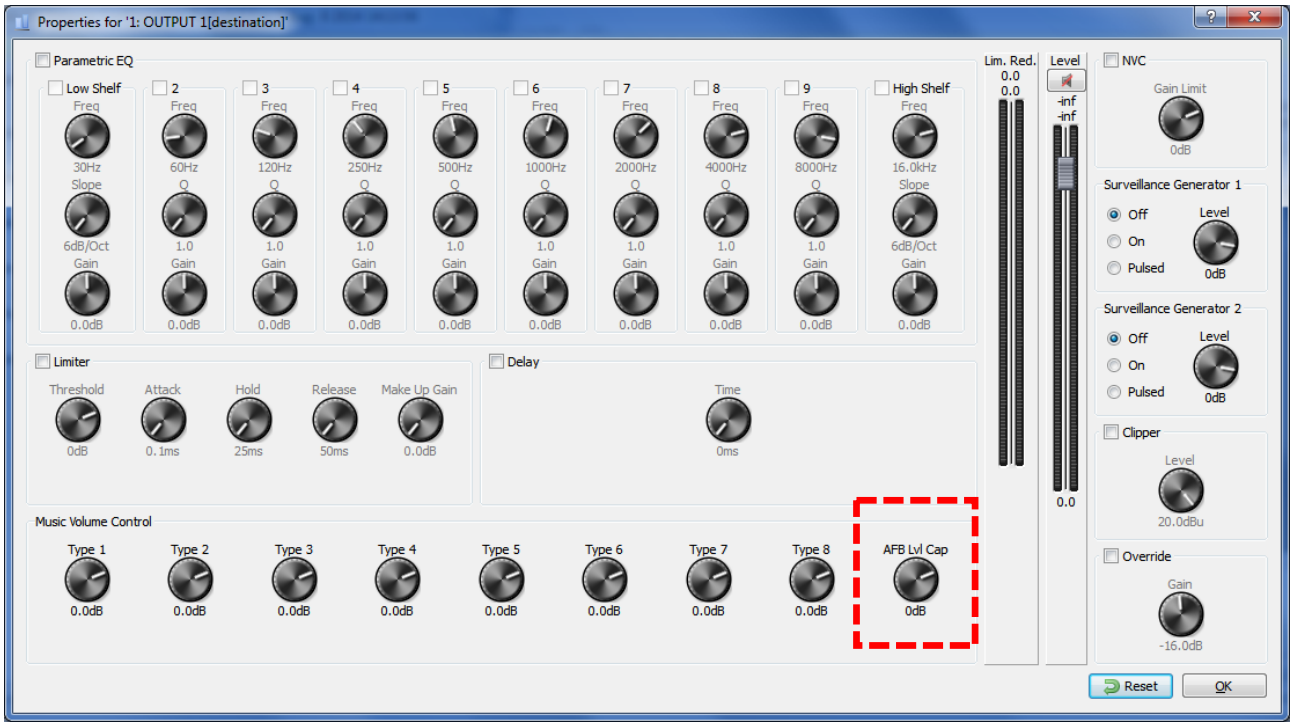
   You can also double-click the text field and type in the required value.

[1] Output relative gains is not supported by the VIPEDIA-12 System Configuration Tool at the time of publication of this document.

5.3.3.7 Configuring the Anti-Feedback Cap Level

The VIPEDIA-12 provides an anti-feedback control, which limits the output level when routed to an input subject to the anti-feedback control. The inputs and outputs subject to the anti-feedback control is configured in the system configuration using the PAVA System Configuration Tool[1], and the cap level is configured using the VIPEDIA-12 Dynamic Configuration Tool.

Figure 38 Output Properties – Anti-feedback control



Adjustment range for Type 1 to Type 8: 60 dB to +20 dB

To adjust the anti-feedback cap level:

Drag the **AFB Lvl Cap** knob up or down to adjust the maximum output level when routed to an input subject to the anti-feedback control.

You can also double-click the text field and type in the required value.

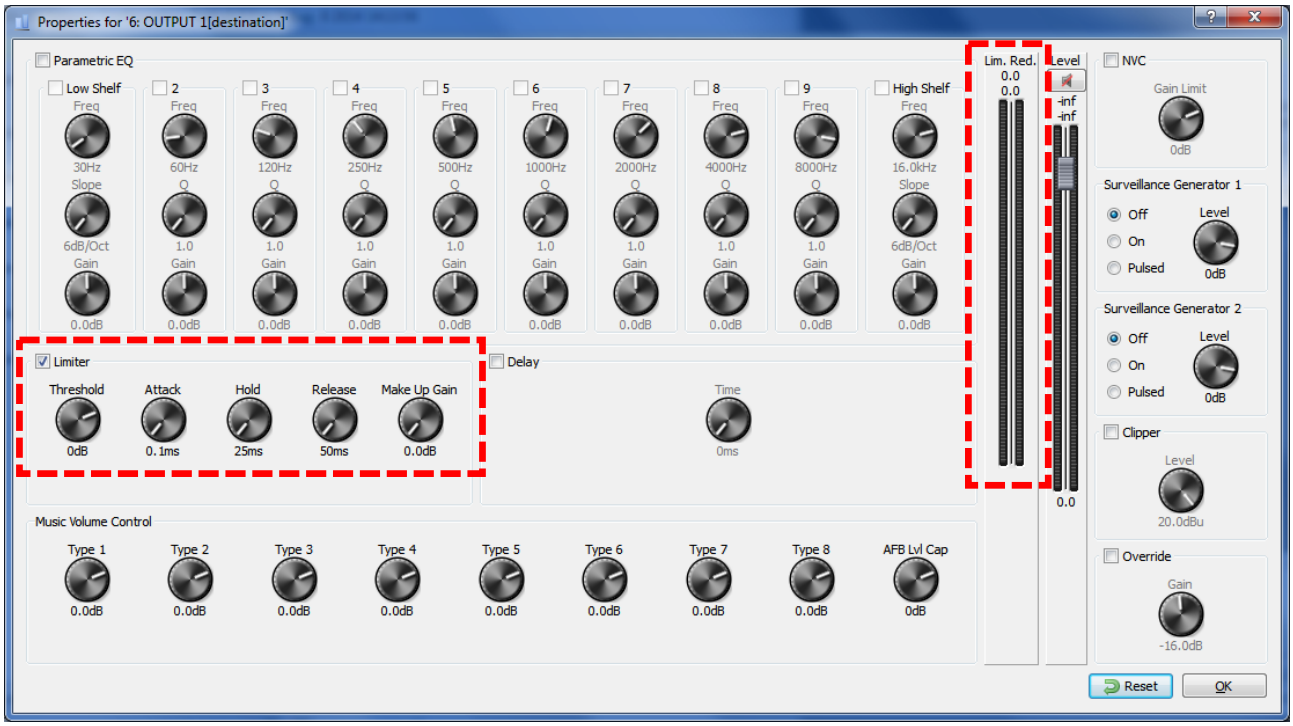
[1] Anti-feedback cap level is not supported by the VIPEDIA-12 System Configuration Tool at the time of publication of this document.

5.3.3.8 Configuring the Output Limiter

The output limiter is a peak limiter that allows reduction of the output audio level when it exceeds a configurable Threshold. It provides control over how quickly it applies the reduction (Attack time) and restores the output level (Release time). The amount of time (Hold time) the output level remains reduced before it is restored to the normal level is also configurable. Because the limiter is reducing the level, a Make Up Gain is provided to enable a fixed amount of make up gain to be added to the output level so that an optimum level can be achieved.

The **Lim. Red** meter will display the reduction applied to the output.

Figure 39 Output Properties – Limiter



Adjustment range:

Threshold: -60 dB to +20 dB

Attack: 0.1 ms to 200 ms

Hold: 25 ms to 5 s

Release: 50 ms 3 s

Make up gain: 0 to +20 dB

To enable or disable the output limiter:

1. Select the **Outputs** page if not already done.
2. Click the **Properties** button of the required output.
3. Click **Limiter** check box to enable (checked) or disable (unchecked) the limiter.

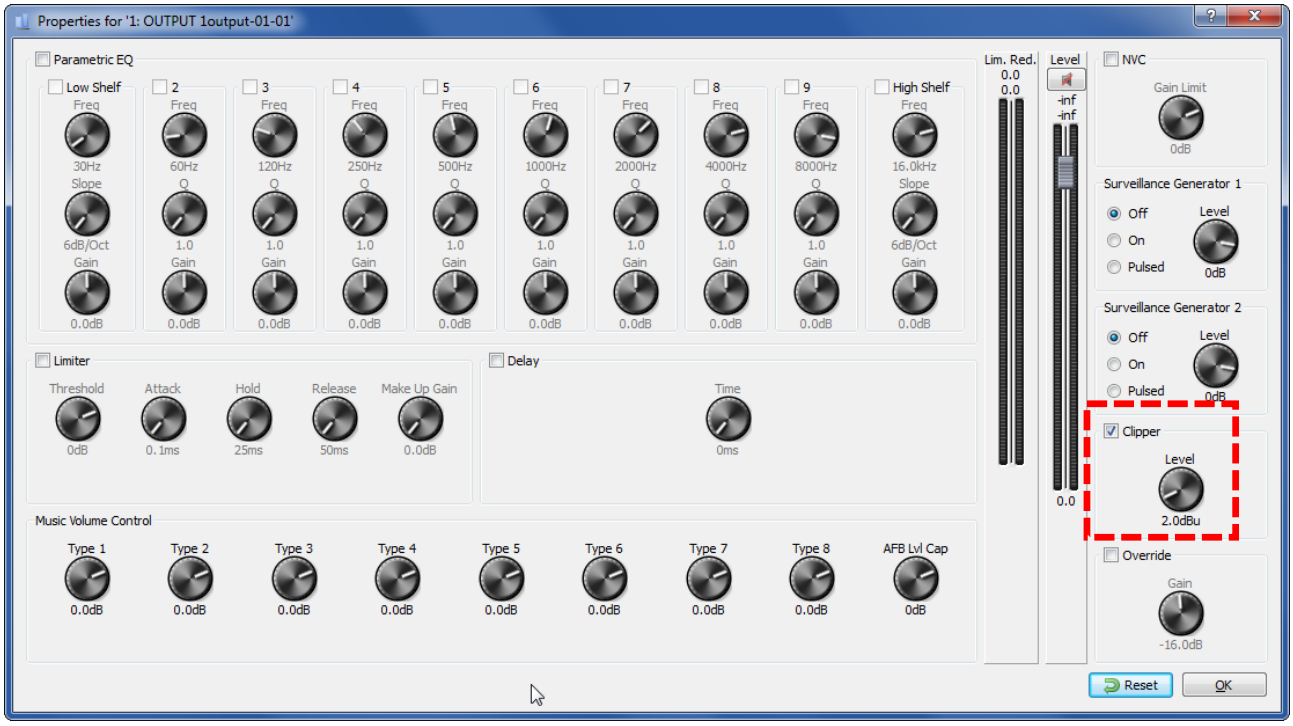
To configure the output limiter:

1. Drag the **Threshold** knob up or down to adjust the threshold.
2. Drag the **Attack** knob up or down to adjust the attack time.
3. Drag the **Hold** knob up or down to adjust the hold time.
4. Drag the **Release** knob up or down to adjust the release time.
5. Drag the **Make Up Gain** knob up or down to adjust the make up gain.
6. You can also double-click the text field and type in the required value.

5.3.3.9 Configuring the Hard Clipper

The output hard clipper can be selected between a configurable fixed hard clip level and a dynamic hard clip level which calculates the saturation level depending on the amplitude of the output surveillance tones.

Figure 40 Output Properties – Hard Clipper



Adjustment range: 0 dB to +20 dB

To select the hard clip:

1. Select the **Outputs** page if not already done.
2. Click the **Properties** button of the required output.
3. Click the **Clipper** check box to select between fixed hard clip level (checked) or dynamic hard clip level (unchecked).

   Warning:

   Outputs connected to ASL Amplifier Mainframes (V400, X400 and V2000) should have the Hard Clipper enabled at +2dBu. The Hard Clipper limits the programme audio so it does not intermodulate with the surveillance tone.

To adjust the fixed hard clip level:

Drag the **Level** knob up or down as required.

You can also double-click the text field and type in the required value.

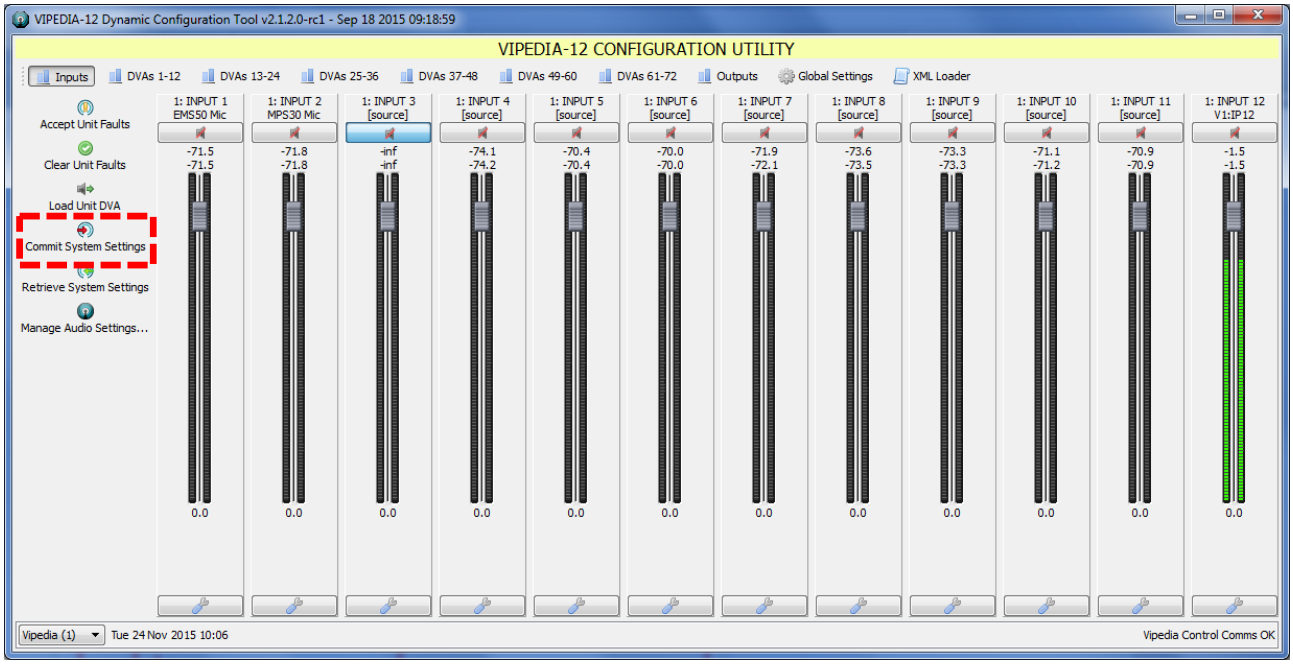
5.3.4 Committing the Live Settings

1) All changes to the audio settings work in real time and are implemented in RAM, and therefore, are not permanent. All settings will be lost if the unit is turned off.

2) It is essential that the live settings be committed, i.e. transferred from RAM to NVM when the system commissioning has been completed.

3) The VIPEDIA-12 Dynamic Configuration Tool will display a warning if an attempt to close the application is made before all changes have been committed.

Figure 41 Commit Settings



To commit the live settings:

1. Click the **Commit System Settings** button on the left-side of the main GUI.

   Notes: The Commit Settings function is password protected.

   The live settings will be committed to each unit accessed by the VIPEDIA-12 Dynamic Configuration Tool.

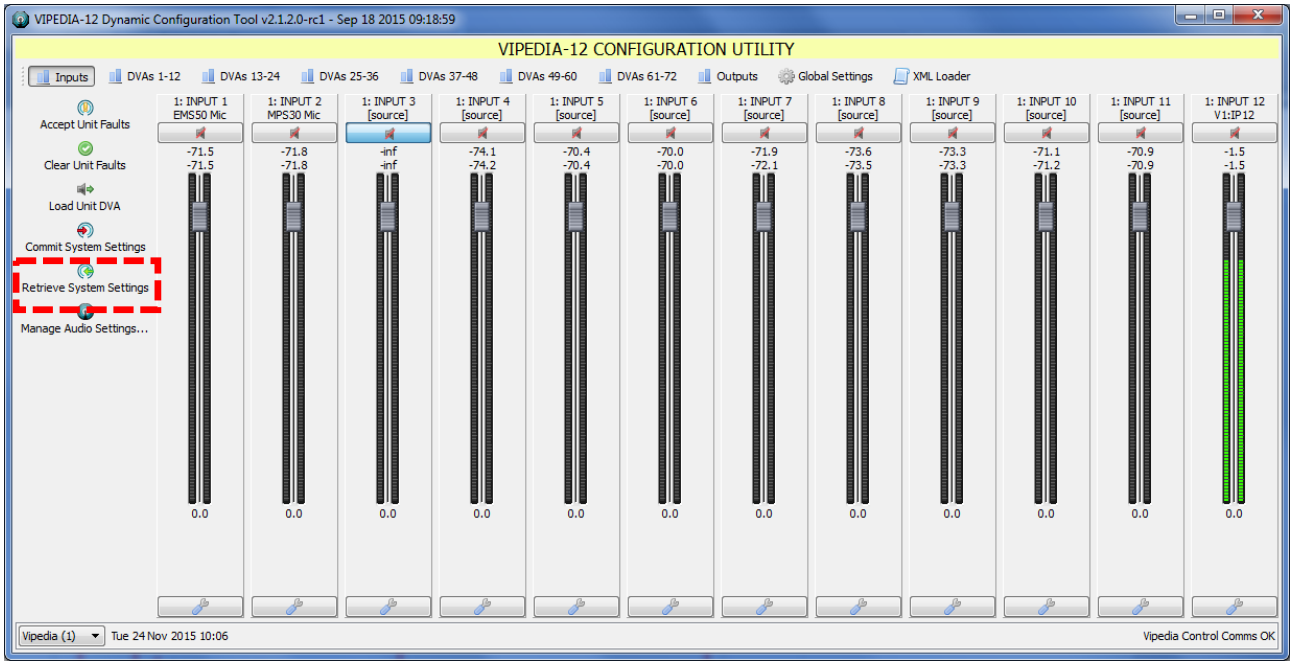
2. Extract the commissioned audio settings into a file by pressing the **Manage Audio Settings…**; see Section "5.5 Extracting and Injecting Audio Settings to/from a File" (page 122).

   This is to ensure that the commissioned audio settings can be restored in the event that the unit's configuration is accidentally cleared or a replacement unit is commissioned.

5.3.5 Rolling Back to the Last Committed Audio Settings

The current working live settings can be replaced with the values last saved into NVM. This allows recovery from a wrongly adjusted system.

Figure 42 Retrieve Settings



To retrieve the audio settings:

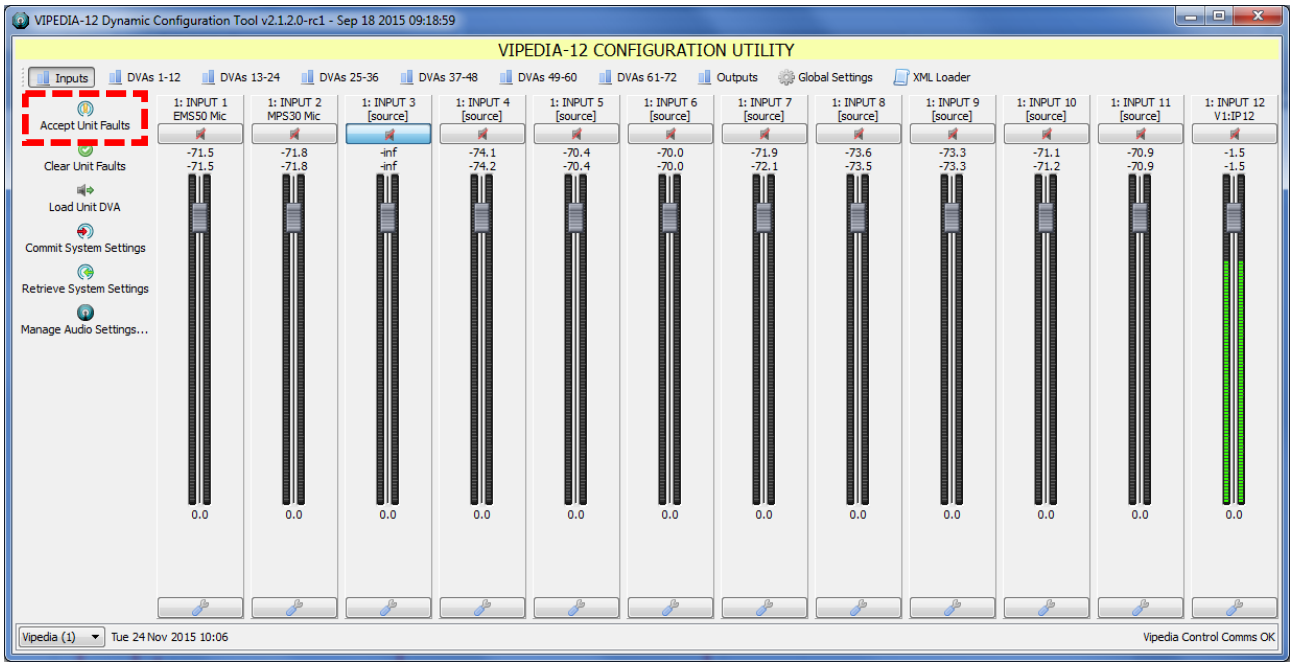
Click the **Retrieve System Settings** button on the left-side of the main GUI.

The values last saved into NVM will be retrieved into all units in the system configuration.

