V-SERIES PANELS

User Guide
IMPORTANT SAFETY INSTRUCTIONS

Please read and follow these instructions before operating an Eclipse V-Series Panel. Keep these instructions for future reference.

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

Please familiarize yourself with the safety symbols in Figure 1. When you see these symbols on this product, they warn you of the potential danger of electric shock if the main station is used.
improperly. They also refer you to important operating and maintenance instructions in the manual.

![CAUTION]

This symbol alerts you to the presence of uninsulated dangerous voltage within the product’s enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the product’s case.

![Caution]

This symbol informs you that important operating and maintenance instructions are included in the literature accompanying this product.

**Figure 1: Safety Symbols**

**EMC AND SAFETY**

The V-Series Panels meet all relevant CE, FCC, UL, and CSA specifications set out below:


**UL 60065-7, CAN/CSA-C22.2 No.60065-3, IEC 60065-7** Safety requirements.


This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
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OPERATION

INTRODUCTION

This chapter describes how to operate the V-Series panels. Panel operators can use this manual after the Eclipse System has been correctly installed and configured.

DESCRIPTION

V-SERIES PANELS

The V series family of panels consists of seven lever key and push-button panels as described below.

• V12LD - 19” rack mount 1RU 12 lever key display panel.
• V24LD - 19” rack mount 2RU 24 lever key display panel with dial