5.4 Accepting and Clearing Faults

The VIPEDIA-12 Dynamic Configuration Tool allows the user to accept (acknowledge) and clear faults on all VIPEDIA-12 units in the VA Group.

Figure 43 Fault accept/clear



To accept faults:

Click the **Accept Unit Faults** button on the left-side of the main GUI.

All current faults on all VIPEDIA-12 units in the VA Group will be accepted (acknowledged). The flashing fault LED indication will be steadied, and audible alarm will be turned off until a new fault condition occurs.

To clear faults:

Click the **Clear Faults** button on the left-side of the main GUI.

All current faults on all VIPEDIA-12 units in the VA Group will be cleared. All connected equipment will set to the "no faults" state, which will also cancel any amplifier changeovers in effect. If a fault cleared in this way still persists, then the fault warning condition will be detected anew and reported again.

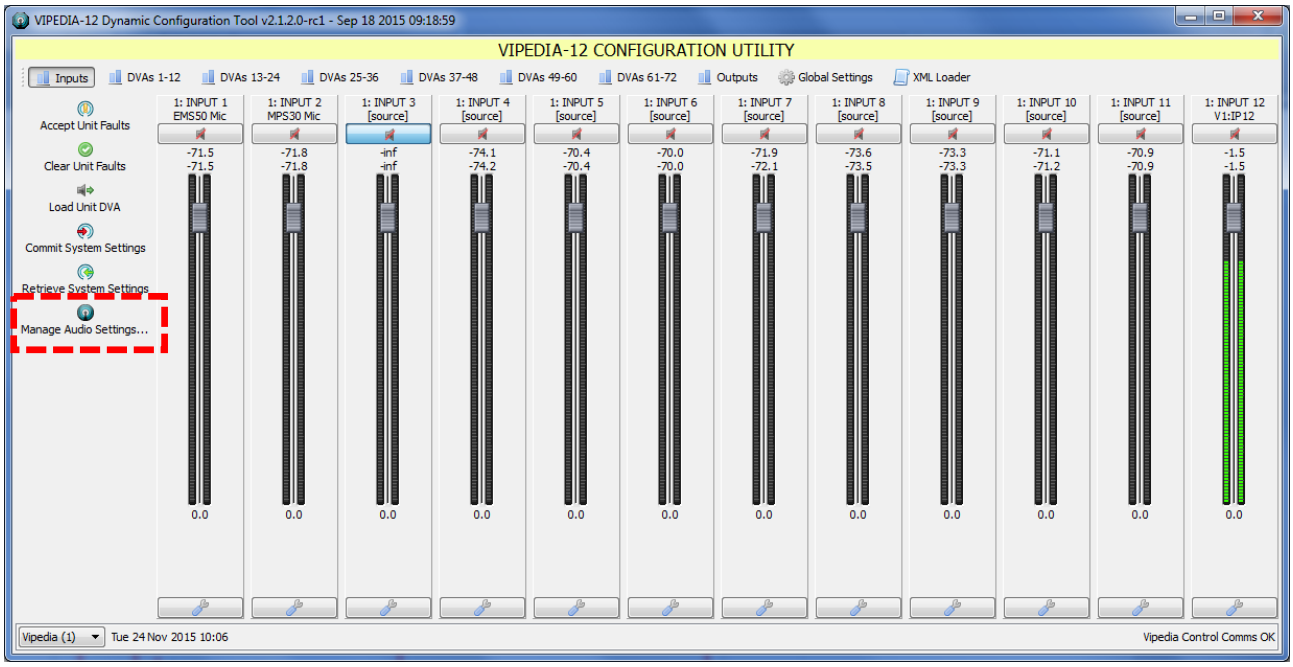
5.5 Extracting and Injecting Audio Settings to/from a File

The audio settings are extracted from a VIPEDIA-12 unit into a file and downloaded from a file into a VIPEDIA-12 unit by using the Audio Settings Manager tool.

The audio settings are stored in a comma-separated-value (CSV) file.

Some applications may corrupt the configuration data, causing the CSV file to become invalid for re-injection back into the VIPEDIA-12 unit. Therefore, CSV files should only be accessed under guidance from ASL.

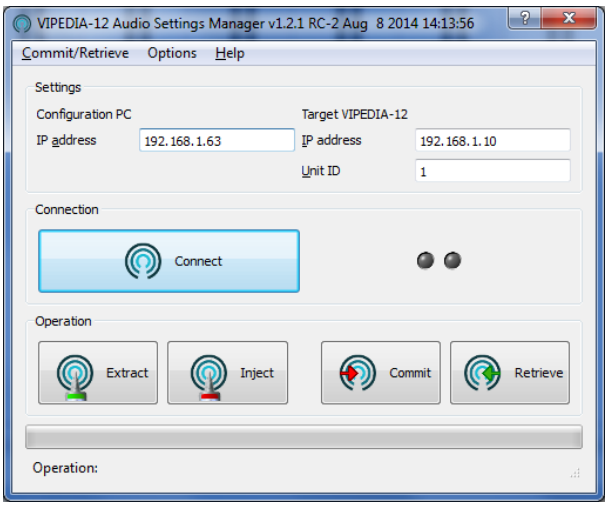
Figure 44 Audio Settings Manager



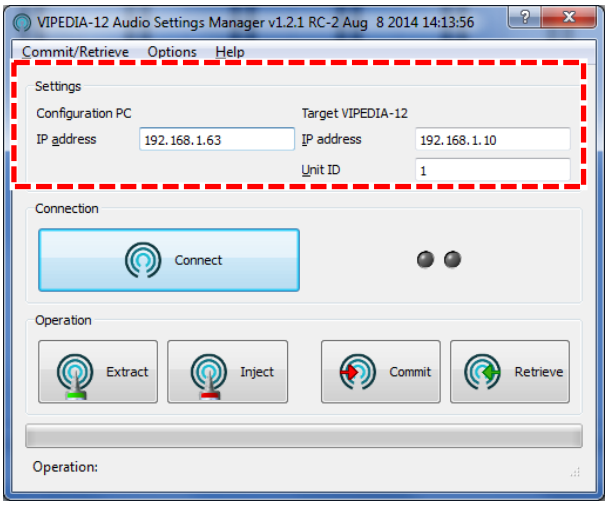
To extract/inject the audio settings to/from a file:

1. Click the **Manage Audio Settings…** button on the left-side of the main GUI.

   The Audio Settings Manager will be launched.



2. Configure the connection settings by overwriting the current values.



Configuration PC:

– **IP address**: enter the Host PC IP address.

Target VIPEDIA-12:

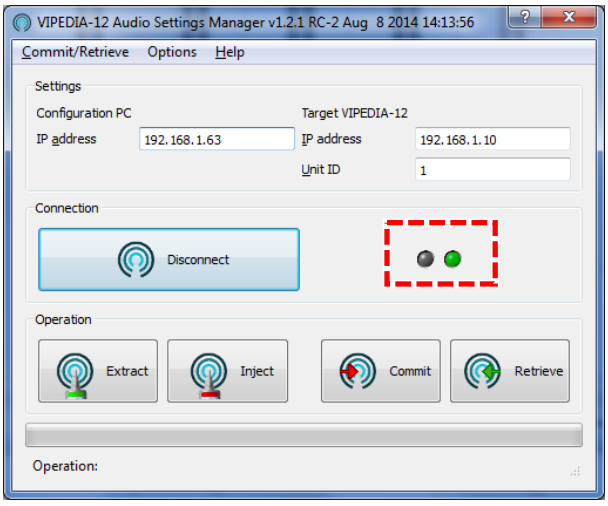
– **IP address**: enter the IP address of the target VIPEDIA-12 unit which is available from the front panel menu option:

Configuration>Router>Identity>IP Config>IP Addr

– **Unit ID**: enter the VIPEDIA-12 ID which is available from the front panel menu option:

Configuration>Router>Identity>Unit Identity>Id

The tool on the right is configured to extract/inject audio settings from a VIPEDIA-12 unit with an IP address 192.168.1.10 from a PC with an IP address 192.168.1.63.



3. Make sure the VIPEDIA-12 unit is operational.

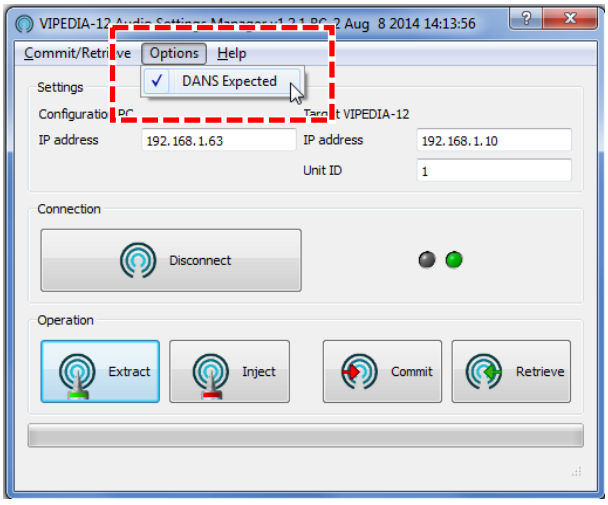
4. Connect to the VIPEDIA-12 unit by clicking on the **Connect** button.

The Health Monitor indicates the connection status:

– grey (both indicators): not connected

– green (right indicator): connection OK

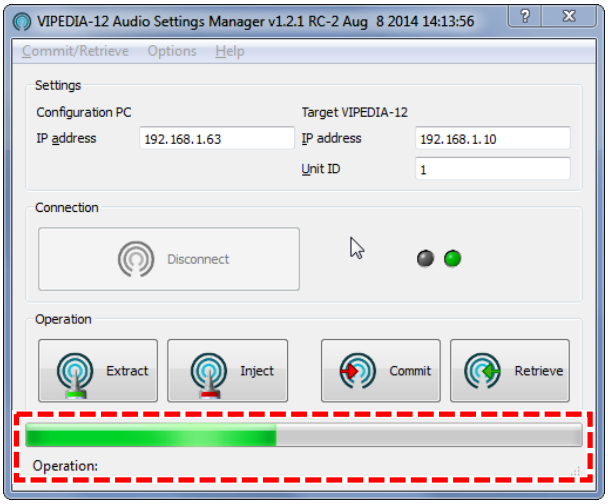
– red (left indicator): connection not OK



5. If DANS configuration is expected to be present in the target VIPEDIA-12 unit, the DANS option should be enabled. If it is not expected, then leave the DANS option disabled.

To do enable this, select **Options>DANS Expected** from the menubar.

NOTE: Connection to the VIPEDIA-12 unit is required before the DANS option can be enabled.



6. Once connected to the VIPEDIA-12 unit, perform the required operation.

   The progress bar shows the status of the operation.

7. To read the dynamic configuration (live settings) from the VIPEDIA-12 unit, click the **Extract** button.

   The configuration will be extracted from the unit and saved into the selected location/CSV file.

   It is recommended that the identification of the VIPEDIA-12 unit be included in the filename.

   NOTE: Parameters configured from the front panel are not part of the XML configuration file or the CSV file retrieved from the live settings using the Audio Settings Manager. Therefore, it is highly recommended that these settings be manually retrieved from the front panel display and safely stored in another file.

8. To write the dynamic configuration into the VIPEDIA-12 unit, click the **Inject** button.

   The configuration from the selected location/file will be uploaded into the unit's live settings. Make sure that the correct file is selected.

   If the operation fails, repeat the upload procedure.

   Finalize the upload operation by either saving the live settings into the VIPEDIA-12"s EEPROM or rolling back the live settings to the previous configuration:

   – To save the live settings into the EEPROM, click the **Commit** button.

   – To roll back the live settings to the previous configuration, click the **Retrieve** button.

   NOTE:

   When exiting, the application will warn the user that the new settings have not been committed if an injection operation has not been finalized. If this happens, ensure the application is connected to the VIPEDIA-12 unit and finalize the operation either by committing or retrieving the configuration as described above.

9. Once the extraction/injection operation has been completed, click the **Disconnect** button.

10. Repeat steps **2** to **9** for the next VIPEDIA-12 unit.

11. Exit the Audio Settings Manager by clicking "**X**" on the right corner of the window or by pressing ALT+F4 keys on the keyboard.

5.6 Loading DVA Messages

The VIPEDIA-12 unit supports up to 68 DVA messages:

- DVA 1 to 64: standard DVA messages which can be routed by any routing mechanism
- DVA 65 to 68: Chime 1 to Chime 4

DVAs can be loaded from the VIPEDIA-12 DCT as described below. Alternatively, it is possible to load DVAs from a terminal emulation program; see Section "6.2.5 Loading DVA Messages Using a Serial Connection" (page 136).

1) The DVA load function from the VIPEDIA-12 DCT will either clear all DVAs and load the required number of DVA messages or add new DVAs into the selected VIPEDIA-12 unit.
2) Not all 68 DVAs have to be present on the Micro-SD card.
3) The DVA load function from a terminal program gives more options for loading DVAs.

The DVA loading process may take several minutes and cannot be cancelled once started. It takes about 30 minutes to load 68 DVA files (approx. 10 minutes of audio).

The VIPEDIA-12 outputs will be disabled for the entire DVA loading process.

You will need:

The required DVA message files:

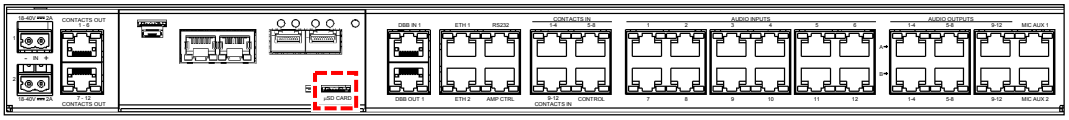
- 48 kHz, 24 kHz or 12 kHz 16 bit mono WAV files with total duration of up to:
  - 10 minutes at 48 kHz
  - 20 minutes at 24 kHz
  - 40 minutes at 12 kHz
- Filename is DVA_xx.wav, where xx is the DVA number from 01 to 64.

If existing DVAs are erased, chimes are always generated at the end of the DVA loading process:

- Standard chimes (Chime 1 to Chime 3) are automatically generated if custom chime files are not present on the Micro-SD card as follows:
  - DVA_65.wav replaces the standard single-note chime
  - DVA_66.wav replaces the standard two-note descending overlapping pattern chime
  - DVA_67.wav replaces the standard three-note descending overlapping pattern chime
- Custom Chime 4 is generated from DVA_68.wav chime file. **If DVA_68.wav file is not present on the Micro-SD card, Chime 4 will not automatically be generated**.

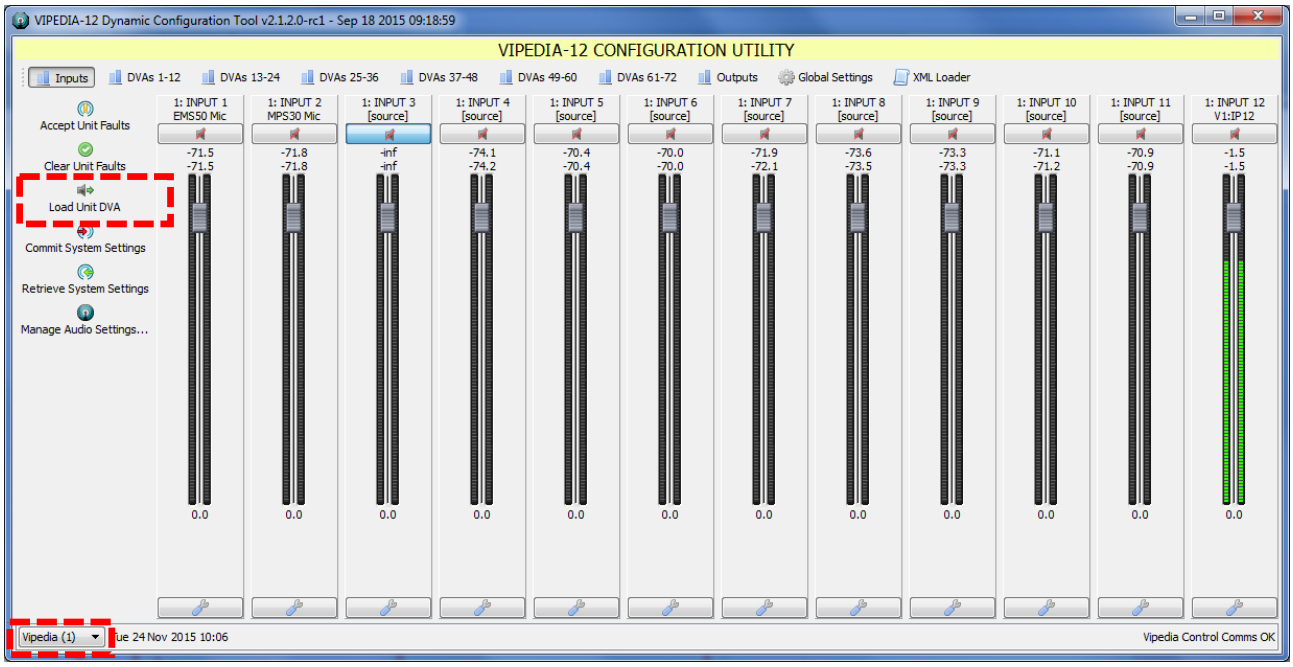
To load DVAs from the VIPEDIA-12 DCT:

1. Ensure all DVA messages are as follows:
2. For the required VIPEDIA-12 units in the system:
   a. Remove the unit's Micro-SD card located on the rear panel as shown below.

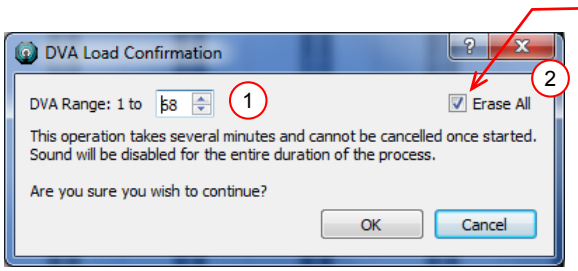


   b. Copy the required DVA message files (including any custom chime) to the Micro-SD card.
   c. Re-insert the Micro-SD card into the unit.

      Rebooting the unit is not required – The Micro-SD card will automatically be remounted at the start of the DVA loading operation.
3. Select the required VIPEDIA-12 unit from the drop-down list on the bottom-left corner of the VIPEDIA-12 DCT and then click the **Load Unit DVA** button.



4. A confirmation dialog box will be displayed.



- Erase All: if installing DVAs for the first time, or replacing existing DVAs.

  All required DVAs must be on the Micro-SD card.
- Do not Erase All: if adding new DVAs.

  Only new DVAs are required on the Micro-SD card.

5. Enter the number of the last DVA to be loaded; see setting ① above.
6. Select whether existing DVAs are to be erased; see setting ② above.

7. Press **OK** to start the DVA loading process.

Warning:

The DVA loading process takes several minutes and cannot be cancelled once started. It takes about 30 minutes to load 68 DVA files (approx. 10 minutes of audio).

8. Repeat the above steps for other VIPEDIA-12 units as required.

9. The DVA Load dialog box will display a tab for each unit, and each tab will show the DVA loading progress for that unit.

The DVA loading progress is also displayed on the VIPEDIA-12 front panel.

Notes:

a) The fault sounder will beep during the erase phase (for about 4 minutes) and cannot be silenced. It can be silenced in the subsequent phases.

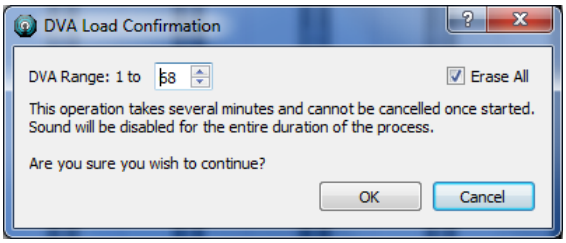
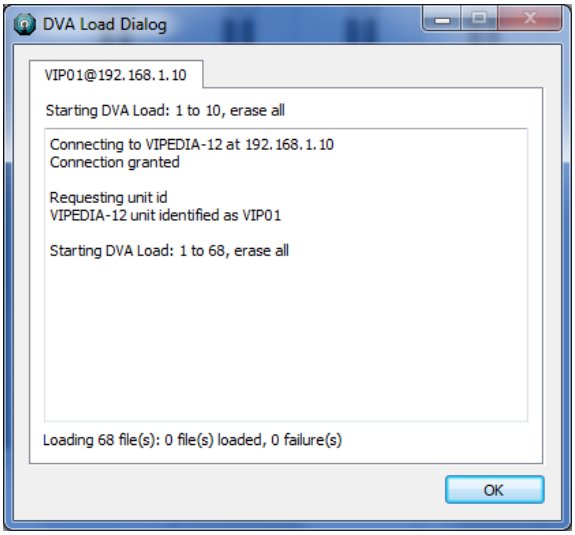
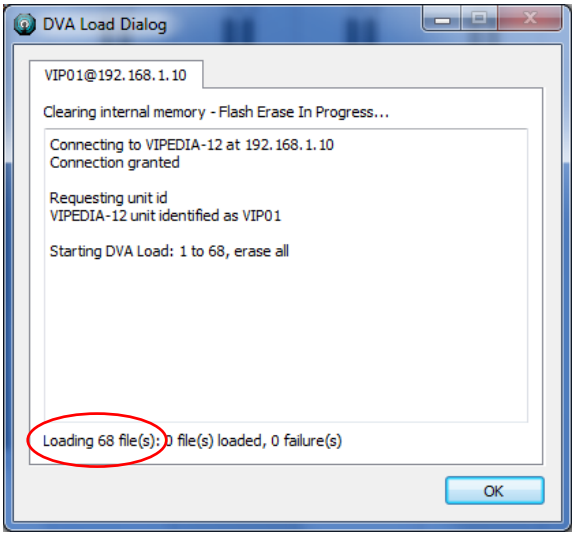
b) INTERNAL ERROR may be briefly displayed on the unit's front panel and the fault sounder activated during the DVA loading.

The example in Figure 45 (page 128) shows the DVA loading sequence when erasing and loading 68 DVAs.

The example in Figure 46 (page 130) shows the DVA loading sequence when adding 10 DVAs to a unit that already has 10 DVAs.

The example in Figure 47 (page 131) shows an example of connection error during a DVA loading process.

Figure 45 DVA loading progress (example): front panel and dialog box (erase all and load 68 DVAs)

DVA load – erase all and load 68 DVAs		
Phase	**Front Panel**	**DVA Load Dialog**
NA	NA	
Start	INSTALLING DVAs	
Erase	ERASING ALL DVAS	

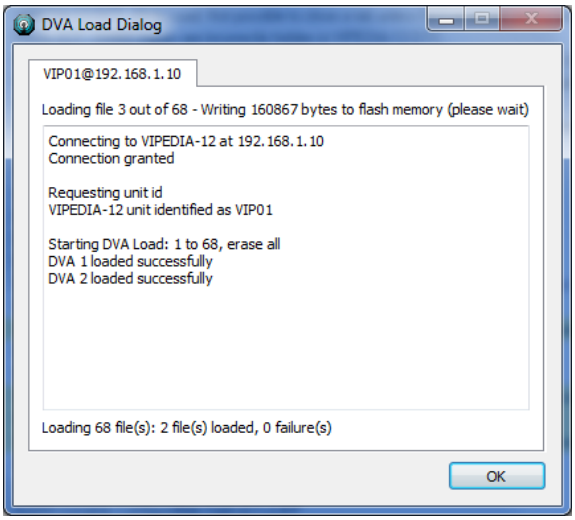
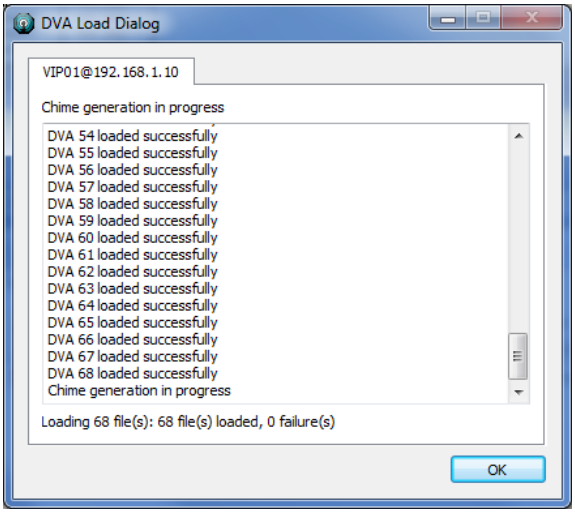
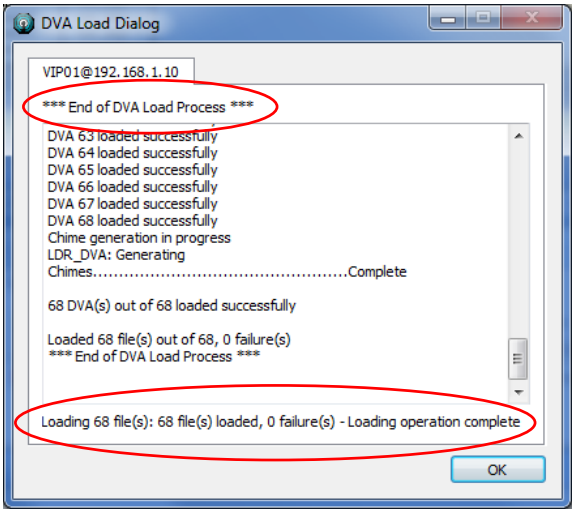
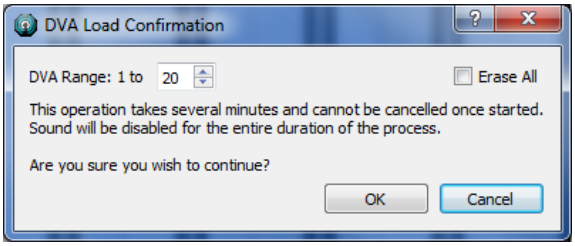
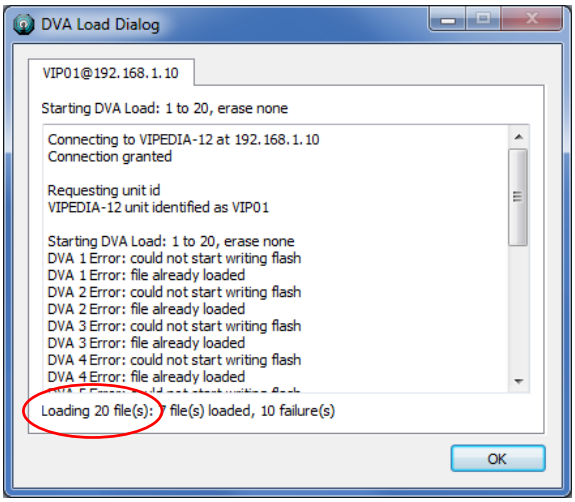
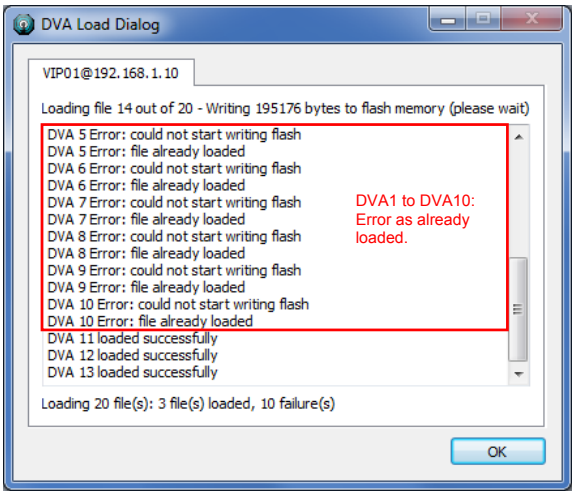
DVA load – erase all and load 68 DVAs		
Phase	**Front Panel**	**DVA Load Dialog**
Install	INSTALLING DVAxx	
Chime generation	CHIME GENERATION IN PROGRESS	
Complete	The front panel should return to normal mode when the DVA load and chime generation operation has completed. Scroll the DVA Load dialog box to check the result for each DVA.	

Figure 46 DVA loading progress (example): front panel and dialog box (do not erase all and add 10 DVAs)

DVA load – do not erase and add 10 DVAs		
Phase	**Front Panel**	**DVA Load Dialog**
NA	NA	Unit has 10 DVAs and 10 DVAs are to be added. Therefore, the last DVA is 20. 
Start	INSTALLING DVAs	
Install	INSTALLING DVAxx	

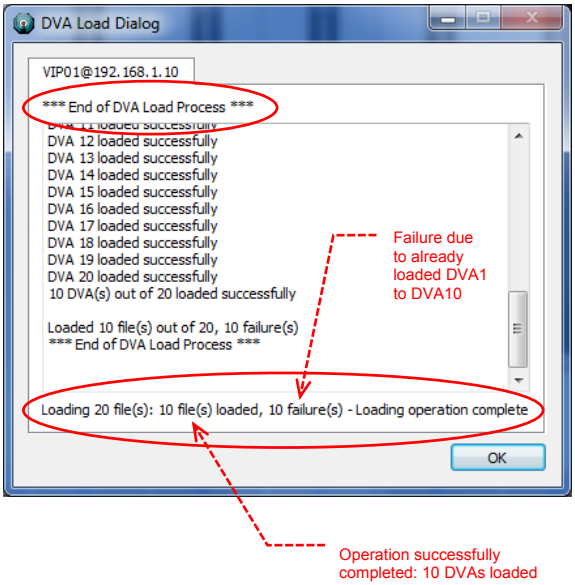
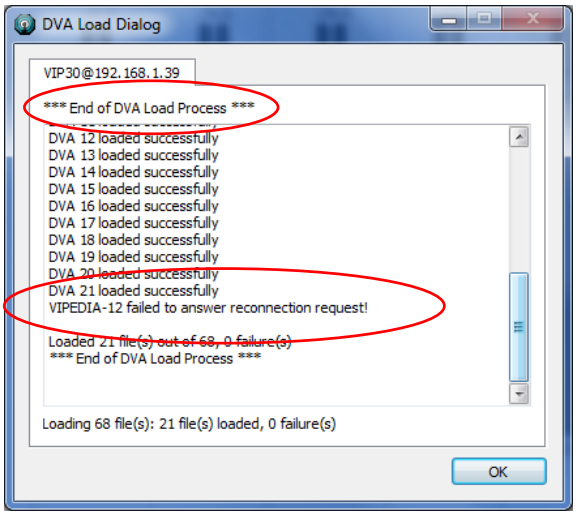
DVA load – do not erase and add 10 DVAs		
Phase	**Front Panel**	**DVA Load Dialog**
Complete	The front panel should return to normal mode when the DVA load has completed. Scroll the DVA Load dialog box to check the result for each DVA.	

Figure 47 DVA loading connection error (example)

DVA load – connection error		
Incomplete (connection error)	Check the target unit's front panel. The DVA loading process should carry on until completed. The front panel should return to normal mode when the DVA load and chime generation operation has completed.	

10. For each target unit, wait for the DVA load operation to complete.

a. Ensure the unit has a valid configuration.

b. Check a sample of DVA messages via the front panel menu option:

Test→Monitor→Audio→Inputs→DVA→DVA nn

Make sure the DVAs in the installed DVA range is checked. For example, check DVA01, DVA30, DVA40 and DVA64 for 1-64 range.

Note:

It is not possible to monitor chimes via the front panel Test menu option.

c. If any of the DVAs is not played correctly or a fault is reported during the test, power cycle the unit or reset the unit from the File Transfer Tool (Fimware tab>Reset VIPEDIA-12 option) and repeat the test.

If the error persists, repeat the DVA loading procedure.

Refer to "APPENDIX C – Launching the File Transfer Tool (FTT)" (page 163) for information on the FTT.

d. If a microphone is configured in the system with chime enabled, make a live announcement and confirm that the chime is played correctly.

If case of any errors, power cycle the unit or reset the unit from the File Transfer Tool and repeat the test.

If the error persists, repeat the DVA loading procedure.

e. Confirm no DVA faults are reported after few minutes.

If a DVA fault is reported, repeat the DVA loading procedure.

6 Maintenance

It is important that the PA/VA system as a whole is operated and maintained appropriately.

Section "6.1 Routine Maintenance" (page 133) summarises the routine maintenance procedures for the VIPEDIA-12 when it is used as part of a Voice Alarm system that is compliant with BS 5839:8. Please refer to BS 5839:8 and local Voice Alarm standards for detailed information on the required maintenance procedures.

Section "6.2 Non-Routine Maintenance Tasks" (page 134) describes maintenance tasks that can be carried when required.

Please read and observe the safety information guidelines available on the product and in Section "Safety and Precaution" (page 7). Failure to follow these instructions and guidelines may cause personal injury and/or damage to the equipment.

6.1 Routine Maintenance

6.1.1 Daily Attention

Each day, the VIPEDIA-12 should be checked for indication of normal operation as part of the fire alarm system routine maintenance. If there is a remote indicator panel for the VA system, this should also be checked.

6.1.2 Weekly Attention

On a weekly basis, the fire detection system should be activated and the VA system checked to ensure it operates under alarm conditions. The VIPEDIA-12 should be checked for indication of normal operation and, if there is a remote indicator panel for the VA system, this should also be checked.

6.1.3 Monthly Attention

If an automatically started emergency generator is used as part of the standby supply, then it should be started up once each month by a simulation of a failure of the normal power supply. It should be allowed to energise the fire alarm supply for a continuous period of at least 1 hour. The VIPEDIA-12 should be monitored to identify any malfunctioning caused by the use of the generator.

6.1.4 Quarterly Inspection and Test

The following checks should be carried out every 3 months:

1. The service life of the internal RTC back-up battery should be checked and replaced if it exceeds 5 years; see Section 6.2.8 Replacing the Real Time Clock Battery" (page 147) for instructions.
2. All fault indicators and their circuits should be checked, preferably by simulation of fault conditions.
3. The VIPEDIA-12 should be visually inspected for signs of moisture ingress and other deterioration.

6.1.5 Annual Inspection and Test

The following checks should be carried out every 3 years:

1. The inspection and test routines detailed in Section "6.1.4 Quarterly Inspection and Test" (page 133). (Quarterly inspection and test)
2. A visual inspection should be made to confirm that all cable fittings and equipment are secure, undamaged and adequately protected.

6.2 Non-Routine Maintenance Tasks

The following sections describe maintenance tasks that can be carried out when required.

The VIPEDIA-12's preferred Line Replaceable Unit (LRU) is the whole microphone console.

6.2.1 Build Standard and Software Versions

It is important to know the Build Standard and software versions of your equipment for maintenance purposes, and to ensure that the unit has the correct functions. The Build Standard version and the software version should be quoted in all enquiries regarding the unit.

The Build Standard version is available on the unit's barcode, and the software version is available from the unit's LCD display menu.

6.2.2 Barcode Label and Build Standard Version

The barcode of rack-mount units, such as the VIPEDIA-12, is located on the rear or side of the unit; see example in Figure 48 (page 134).

Figure 48 VIPEDIA-12's barcode label example

The last section of the barcode after the second forward slash (/) indicates the VIPEDIA-12Build Standard (BS) version.
Example: 1320/750640/02B → BS Version = 02

6.2.3 Software Version

To view the VIPEDIA-12 software versions:

The software versions on VIPEDIA-12 are displayed via the following front panel menu option:

Configuration→Router→Identity→Software

To view the software version of ASL tools:

The software version of ASL tools is displayed with the window title or via the menubar option **Help→About**.

6.2.4 Loading the VIPEDIA-12 and VIPEDIA-NET Firmware

For EN 54-16 compliance hanging the product firmware can only be done at access level 4 which must be restricted to persons trained and authorised by ASL to alter the firmware.

The Firmware and Configuration Load Procedures document (ASL 0641-2585) describes the instructions to load the VIPEDIA-12 software. The document is available from ASL to trained and authorised users.

6.2.5 Loading DVA Messages Using a Serial Connection

The following DVA load commands are available via serial connection.

Command	Where "x"	Where "y"	Description
dva_load x y	Number of highest DVA file to load (up to DVA68).	0 = Do Not Erase Existing Files. 1 = Erase All DVA files before starting load.	Starts an optional chip-erase, followed by loading files from DVA1 up to the specified number.
dva_erase x y	The number of the FIRST DVA file to erase.	The number of DVA files to erase.	Removes DVA files from memory without erasing the entire chip. For example "dva_erase 5 2" will erase DVA files 5 & 6.
dva_files	N/A	N/A	Prints a list of DVA files and whether they are currently installed.
Notes: a) DSP versions prior to V2.0.0001 will only respond to the "dva_load x y" command, and do not support "dva_files" or "dva_erase x y" commands. b) DVA Files 65-68 are Chime files (1,2,3,4). Note that chimes 1-3 are auto-generated if missing, thus to replace chime files, the instruction "dva_erase 65 3" will not work as expected, as the chimes will be re-generated before the user has the chance to trigger the install of new DVA files. In order to replace chime files, reload the DVAs with erase option, i.e., "dva_load x 0".			

The DVA loading process may take several minutes and cannot be cancelled once started. It takes about 35 minutes to load 68 DVA files (approx. 10 minutes of audio).

The VIPEDIA-12 outputs will be disabled for the entire DVA loading process.

You will need:

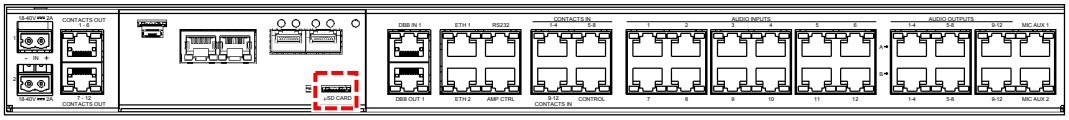
- A host PC with a serial connection to the target unit; refer to "APPENDIX F – Connecting to VIPEDIA-12 Using Serial" (page 172) for instructions
- The required DVA message files:
  - 48 kHz, 24 kHz or 12 kHz 16 bit mono WAV files with total duration of up to:
    - 10 minutes at 48 kHz
    - 20 minutes at 24 kHz
    - 40 minutes at 12 kHz
  - Filename is DVA_xx.wav, where xx is the DVA number from 01 to 64.

If existing DVAs are erased, chimes are always generated at the end of the DVA loading process:

- Standard chimes (Chime 1 to Chime 3) are automatically generated if custom chime files are not present on the Micro-SD card as follows:
  - DVA_65.wav replaces the standard single-note chime
  - DVA_66.wav replaces the standard two-note descending overlapping pattern chime
  - DVA_67.wav replaces the standard three-note descending overlapping pattern chime
- Custom Chime 4 is generated from DVA_68.wav chime file. **If DVA_68.wav file is not present on the Micro-SD card, Chime 4 will not automatically be generated**.

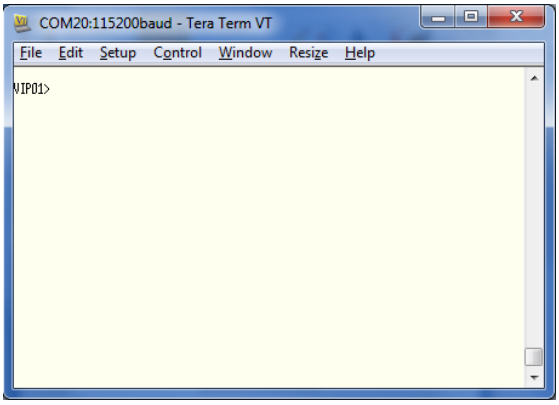
To load or replace DVA messages:

1. Connect the VIPEDIA-12 RS232 port to a serial port of the PC as described in "APPENDIX F – Connecting to VIPEDIA-12 Using Serial" (page 172) for instructions.
2. Remove the unit's Micro-SD card located on the rear panel as shown below.

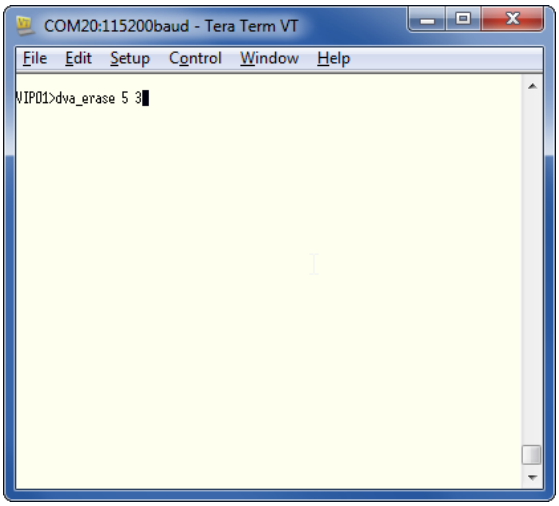


3. Copy the required DVA message files to the Micro-SD card.
4. Re-insert the Micro-SD card into the unit.

   Rebooting the unit is not required – The Micro-SD card will be automatically remounted at the start of the DVA loading operation.



5. On the terminal emulator window, press ENTER to obtain a ">" prompt.



6. If replacing one or more DVA files, first erase the existing DVAs by entering the "dva_erase x y" command.

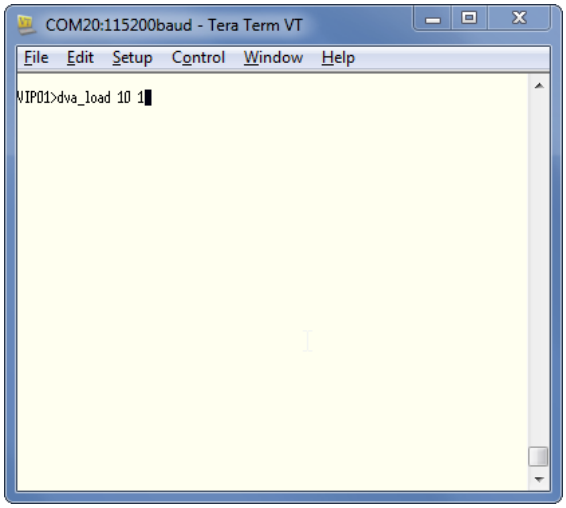
   Where:

   - x indicates the number of the FIRST DVA file to erase.
   - y indicates the number of DVA files to erase.

7. Enter the required load command: "dva_load x y".

Where:

- x indicates the number of DVA files to be loaded, up to a maximum of 68.
- y = 0 if existing DVA files are to be kept, for example when replacing one or more DVA files or when adding new DVA files
- y =1 if all existing files are to be deleted.

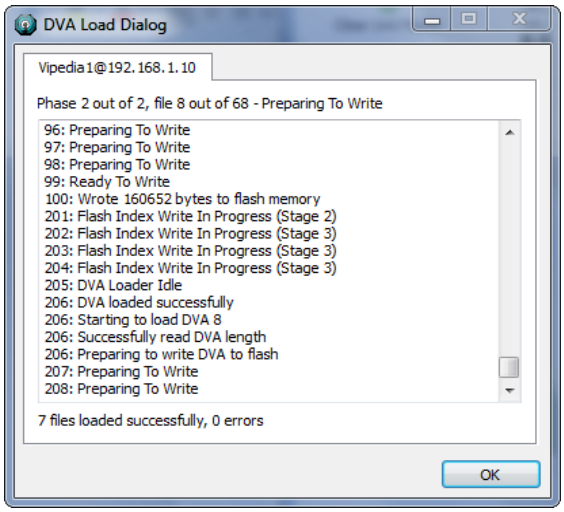


Warning:

The DVA loading process may take several minutes and cannot be cancelled once started. It takes about 30 minutes to load 68 DVA files (approx. 10 minutes of audio).

The command will return:

- "status2" when deleting
- "status 3" when creating space
- "status4" when ready to start writing a file
- "status6" when file load finished
- "status 0" when finished
- "Generating Chimes" after processing all requested DVA files



The VIPEDIA-12 front panel will display the relevant messages:

- ERASING ALL DVAS
- INSTALLING DVAxx
- CHIME GENERATION IN PROGRESS

Notes:

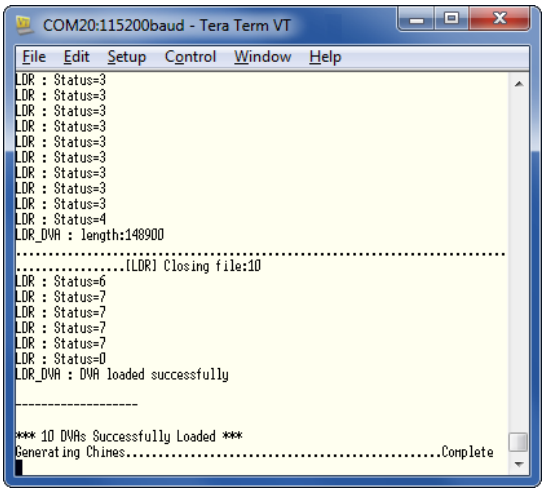
a) The fault sounder will beep during the erase phase (for about 4 minutes) and cannot be silenced. It can be silenced in the subsequent phases.

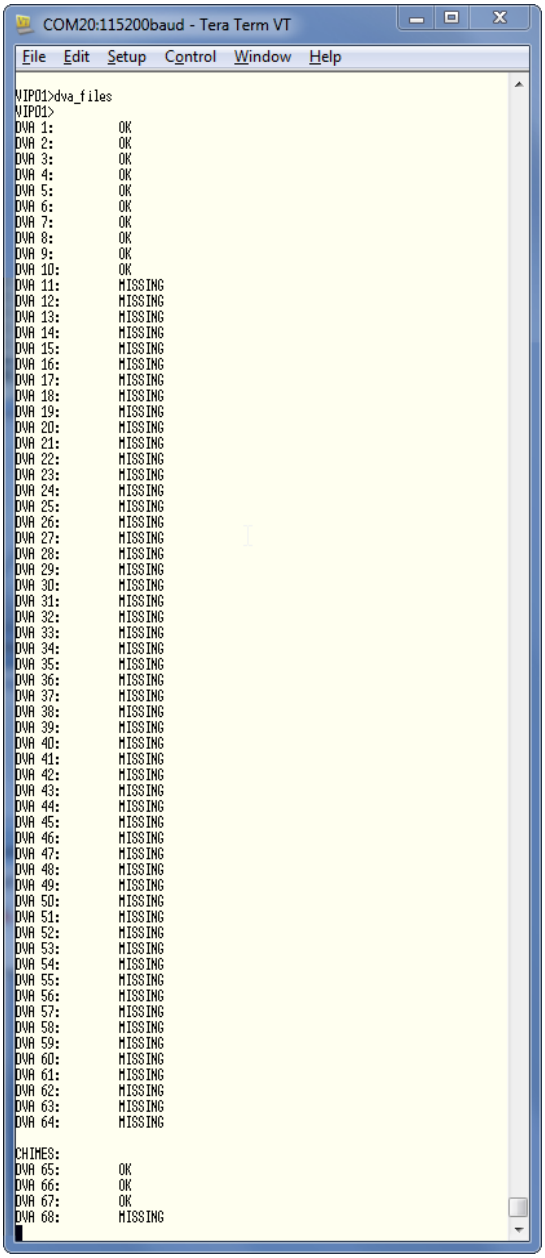
b) INTERNAL ERROR may be briefly displayed on the unit's front panel and the fault sounder activated during the DVA loading.

8. Wait for the DVA loading process to complete: xx DVAs successfully loaded and chimes generated.

If fewer number of DVAs are successfully loaded than in the DVA load request, an error occurred during the DVA load operation. Reboot the unit and repeat the DVA loading command but without deleting the existing DVA files:

- To reboot the unit: enter "reboot"
- To load the DVA files: enter "dva_load nn 0" where nn indicates the number of DVA files to be loaded





9. Check that the required DVA files and chimes have been loaded by entering the "dva_files" command.

If there is any missing DVA file, reboot the unit and repeat the DVA loading command but without deleting the existing DVA files:

- To reboot the unit: enter "reboot"
- To load the DVA files: enter "dva_load nn 0" where nn indicates the number of DVA files to be loaded

10. Ensure the unit has a valid configuration.

11. Check a sample of DVA messages via the front panel menu option:

Test→Monitor→Audio→Inputs→DVA→DVA nn

Make sure the DVAs in the installed DVA range is checked. For example, check DVA01, DVA30, DVA40 and DVA64 for 1-64 range.

If any of the DVAs is not played correctly or a fault is reported during the test, power cycle the unit or reset the unit from the terminal emulator ("reboot" command) or File Transfer Tool (Fimware tab>Reset VIPEDIA-12 option) and repeat the test.

If the error persists, repeat the DVA loading procedure.

Refer to "APPENDIX C – Launching the File Transfer Tool (FTT)" (page 163) for information on the File Transfer Tool.

Note:

It is not possible to monitor chimes via the front panel Test menu option.

12. Confirm no DVA faults are reported.

If a DVA fault is reported, repeat the DVA loading procedure.

13. Disconnect the serial cable from the target VIPEDIA-12 unit once the DVA load is complete.

6.2.6 Resetting the Dynamic Configuration to Factory Default

The dynamic configuration contains site-specific configuration that is expected to change on a fairly routine basis. The most significant part of this configuration contains the various audio settings and all those parameters that would be updated during commissioning including the front panel parameters.

All parameters configured from the unit's front panel (except from the IP settings) and by the use to the VIPEDIA-12 Dynamic Configuration Tool reside in the dynamic configuration.

The following procedures reset the dynamic configuration to factory default, for example when an existing unit is to be commissioned from factory default settings.

6.2.6.1 Resetting the Dynamic Configuration to Factory Default Using a Serial Connection

Note:

1) The IP settings will not be reset to factory default.
2) The front panel access code will be reset to factory default.

Warning:

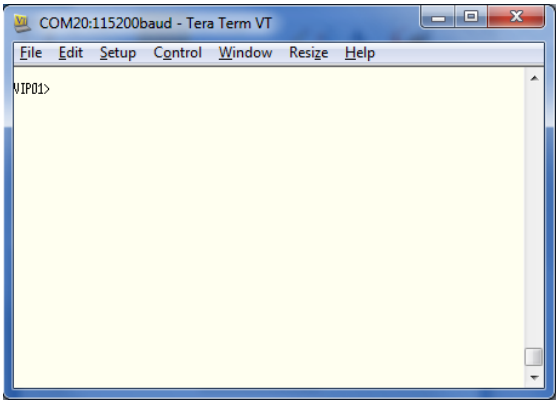
The VIPEDIA-12 unit must be re-commissioned after a dynamic configuration reset.

You will need:

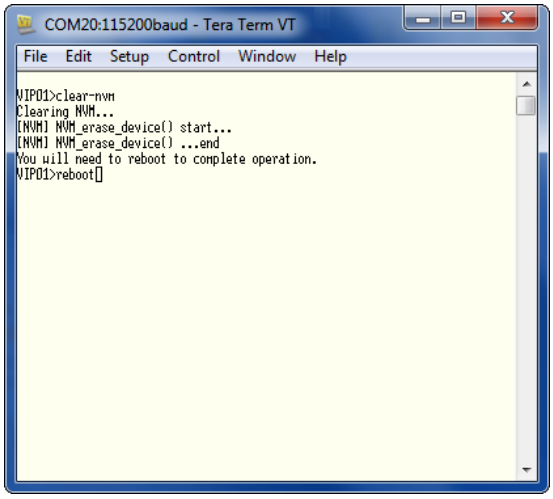
- A host PC that meets the requirements defined in "APPENDIX A – PC Requirements" (page 154)
- A serial connection to the target unit; refer to "APPENDIX F – Connecting to VIPEDIA-12 Using Serial" (page 172) for instructions

To reset the dynamic configuration using a serial connection:

1. Extract the commissioned audio settings from the target unit into a file using the Audio Settings Manager; see Section "5.5 Extracting and Injecting Audio Settings to/from a File" (page 122).
2. Clearly name the audio settings CSV file.
3. Make note of the unit's front panel settings.
   - Unit IP Settings: **Configuration→Router→Identity→IP Config→IP Addr / Gateway Addr / Subnet Mask**
   - Unit Id: **Configuration→Router→Identity→Unit Identity→Id**
   - Unit Name: **Configuration→Router→Identity→Unit Identity→Name**
   - Unit UTC offset: **Configuration→Router→Identity→Unit Identity→UTC offset**
4. Connect the VIPEDIA-12 RS232 port to a serial port of the PC as described in "APPENDIX F – Connecting to VIPEDIA-12 Using Serial" (page 172) for instructions.



5. On the terminal emulator window, press ENTER to obtain a ">" prompt.



6. On the terminal emulator window, enter the command "clear-nvm".
7. Reboot the unit by entering "reboot".
8. Reboot the unit.
9. Re-commission the unit as required.

6.2.6.2 Resetting the Dynamic Configuration to Factory Default Using the DIP Switch

Note:

1) The IP settings will not be reset to factory default.
2) The front panel access code will be reset to factory default.

Warning:

1) The VIPEDIA-12 unit must be re-commissioned after a dynamic configuration reset.
2) This product contains static-sensitive devices. Observe ESD precautions when handling this product with the lid removed.

You will need:

- Pozidriv screwdriver (No. 3).
- A small flat-bladed screwdriver.

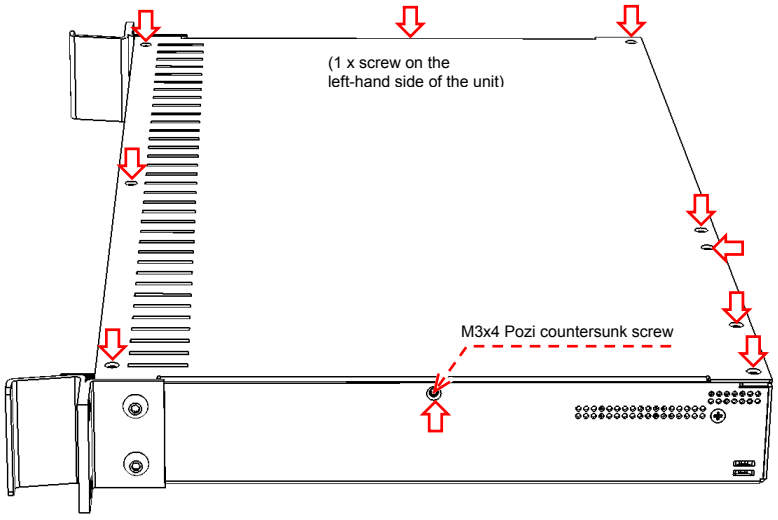
To reset the dynamic configuration using DIP Switch 1:

1. Extract the commissioned audio settings from the old unit into a file using the Audio Settings Manager; see Section "5.5 Extracting and Injecting Audio Settings to/from a File" (page 122).

Clearly name the audio settings CSV file.

2. Make note of the old unit's front panel settings.

- Unit Id: **Configuration→Router→Identity→Unit Identity→Id**
- Unit Name: **Configuration→Router→Identity→Unit Identity→Name**
- Unit UTC offset: **Configuration→Router→Identity→Unit Identity→UTC offset**

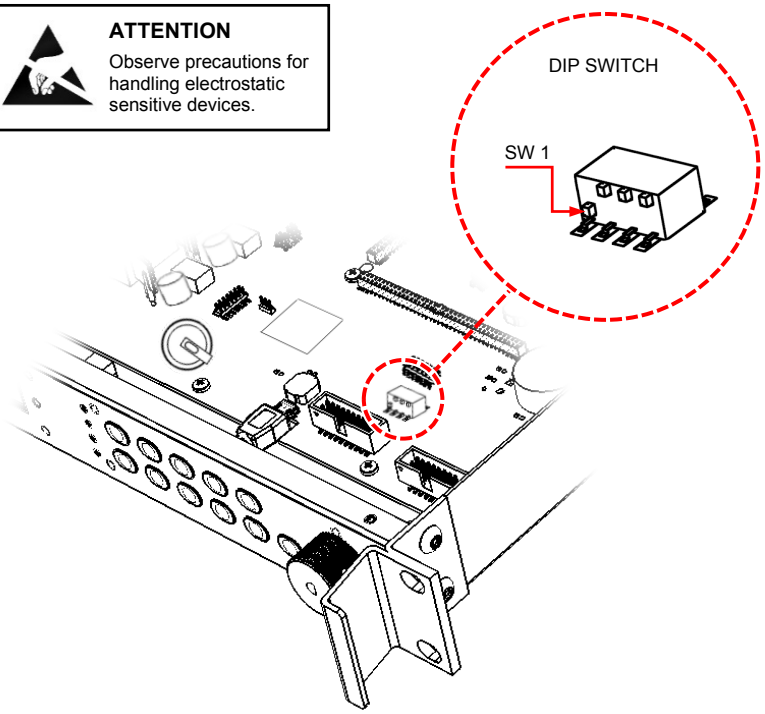


3. Power down the unit from the central rack.

4. If required, disconnect the wiring from the VIPEDIA-12 unit and remove the unit from the rack.

5. Remove the lid by undoing 10 x M3 screws.

ATTENTION
Observe precautions for handling electrostatic sensitive devices.



6. The DIP switch is located on the front right-hand side of the unit.
7. Set DIP switch SW 1 down.

   Ensure the switch is fully pushed down.
8. Power up the unit.
9. Wait for the unit to start up.
10. Set DIP switch SW 1 up.

    Ensure the switch is fully pushed up.
11. Power cycle the unit.
12. Re-fit the lid; see above.
13. If required, reconnect the wiring from the VIPEDIA-12 unit and re-fit the unit into the rack.
14. Re-commission the unit as required.

6.2.7 Clearing the Static Configuration

The static system configuration contains system and site-specific configuration that is unlikely to change frequently.

The static system configuration may have to be manually cleared when:

- The static system configuration is corrupted causing the VIPEDIA-12 unit to boot into INTERNAL ERROR mode.
- A non-default control port is configured which prevents firmware and configuration update.

Warning:

This product contains static-sensitive devices. Observe ESD precautions when handling this product with the lid removed.

Note:

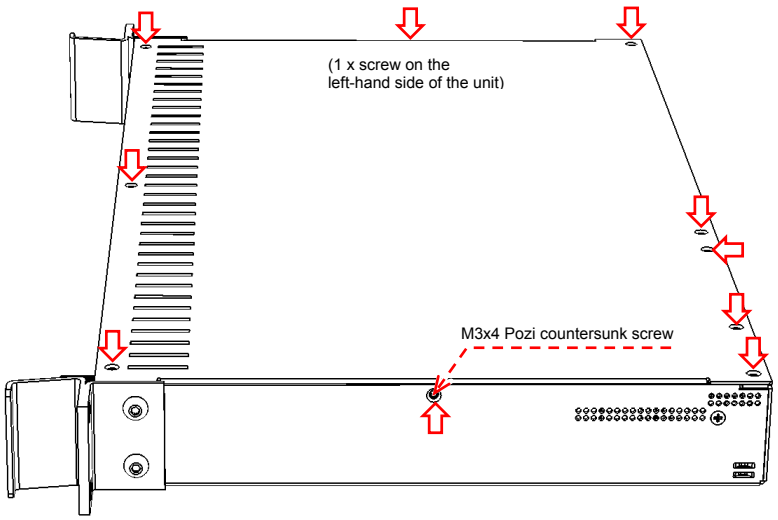
The dynamic configuration is not changed by this procedure.

You will need:

- Pozidriv screwdriver (No. 3).
- A small flat-bladed screwdriver.

To clear the static configuration:

1. Power down the unit from the central rack.
2. If required, disconnect the wiring from the VIPEDIA-12 unit and remove the unit from the rack.
3. Remove the lid by undoing 10 x M3 screws.



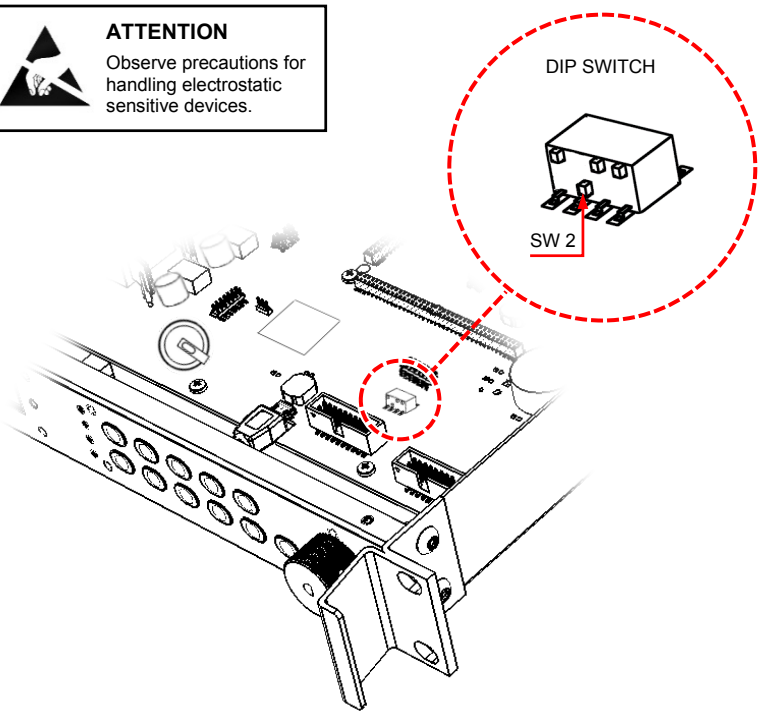
4. The DIP switch is located on the front right-hand side of the unit.
5. Set DIP switch SW 2 down.

   Ensure the switch is fully pushed down.
6. Power up the unit.
7. Wait for the unit to start up and show normal menu display, i.e. no messages on the top line.
8. Wait an additional 10 seconds.
9. Set DIP switch SW 2 up.

   Ensure the switch is fully pushed up.
10. Power cycle the unit.

    STATIC CONFIG FAULT should be displayed indicating that the static system configuration has been cleared.
11. Re-fit the lid; see above.
12. If required, reconnect the wiring from the VIPEDIA-12 unit and re-fit the unit into the rack.
13. Load the system configuration as required.

ATTENTION
Observe precautions for handling electrostatic sensitive devices.



6.2.8 Replacing the Real Time Clock Battery

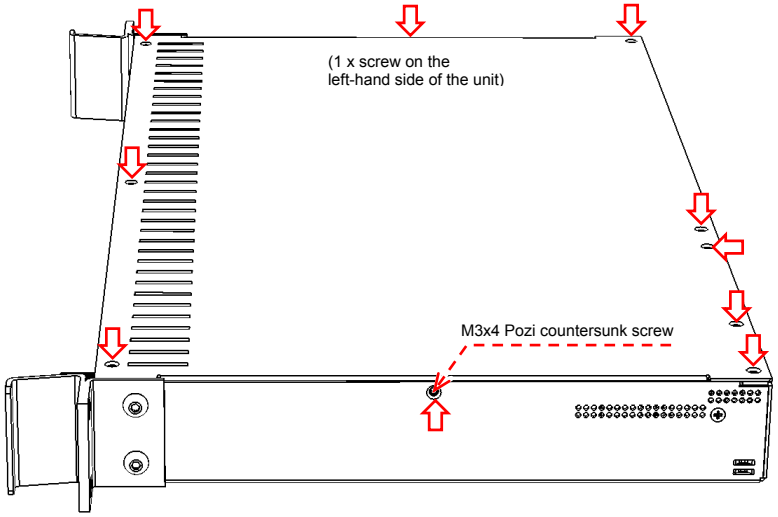
You will need:

- Pozidriv screwdriver (No. 3)
- A small flat-bladed screwdriver

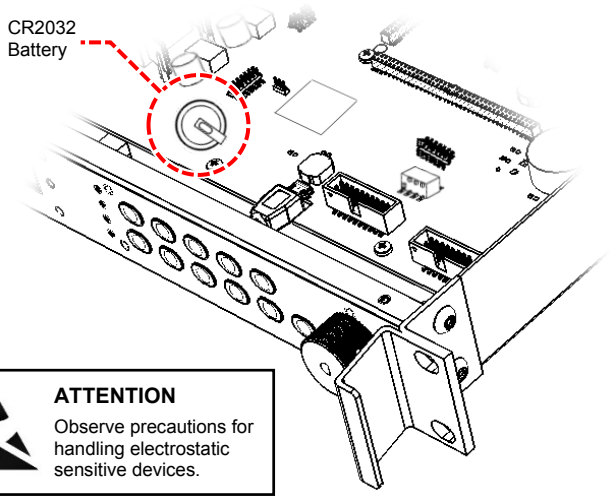
Warning:

1) Danger of explosion if battery is incorrectly replaced.
2) Batteries shall not be exposed to excessive heat such as sunshine, fire etc.
3) This product contains static-sensitive devices. Observe ESD precautions when handling this product with the lid removed.

To replace the RTC battery:



1. Power down the unit from the central rack.
2. If required, disconnect the wiring from the VIPEDIA-12 unit and remove the unit from the rack.
3. Remove the lid by undoing 10 x M3 screws.



4. The battery holder is located on the front right-hand side of the unit.
5. Remove the battery from its clip taking care not to short circuit it.
6. Replace with type CR2032 or equivalent.

> Do not dispose of battery in a fire.
> Dispose of battery carefully to avoid environmental damage by following WEEE protocols.

7. Re-fit the lit; see above.
8. If required, reconnect the wiring from the VIPEDIA-12 unit and re-fit the unit into the rack.
9. Power the unit on from the equipment rack.
10. Adjust the date and time as required:

    Configuration→Router→Identity→Unit Identity→Date/Time
11. Clear faults by pressing the **FAULT CLEAR** key on the unit's front panel.
12. Ensure no faults are reported.

> **ATTENTION**
> Observe precautions for handling electrostatic sensitive devices.

6.2.9 Replacing a VIPEDIA-12 Unit

You will need:

- A host PC that meets the requirements defined in "9 APPENDIX A – PC Requirements" (page 154)
- A serial connection to the target unit; see "APPENDIX F – Connecting to VIPEDIA-12 Using Serial" (page 172) for instructions
- The VIPEDIA-12 firmware file(s) in the required version: Host CP (main program), DSP and/or FPGA
- The required VIPEDIA-12 DVA message files
- The system configuration file (XML) and audio settings file (CSV) for the VIPEDIA-12 target unit
- The VIPEDIA-12 target unit's front panel settings and software versions:
  - Unit IP Address: **Configuration→Router→Identity→IP Config→IP Addr**
  - Gateway Address: **Configuration→Router→Identity→IP Config→Gateway Addr**
  - Subnet Mask: **Configuration→Router→Identity→IP Config→Subnet Mask**
  - Unit Id: **Configuration→Router→Identity→Unit Identity→Id**
  - Unit Name: **Configuration→Router→Identity→Unit Identity→Name**
  - Unit UTC offset: **Configuration→Router→Identity→Unit Identity→UTC offset**
  - Frame Learn Check fault: **Faults→System→Learn Check**
  - Software versions: **Configuration→Router→Identity→Software**
  - The front panel access code for the target unit
- If a Network Card (VIPEDIA-NET) is fitted:
  - The VIPEDIA-NET firmware file in the required version: NET-VIPA
  - The VIPEDIA-NET IP address and hostname
  - The VIPEDIA-NET configuration file
  - The VIPEDIA-NET DVA message files stored in /dva/msgs/dist/
  - WinSCP or other SFTP for Microsoft Windows
- The Firmware and Configuration Load Procedures document (U-0641-2585).
- Tools (a small flat-bladed screwdriver, Pozidriv screwdriver No. 3)
- The VIPEDIA-12 Installation Guide (U-0641-0344) (optional)
- A power supply (22 V to 40 V) for the new unit

Preparing the new VIPEDIA-12 unit before installation into the rack:

For instructions on how to load the firmware and configuration into the VIPEDIA-12 and Network Card, refer to the Firmware and Configuration Load Procedures document (ASL 0641-2585). The document is available from ASL to trained and authorised users.

1. Power the new VIPEDIA-12 up.
2. If a Network Card is fitted follow the instructions below:
   a. Assign the old Network Card IP address and hostname and load the configuration into the new Network Card. Refer to the VCT help files for instructions.
   b. Check the Network Card firmware version.

If required, install the required NET-VIPA firmware, and then reload the configuration.

c. Copy the DVA files to the new Network Card /dva/msgs/dist/ folder using WinSCP.

3. Check the VIPEDIA-12 firmware version number via the front panel menu option:

Configuration→Router→Identity→Software

If required, install the required Host CP, DSP and FPGA software.

4. Assign the old VIPEDIA-12 unit's front panel settings to the new unit and adjust the date and time as required:

- Unit IP Address: **Configuration→Router→Identity→IP Config→IP Addr**
- Gateway Address: **Configuration→Router→Identity→IP Config→Gateway Addr**
- Subnet Mask: **Configuration→Router→Identity→IP Config→Subnet Mask**
- Unit Id: **Configuration→Router→Identity→Unit Identity→Id**
- Unit Name: **Configuration→Router→Identity→Unit Identity→Name**
- Unit UTC offset: **Configuration→Router→Identity→Unit Identity→UTC offset**
- Access codes: **Configuration→Access→Change-PIN**
- Date and time: **Configuration→Router→Identity→Unit Identity→Date/Time**

5. Power cycle the unit.

6. Load the system configuration (XML) of the old VIPEDIA-12 unit into the new unit.

7. Download the audio settings (CSV) of the old VIPEDIA-12 unit into the new unit using the Audio Settings Manager; see Section "5.5 Extracting and Injecting Audio Settings to/from a File" (page 122).

8. Load the DVA messages into the VIPEDIA-12 unit; see Section "5.6 Loading DVA Messages" (page 125).

Replacing the old VIPEDIA-12 unit:

1. Ensure the power supply to the old unit is switched off.

2. Disconnect all external wiring and remove the old unit from the rack.

3. Install the new into the rack and connect the external wiring; refer to the VIPEDIA-12 Installation Guide if required.

4. Power the new unit on from the equipment rack.

5. Perform a frame learn:

Frame Learn Check fault: **Faults→Frames→Learn**

6. Clear faults by pressing the **FAULT CLEAR** key on the unit's front panel.

7. Confirm that the system operates correctly and fault free.

8. If the old unit is to be returned for repair, pack the unit following the recommendations described in Section "6.2.10 Packing for Return for Repair" (page 150).

9. If the old unit is to be disposed of, the unit should be disposed of by following WEEE protocols.

6.2.10 Packing for Return for Repair

All electronics assemblies must be properly packed in ESD protective packing for transport, to prevent physical and ESD damage.

The filler material used for packing for return for repair must be antistatic or static dissipative, as this may come into contact with exposed connectors, wiring, or PCB assemblies. The use of non-conductive filler material may cause damage to the electronic assemblies reducing their operational life, or even destroying them.

Advice on packing the product for return can be provided by ASL.

7 Abbreviations

AC	Alternating Current
AC	Alternating Current
AEL	Active End of Line Device (ASL)
AEL	Active End of Line Device (ASL)
ANS	Ambient Noise Sensor (ASL)
ASL	Application Solutions (Safety and Security) Limited
BMB01	Remote I/O Unit (ASL)
BS	Build Standard
	British Standard
BS	Build Standard
CAN	Controller Area Network
CFG	Configuration file extension
CODEC	COder-DECoder
CP	Control Processor
CPU	Central Processing Unit
CSV	Comma Separated Value
DBB	Digital BackBone
DC	Direct Current
DSP	Digital Signal Processing
DST	Daylight Saving Time
DVA	Digital Voice Announcer
EEPROM	Electrically Erasable Programmable Read-Only Memory
EMI	ElectroMagnetic Interference
EN	European Standards
EOL10K	End Of Line Resistor
ESD	Electrostatic Discharge
FPGA	Field-Programmable Gate Array
FTT	File Transfer Tool (ASL)
GPIO	General Purpose Inputs/Outputs
GPS	Global Positioning System
GUI	Graphical User Interface
IEC	International Electrotechnical Commission
IP	Internet Protocol
ISO	International Organization for Standardization
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LRU	Line Replaceable Unit
NVC	Night Time Volume Control
NVM	Non-Volatile Memory
PA/VA	Public Address/Voice Alarm
PAVA	Public Address and Voice Alarm
PAVA SCT	PAVA System Configuration Tool (ASL)
PC	Personal Computer
PMC	Portable Media Carrier (ASL's audio over IP format)
PoE	Power over Ethernet

RAM	Random-Access Memory
RMS	Root Mean Square
SFTP	Secure File Transfer Protocol
SPI	Serial Peripheral Interface Bus
SSH	Secure Shell
TDM	Time-Division multiplexing
TFTP	Trivial File Transfer Protocol
UI	User Interface
UI	User Interface
UTC	Coordinated Universal Time
V2000	Modular Amplifier Mainframe (ASL)
V2000 DCT	V2000 Dynamic Configuration Tool (ASL)
V400	Amplifier Mainframe (ASL)
VA	Voice Alarm
VCT	VIPA Config Tool (ASL)
VIPA	ASL's software stack for IP-enabled VA products (ASL)
VIPEDIA-12	Professional Sound Life-Safety Digital Audio System ASL Audio Router
VIPEDIA-12 DCT	VIPEDIA-12 Dynamic Configuration Tool (ASL)
VIPEDIA-NET	VIPEDIA-12 Network Card
X400	Multi-channel Amplifier Mainframe (ASL)
XML	Extensible Markup Language

8 Reference Documentation

Table 18 Reference documents

Ref. No	Title	Filename Ref	Origin
[1]	V400 Installation Guide	U-0398-0607	ASL
[2]	V400 Amplifier Handbook	398A_Amp_ Handbook	ASL
[3]	X400 Product Manual	U-0629-0170	ASL
[4]	VIPEDIA-12 Installation Guide	U-0641-0344	ASL
[5]	PAVA System Configuration Tool User's Manual	U-0701-1093	ASL
[6]	Vipedia Static Configuration XML Schema	T-0641-1524	ASL
[7]	Audio Settings Manager Quick Guide	U-0701-0014	ASL
[8]	V2000 Installation Guide	U-0623-0291	ASL
[9]	V2000 User's Manual	U-0623-0383	ASL
[10]	Firmware and Configuration Load Procedures	U-0641-2585	ASL
ⓘ	Additional reference information is available from ASL's website: www.asl-control.co.uk		

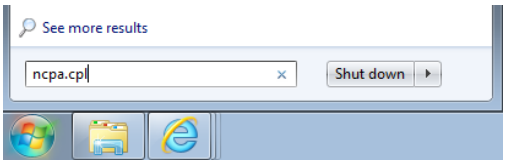
9 APPENDIX A – PC Requirements

The following requirements should be observed in order to be able to load firmware or configuration into ASL new generation of PAVA products.

1. A Windows 7 (or later) PC with the required graphical user interface tools installed:
   - PAVA-System Configuration Tool (for VIPEDIA-12 and V2000); see "APPENDIX B – Installing the PAVA System Configuration Tool (PAVA SCT)" (page 159)
   - VIPA Config Tool (for VIPEDIA-NET); see "APPENDIX D – Installing the VIPA Config Tool (VCT)" (page 166)
2. Ensure the host PC has an Ethernet connection to the network containing the target unit.

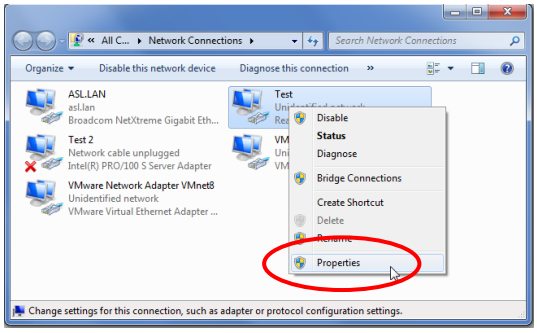
   Alternatively, the host PC can be directly connected to the Ethernet port on target unit.
3. Ensure that the host PC network interface that is used to connect to the target unit has an IP address in the same subnet as the target unit.

To change the host PC IP address:



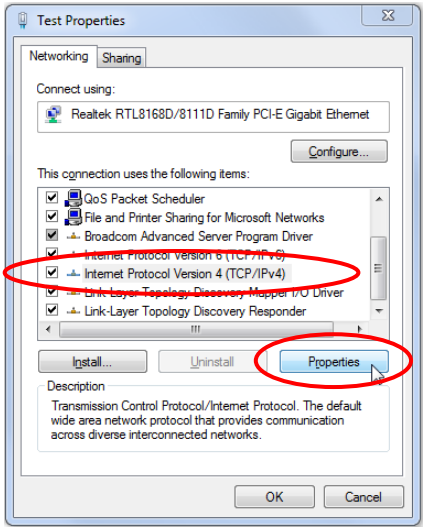
a. Click the **Start** button in the bottom-left corner of your screen.

b. Type "ncpa.cpl" in the Search box, and double-click the ncpa.cpl program.



c. The **Network Connections** window will be displayed.

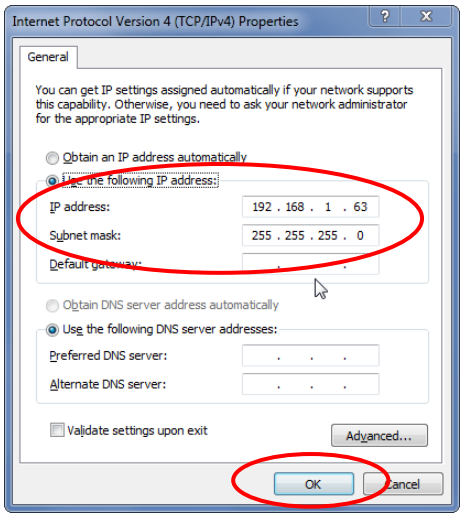
d. In the **Network Connections** window right-click the interface that is used to connect to the target unit, and then select **Properties** from the popup menu.



e. The **Properties** window for the interface card will be displayed.

f. Select the **Networking** tab and then select **Internet Protocol Version 4 (TCP/IPv4)** in the connections list.

g. Click the **Properties** button.



h. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window will be displayed.

i. Click the **Use the following IP Address** option and enter the host PC **IP address**.
Ensure the Host PC IP address is in the same subnet as the target unit.
In the example on the right:

- Target units in a 192.168.1.0/24 network
- Host PC on a free address in the same subnet (e.g. 192.168.1.63)

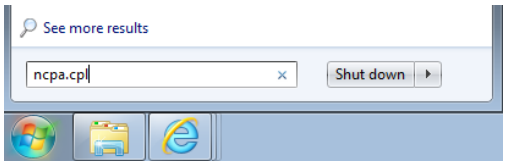
j. Enter the required **Subnet mask** or press the TAB key on the keyboard (Windows will set the default subnet mask).

k. Click the **OK** button to apply the changes.

4. If the host PC has multiple network interfaces, ensure the network interface used by to connect to the target unit has the highest priority by changing the binding order and metrics; see below.

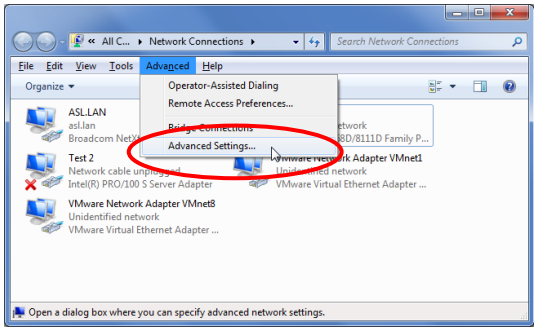
Alternatively, the other network interfaces can be temporarily disabled.

<u>To change the Binding Order:</u>



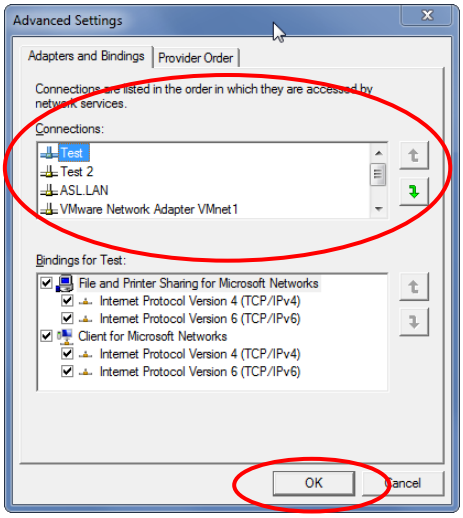
a. If the **Network Connections** window is not opened, click the **Start** button in the bottom-left corner of your screen.

- Type "ncpa.cpl" in the Search box, and double-click the ncpa.cpl program.
- The **Network Connections** window will be displayed.



b. In the **Network Connections** window press the ALT key on the keyboard to enable the top-level menu.

c. Select **Advanced>Advanced Settings** from the top-level menu.

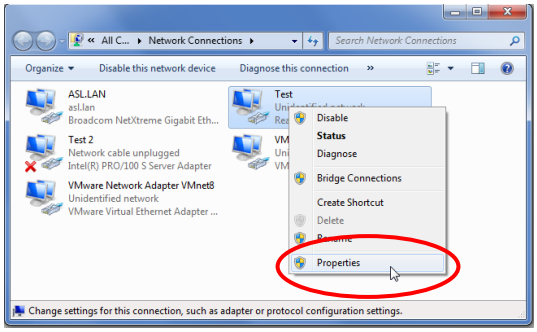


d. The **Advanced Settings** window will be displayed; see example on the right.

e. Select the **Adapters and Bindings** tab.

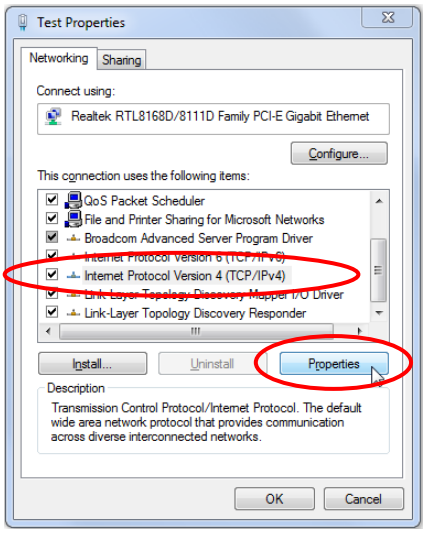
f. In the **Connections** section select the interface that is used to connect to the target unit, and then move it to the top of the list.

g. Click the **OK** button to apply the changes.



To change the Interface Metrics:

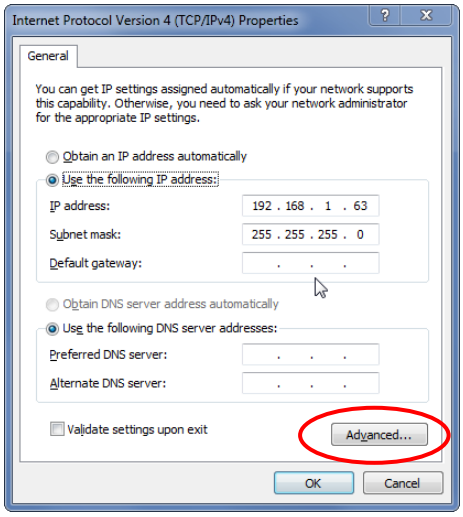
a. In the **Network Connections** window right-click the interface that is used to connect to the target unit, and then select **Properties** from the popup menu.



b. The **Properties** window for the interface card will be displayed.

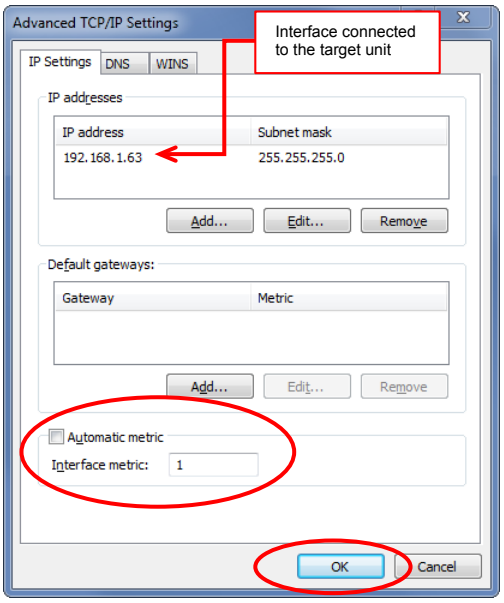
c. Select the **Networking** tab and then select **Internet Protocol Version 4 (TCP/IPv4)** in the connections list.

d. Click the **Properties** button.



e. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window will be displayed.

f. Click the **Advanced** button.



g. The **Advanced TCP/IP Settings** window will be displayed; see example on the right.

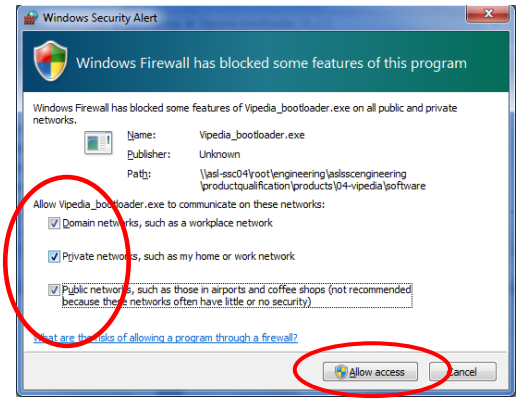
h. Select the **IP Settings** tab.

i. If checked, uncheck the **Automatic metric** check box.

j. Set the **Interface metric** to "1".

k. Click the **OK** button to apply the changes.

l. Repeat the above procedure for all other network interfaces ensuring they are set to a lower priority (value > 1), and not set to automatic.



5. You may get a security alert the first your run an application, make sure all check boxes are checked and then click the **Allow Access** option; see example on the right. Otherwise, you will have to manually allow the application through the firewall or disable the firewall.

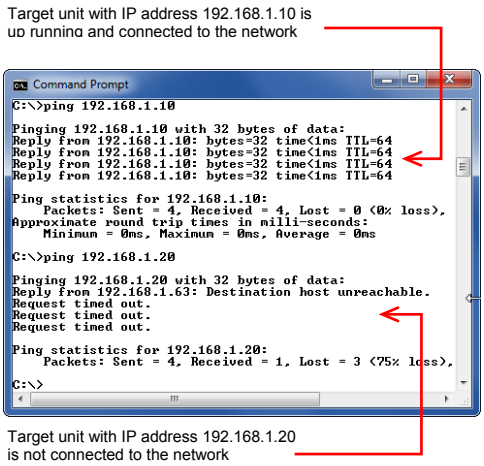
6. Ensure that the target unit is up running and connected to the network, for example using the "ping" command.

a. Click the **Start** button in the bottom-left corner of your screen.

b. Select **All Programs→Accessories→Command Prompt**.

c. Enter the "ping" command followed by the IP address of the target unit (e.g. 192.168.1.10)

```
ping 192.168.1.10
```



7. If required, disable all wireless connections on the host PC.

10 APPENDIX B – Installing the PAVA System Configuration Tool (PAVA SCT)

The PAVA System Configuration Tool contains the following applications:

- System configuration generator (XML)
- File Transfer Tool (FTT)
- VIPEDIA-12 Dynamic Configuration Tool (VIPEDIA-12 DCT)
- V2000 Dynamic Configuration Tool (V2000 DCT)

You will need:

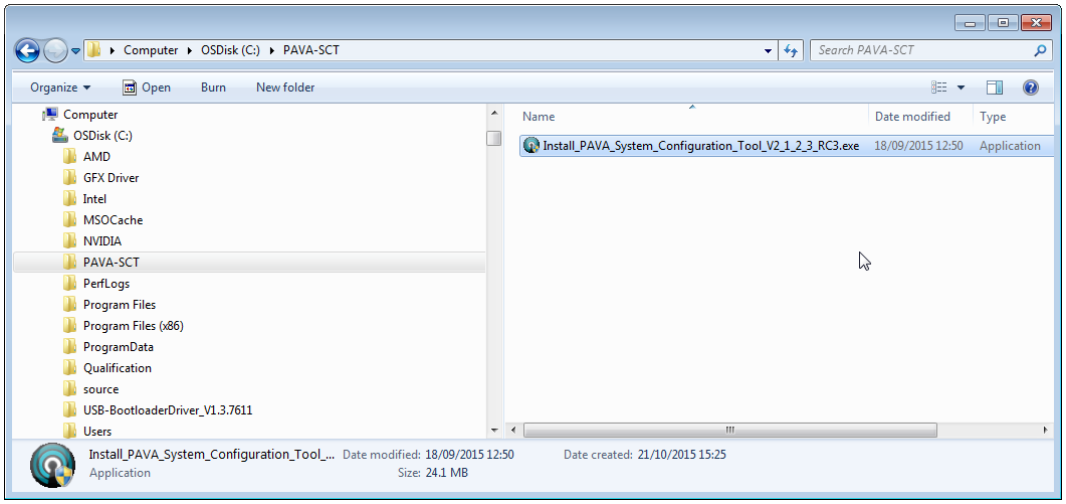
- A host PC that meets the requirements defined in "APPENDIX A – PC Requirements" (page 154)
- The installer of the appropriate version of the PAVA SCT Tool which is available from ASL or an appointed ASL distributor.

  As standard the installer filename has the following format:

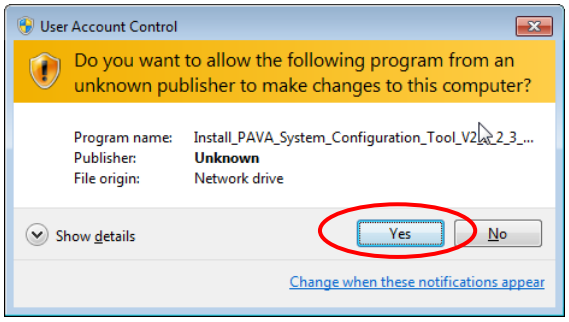
  Install_PAVA_System_Configuration_Tool-<*version*>.exe

To install the PAVA SCT:

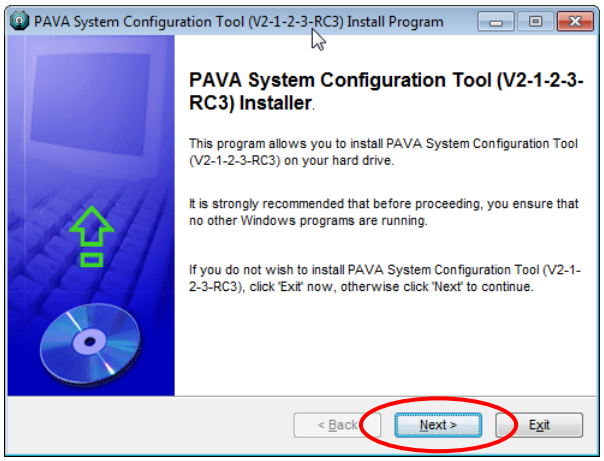
1. Double-click **Install_PAVA_System_Configuration_Tool-<*version*>.exe** to launch the installer.



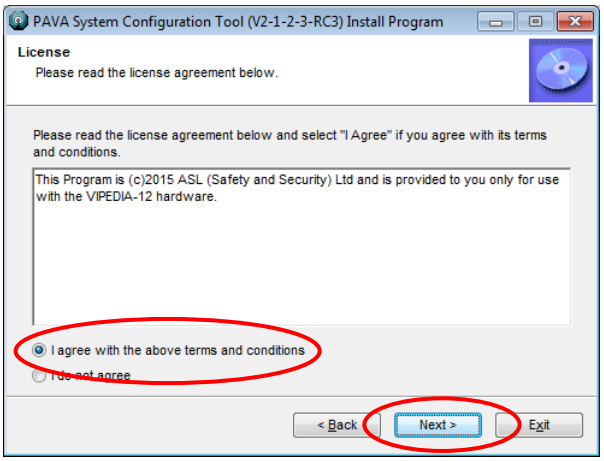
2. Click the **Yes** button for the following security alert.



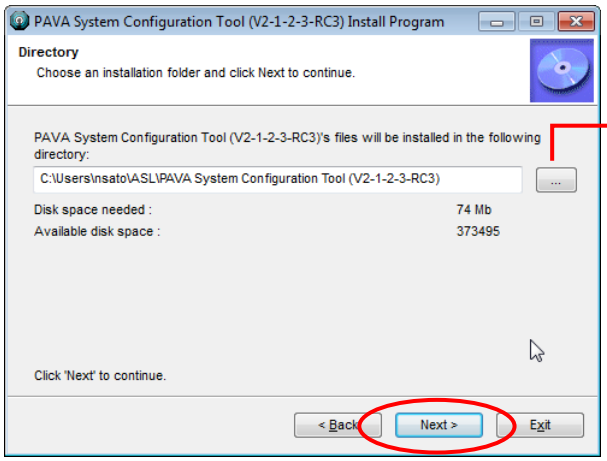
3. The installer Click the **Next** button to continue the installation.



4. Read the license agreement, select the **I agree …** option and then click the **Next** button.

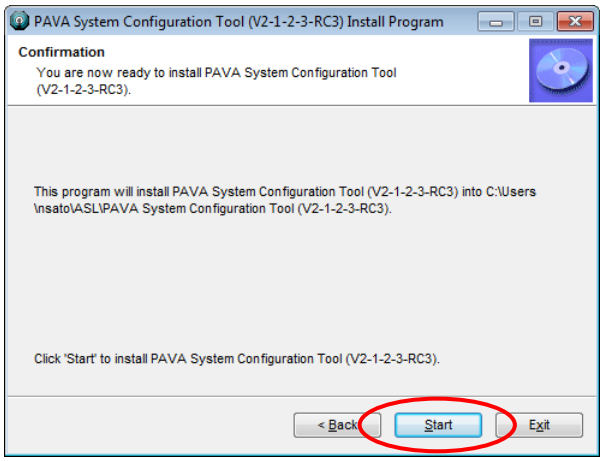


5. Change the installation directory (if required) and then click the **Next** button.

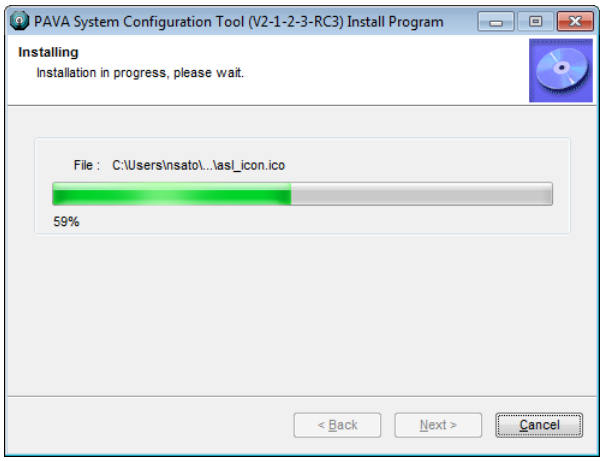


Click here to change the installation directory

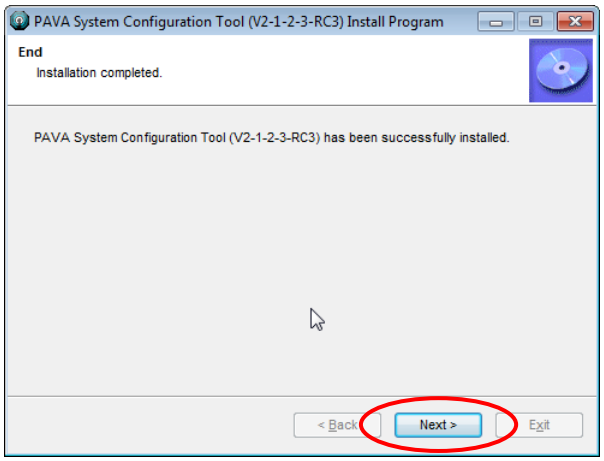
6. Click the **Start** button.



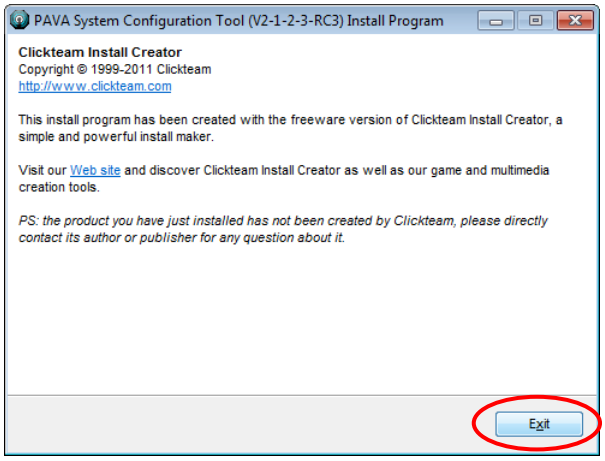
7. The installation will start.



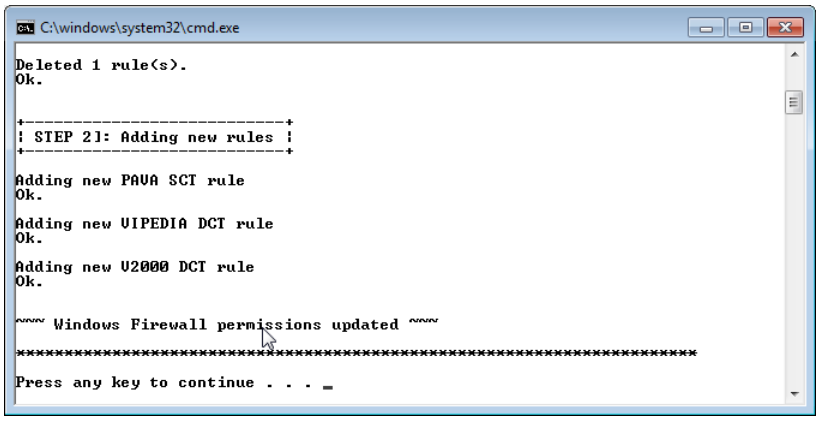
8. Wait for the installation to complete and the click the **Next** button.



9. Click the **Exit** button.



10. A command prompt will show the Windows firewall update progress. Press any key when complete.



11 APPENDIX C – Launching the File Transfer Tool (FTT)

The ASL File Transfer Tool (FTT) is used to load the FPGA and/or DSP firmware and the XML configuration file into theVIPEDIA-12 and V2000. It also allows remote reset of VIPEDIA-12 units.
The FTT is part of the PAVA System Configuration Tool (PAVA SCT) and is launched as described below.

You will need:

A host PC installed with the PAVA System Configuration Tool; see "APPENDIX B – Installing the PAVA System Configuration Tool (PAVA SCT)" (page 159).

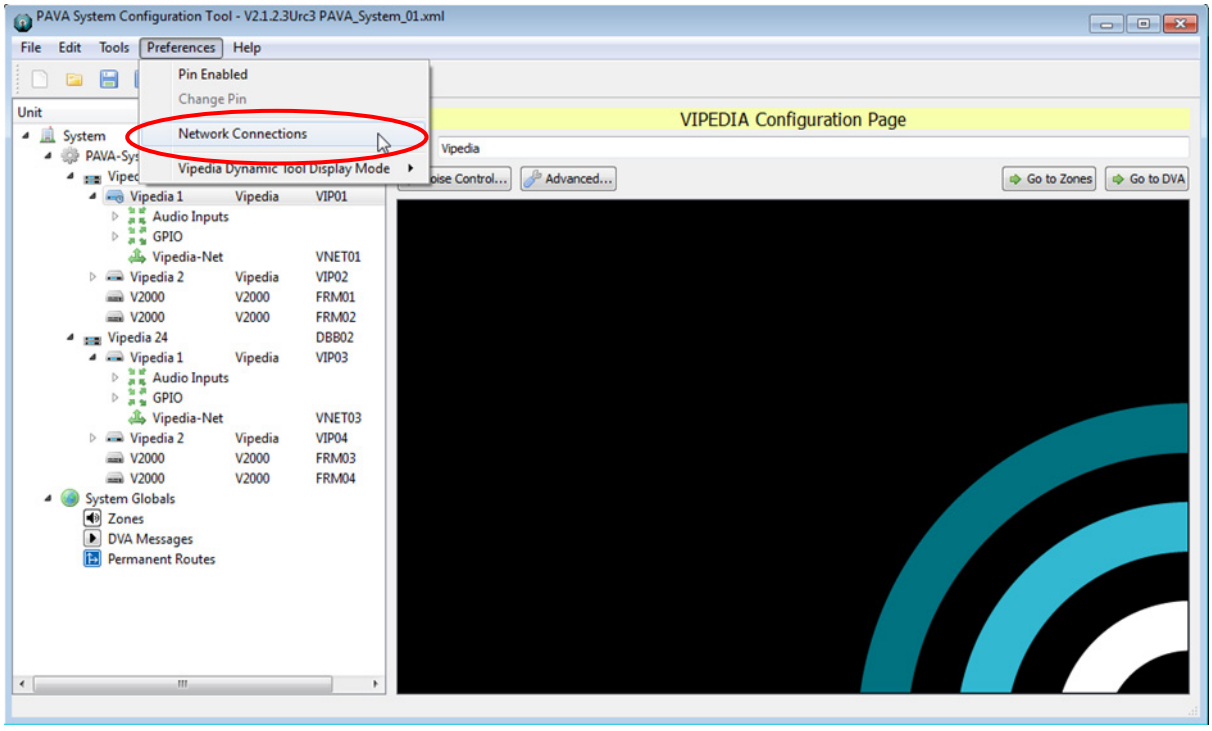
To launch the FTT:

1. First launch the PAVA SCT by clicking the **Start** button in the bottom-left corner of your screen and then selecting the following option.

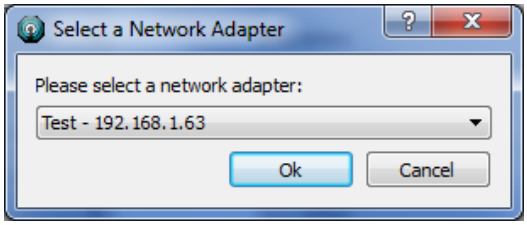
   All Programs→ASL→PAVA System Configuration Tool (*<version>*)→PAVA System Configuration Tool

   Or by double-clicking the application's icon on the desktop

   .
2. Select the PC network interface used to connect to the PAVA system.
   a. Ensure that the required network interface is connected to the PAVA system network.
   b. Select **Preferences→Network Connections** from the menubar.



c. Select the required network interface, and then click the **Ok** button.



Note that only active network interfaces are displayed for selection.

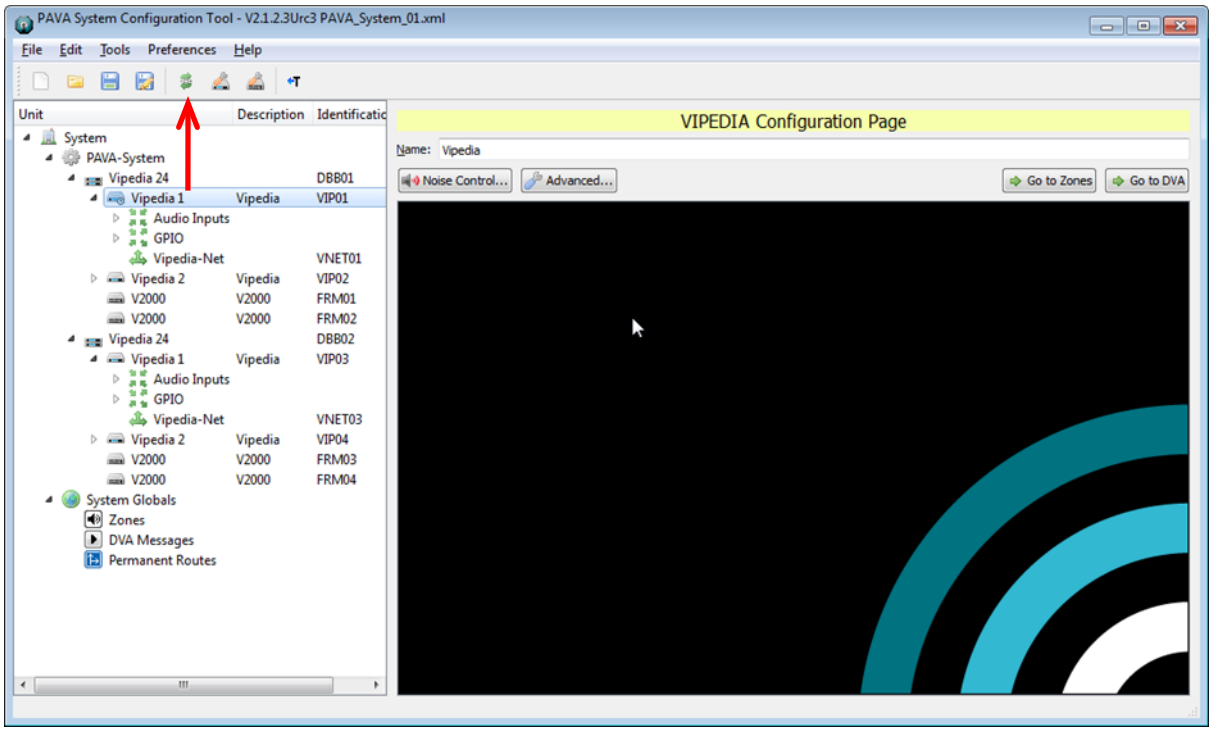
If the required network interface is not displayed, check the network connection between the PC and the PAVA system. Also ensure that the target PAVA units are powered on. Close and re-load the Network Adapter selection dialog box.

3. Double-click the FTT application's icon on the toolbar.

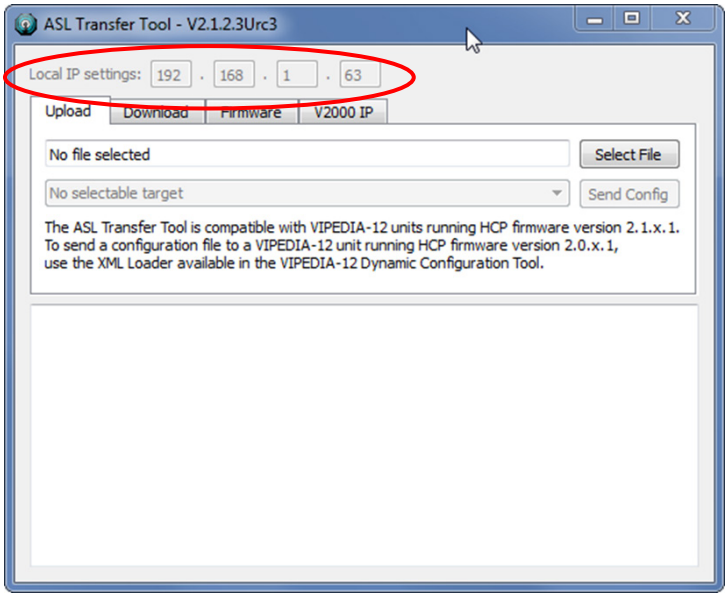
Or select the **Tools→ASL Transfer Tool** menubar option:

Note:

If no network interface has been selected or the selected interface is inactive, the Network Adapter selection dialog box will be displayed as described above.



4. The FTT is launched with the host PC network interface automatically set.



12 APPENDIX D – Installing the VIPA Config Tool (VCT)

The VIPA Config Tool (VCT) enables the configuration of IP networks of ASL VIPA devices (iPA400, iPAM400, VIPET, Linutop, VIPA Servers, and VIPEDIA-NET). It is also used to update the firmware on VIPA devices.

You will need:

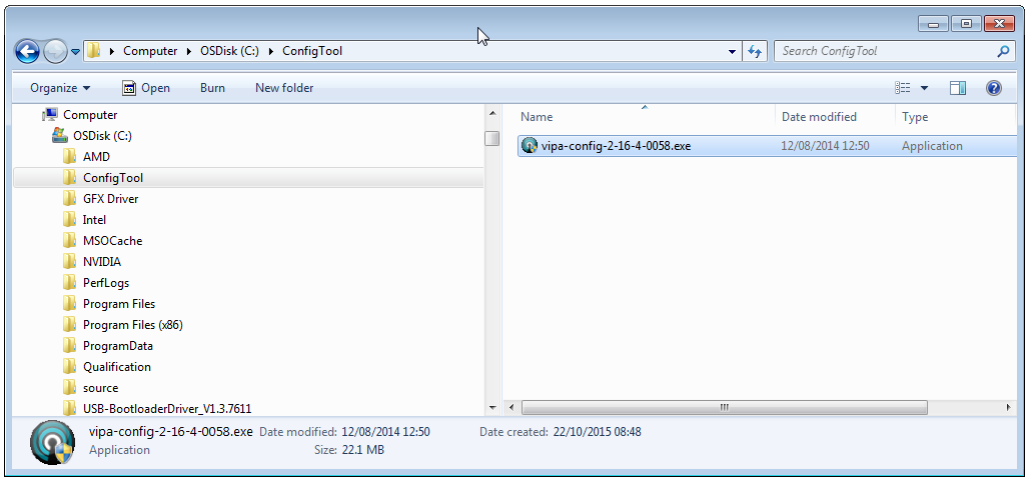
- A host PC that meets requirements 1) to 3) defined in "APPENDIX A – PC Requirements" (page 154)
- The installer of the appropriate version of the VCT which is available from ASL or an appointed ASL distributor.

  As standard the installer filename has the following format:

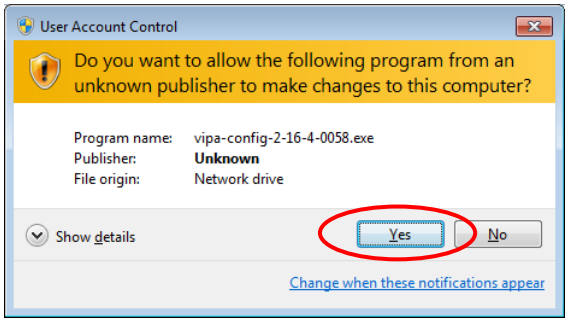
  vipa-config-<*version*>.exe

To install the VCT:

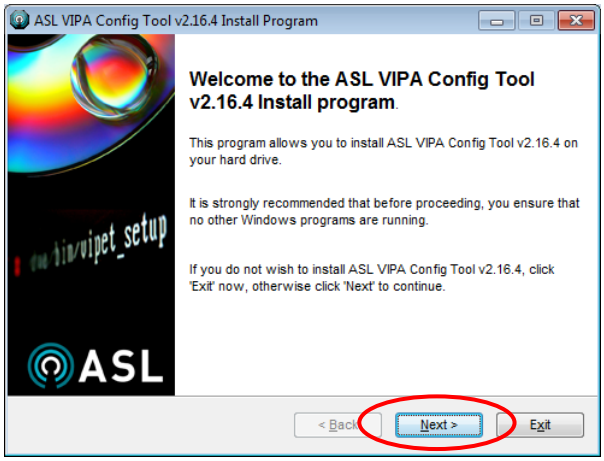
1. Double-click **vipa-config-<*version*>.exe** to launch the installer.



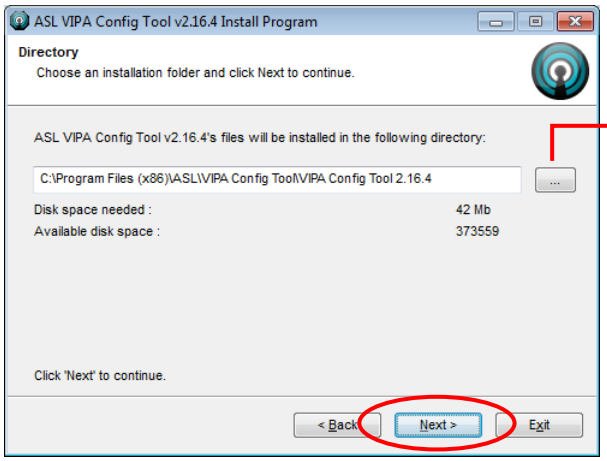
2. Click the **Yes** button for the following security alert.



3. The installer Click the **Next** button to continue the installation.

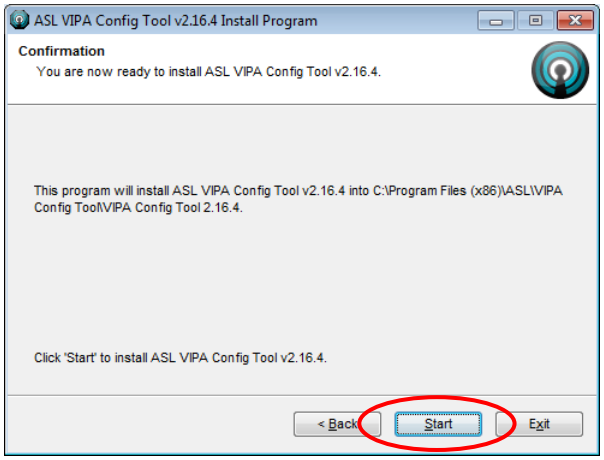


4. Change the installation directory (if required) and then click the **Next** button.

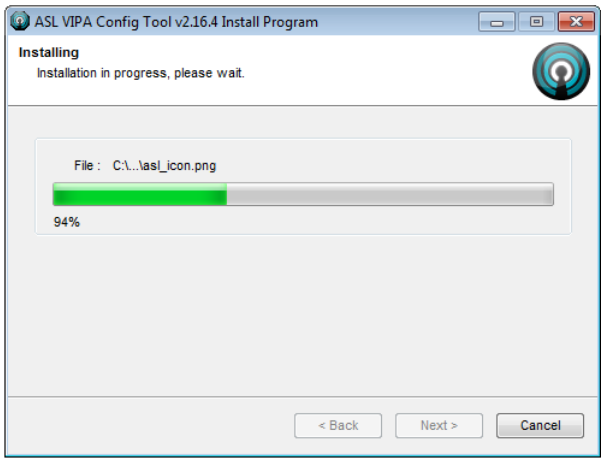


Click here to change the installation directory

5. Click the **Start** button.

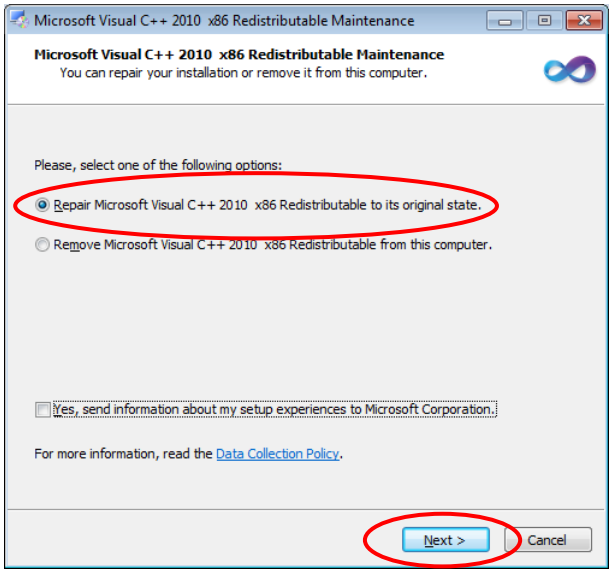


6. The installation will start.

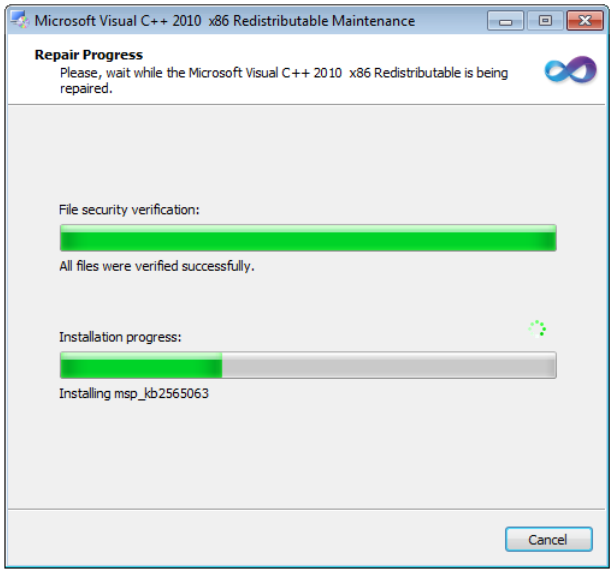


7. The Microsoft Visual C++ Redistributable Maintenance dialog will be displayed.

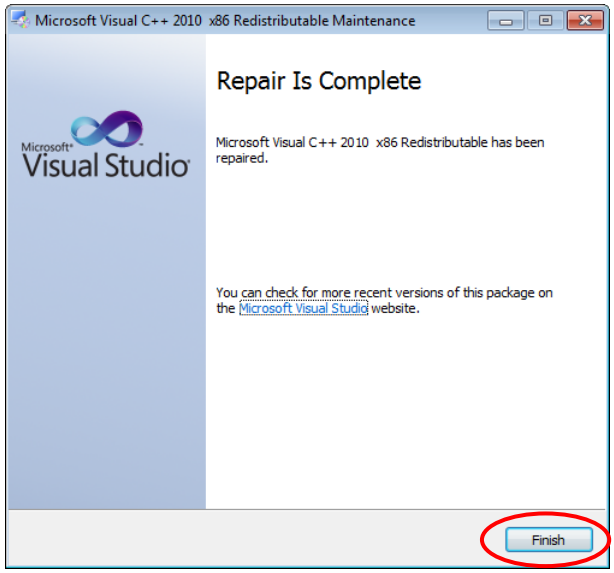
Select the **Repair …** option and the click the **Next** button.



8. The Microsoft Visual C++ Redistributable repair will start.

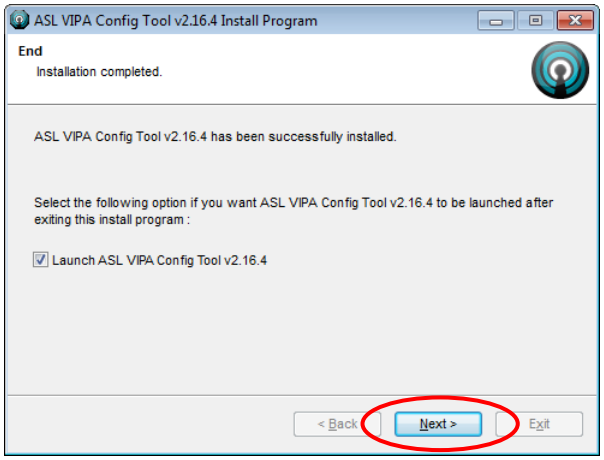


9. Wait for the repair to complete and the click the **Finish** button.

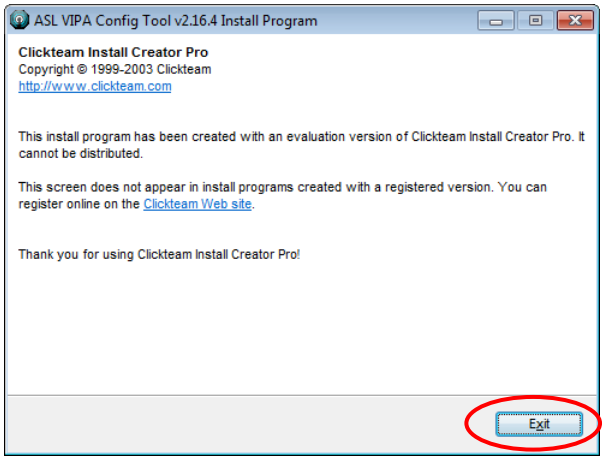


10. The VCT installation will complete.

Select whether VCT is to be launched and then click the **Next** button.



11. Click the **Exit** button.



13 APPENDIX E – Launching the VIPA Config Tool (VCT) and Loading a Configuration File

You will need:

- A host PC installed with the VIPA Config Tool; see "APPENDIX D – Installing the VIPA Config Tool (VCT)" (page 166).
- The VIPEDIA-NET configuration file (*.cfg)

To launch the VCT and loading a configuration file:

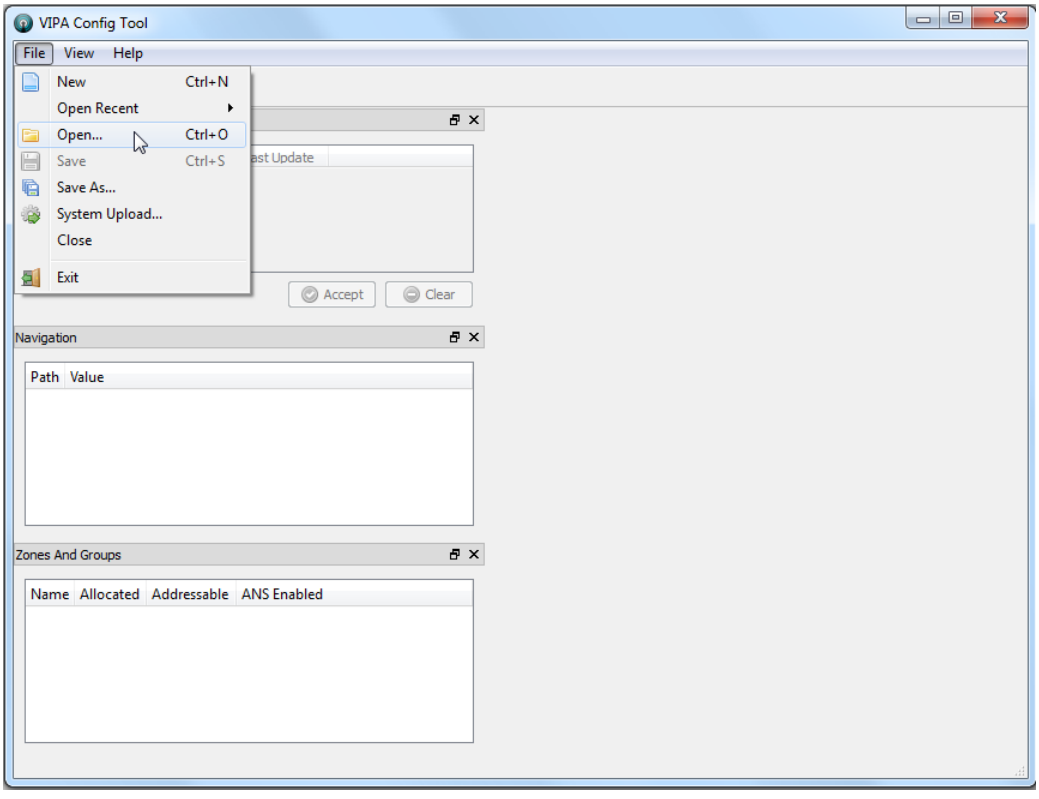
1. Launch the VCT by clicking the **Start** button in the bottom-left corner of your screen and then selecting the following option.

   All Programs→ASL→ VIPA Config Tool→VIPA Config Tool <*version*>→VIPA Config Tool

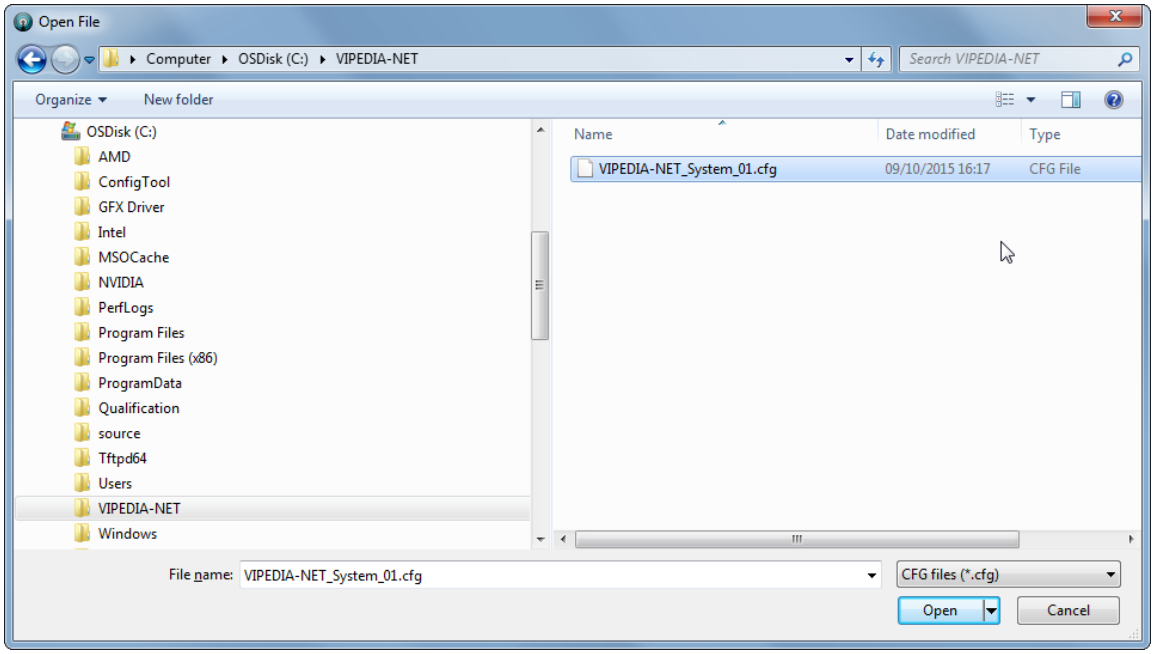
   Or by double-clicking the application's icon on the desktop

.

2. Select **File→Open** option on the menubar or toolbar to load the VIPEDIA-NET configuration (*.cfg).



3. A browser window will be opened. Navigate to configuration file to be uploaded (*.cfg).



4. Click the **Open** button.

14 APPENDIX F – Connecting to VIPEDIA-12 Using Serial

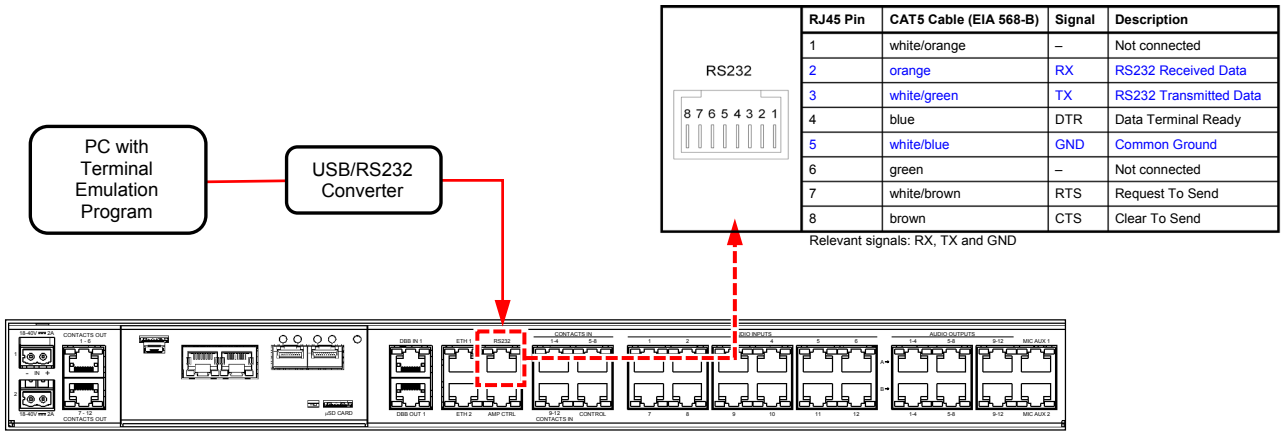
You will need:

- A PC installed with a terminal emulation program (e.g. Tera Term available from http://ttssh2.sourceforge.jp)
- A USB to RS232 converter
- A cable to connect the PC to the VIPEDIA-12 RS232 port; see Figure 49 below.

To connect to the VIPEDIA-12 using serial:

1. Ensure the target VIPEDIA-12 unit is powered on.
2. Connect the VIPEDIA-12 RS232 port to a serial port of the PC; see Figure 49 below.

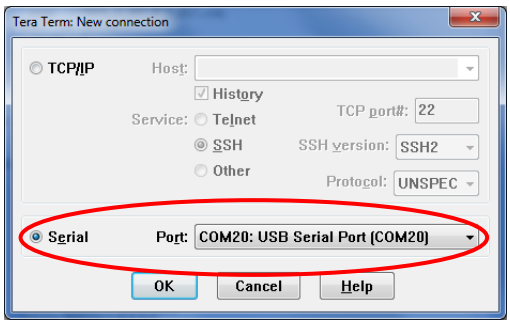
Figure 49 Connecting the host PC to the VIPEDIA-12 RS232 port



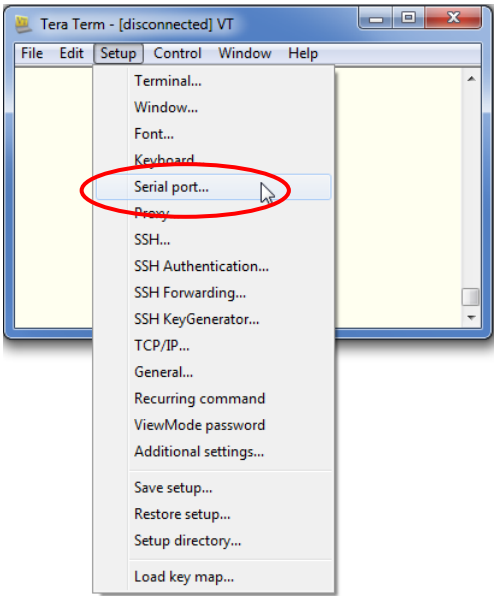
RJ45 Pin	CAT5 Cable (EIA 568-B)	Signal	Description
1	white/orange	–	Not connected
2	orange	RX	RS232 Received Data
3	white/green	TX	RS232 Transmitted Data
4	blue	DTR	Data Terminal Ready
5	white/blue	GND	Common Ground
6	green	–	Not connected
7	white/brown	RTS	Request To Send
8	brown	CTS	Clear To Send

Relevant signals: RX, TX and GND

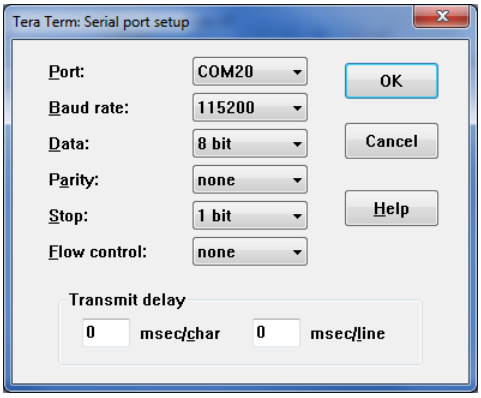
3. Run the terminal emulation program (examples show Tera Term) and select the serial port connected to the target VIPEDIA-12 unit.



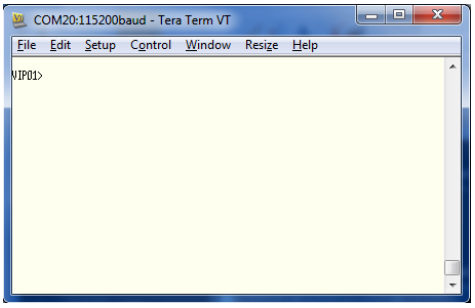
4. Select **Setup→Serial port…**.



5. Ensure the terminal emulator is set with:
   - Baud rate: 115200
   - Data: 8 bit
   - Parity: none
   - Stop: 1 bit
   - Flow control: none
6. Click the **OK** button.



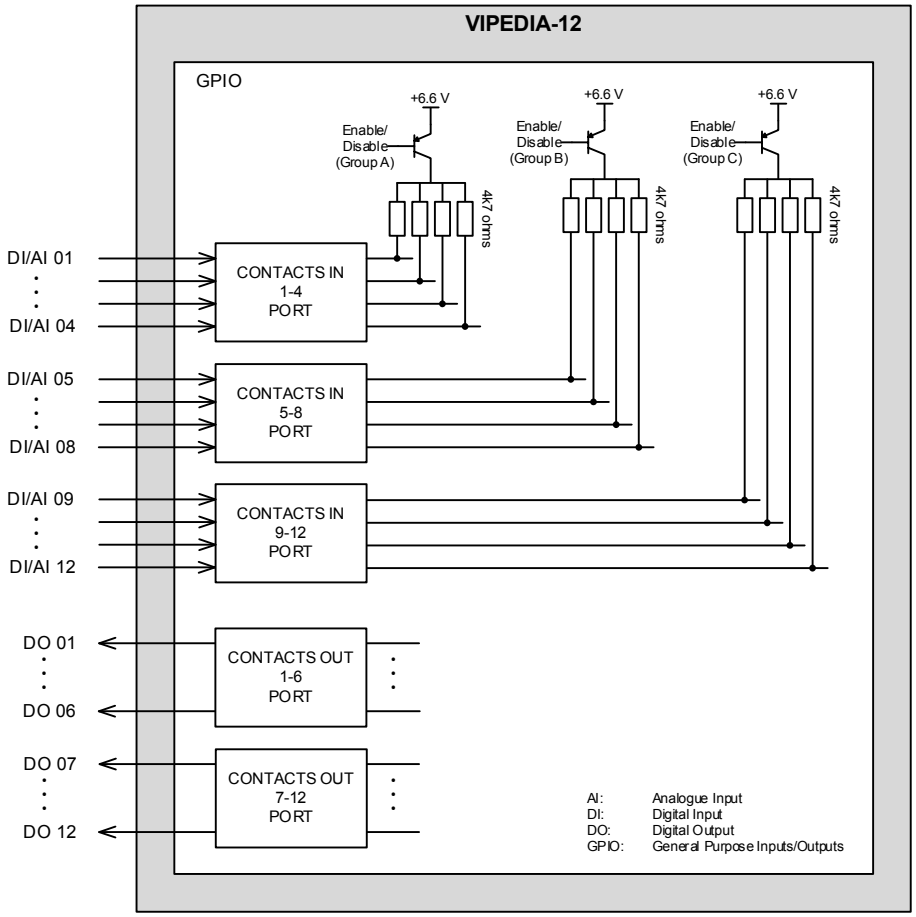
7. On the terminal window, press ENTER to obtain a ">" prompt.



15 APPENDIX F – On-board GPIO

The VIPEDIA-12 has three contact input and two contact output ports.

Figure 50 On-board GPIO input and outputs



Contact Input Ports

Each contact input port has four combined analogue and digital inputs. Each input has an internal pull-up (4k7 ohms). The internal pull-ups are enabled/disabled for all inputs of a particular port, not per input.

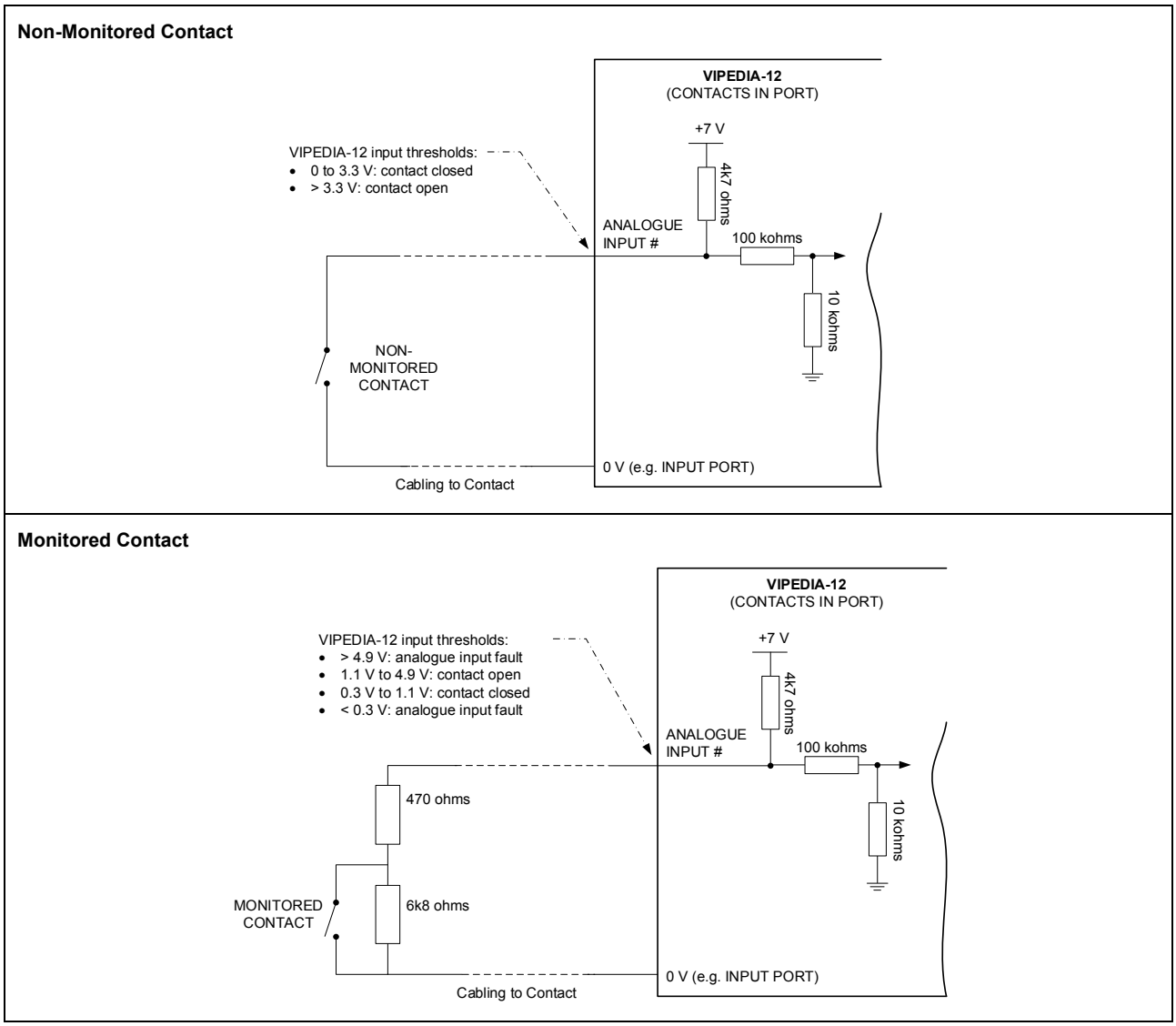
- CONTACTS IN 1-4: This port is identified as Group A on the PAVA SCT and contains contact inputs 1 to 4. The internal pull-ups are enabled/disabled on all inputs in Group A.
- CONTACTS IN 5-9: This port is identified as Group B on the PAVA SCT and contains contact inputs 5 to 9. The internal pull-ups are enabled/disabled on all inputs in Group B.
- CONTACTS IN 10-12: This port is identified as Group C on the PAVA SCT and contains contact inputs 9 to 12. The internal pull-ups are enabled/disabled on all inputs in Group C.

The PAVA SCT automatically defines the input type and the internal pull-up configuration to suit the selected function, and uses the following convention:

- Volt-free contacts: the internal pull-up is enabled providing the required voltage level, and the input is configured as an analogue input; see connection examples in Figure 51 (page 175).

  The connection to a Volt-free contact can be unmonitored or monitored.

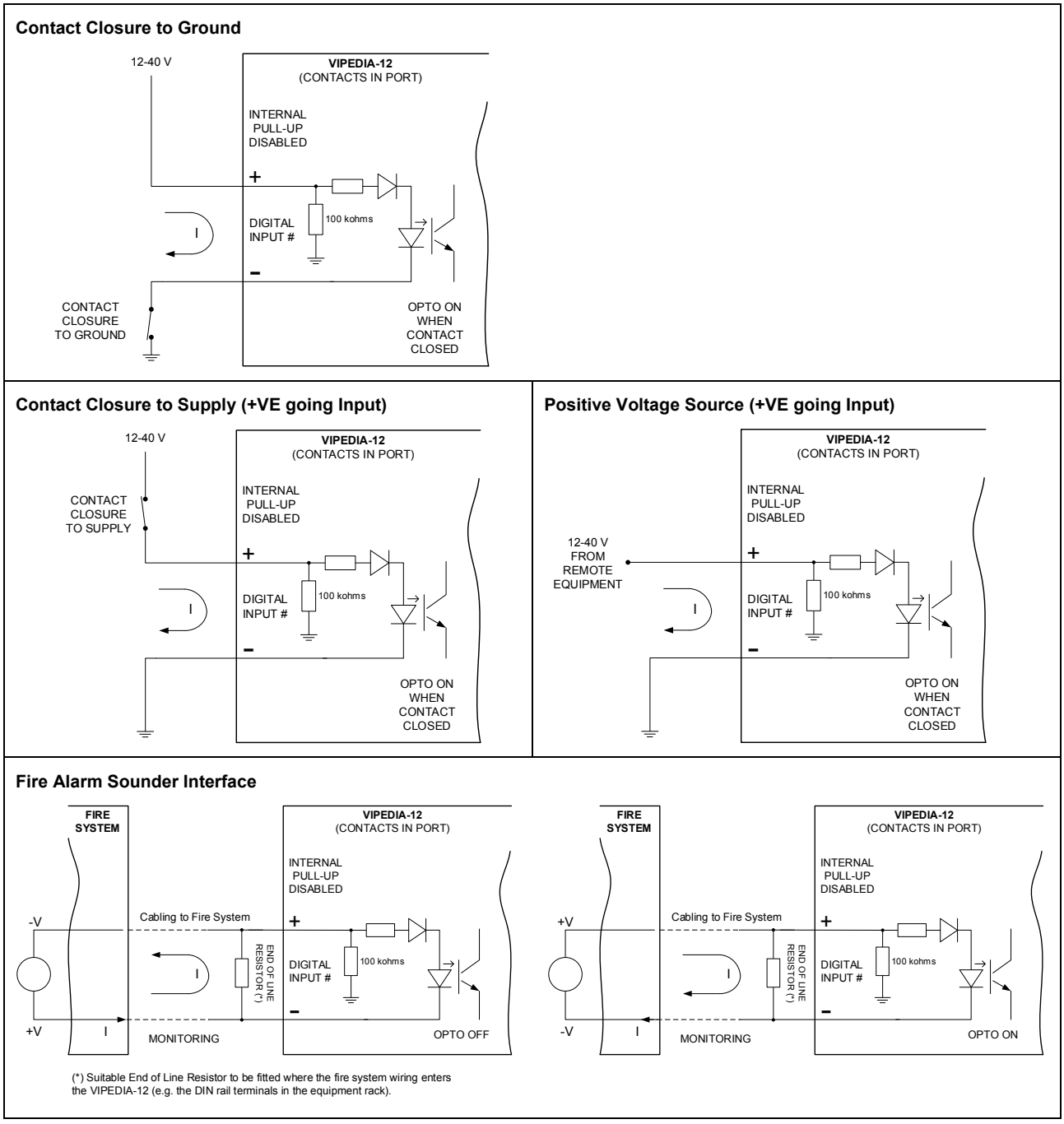
Figure 51 VIPEDIA-12 on-board analogue input to Volt-free contact connection (example)



- Volt-driven contacts: the internal pull-up is disabled, i.e. the contact provides the required voltage level, and the input is configured as a digital input; see connection examples in Figure 52 (page 176).

  The connection to a Volt-driven contact is always unmonitored.

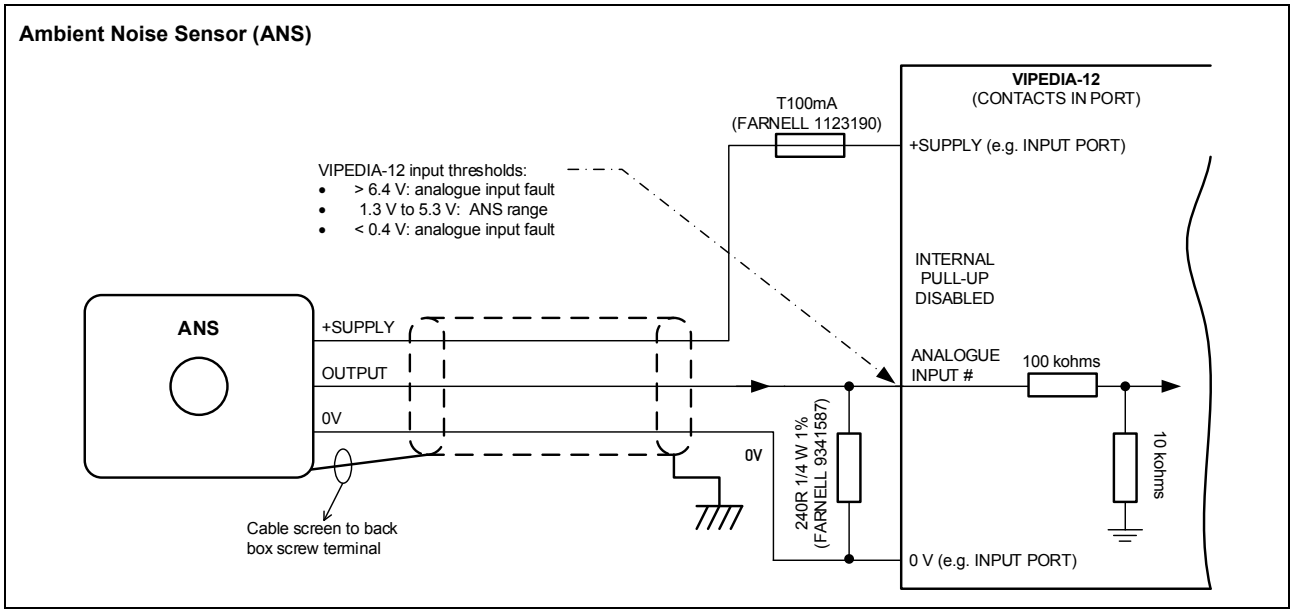
Figure 52 VIPEDIA-12 on-board digital input to Volt-driven contact connection (example)



- Ambient Noise Sensor (ANS): the internal pull-up is disabled as the ANS device provides the required voltage level, and the input is configured as an analogue input; see Figure 53 (page 177).

  The connection to an ANS is always monitored for open and short-circuit faults.

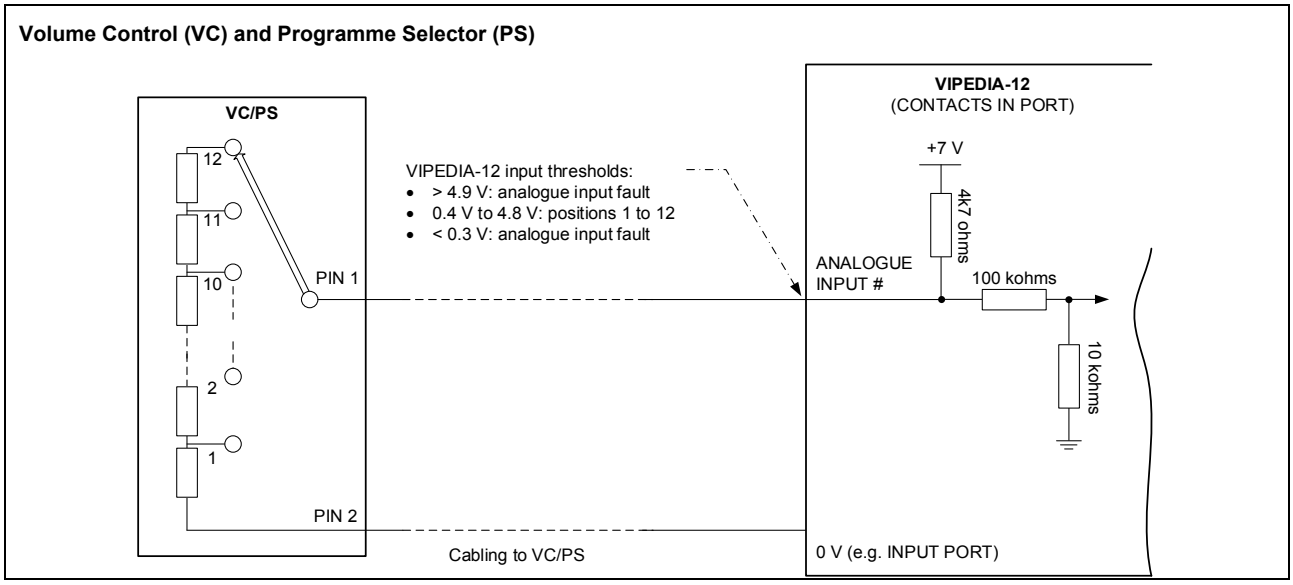
Figure 53 VIPEDIA-12 on-board analogue input to ANS connection



- Volume Control (VC) and Programme Selector (PS): the internal pull-up is enabled providing the required voltage level, and the input is configured as an analogue input; see Figure 54 (page 177).

  The connection to a VC or PS is always monitored for open and short-circuit faults.

Figure 54 VIPEDIA-12 on-board analogue input to VC/PS connection



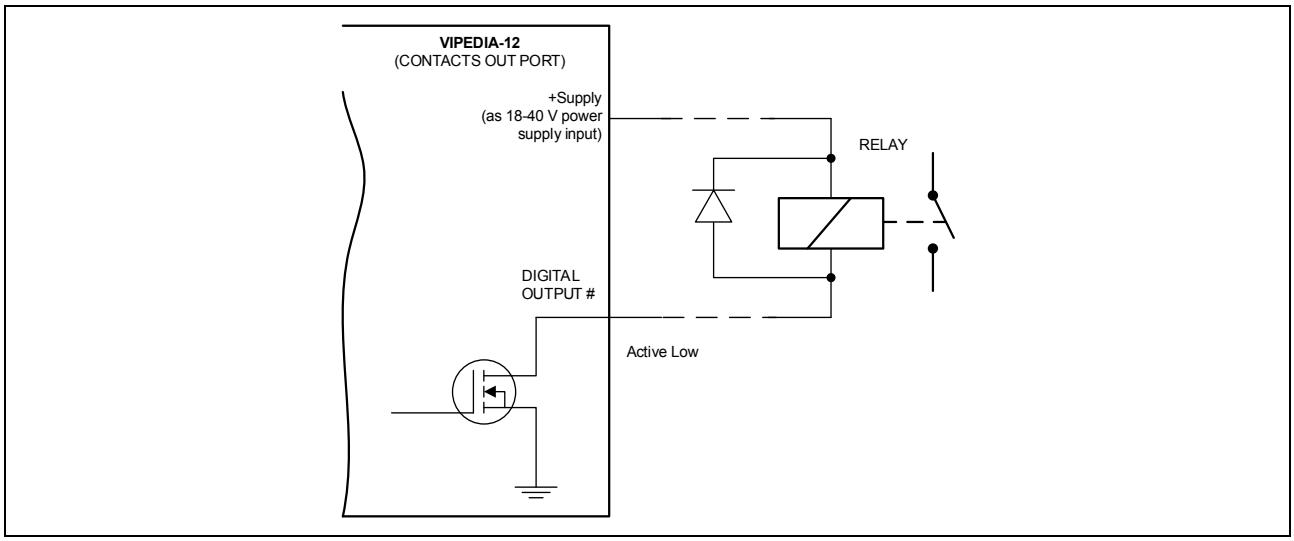
Contact Output Ports

Each contact output port has six digital outputs (open-collector):

- CONTACTS OUT 1-6: contact outputs 1 to 6
- CONTACTS OUT 7-12: contact outputs 7 to 12

Figure 55 (page 178) shows an example of digital output connection. The VIPEDIA-12 always monitors the digital output connection for open and short-circuit faults.

Figure 55 VIPEDIA-12 on-board digital output connection (example)



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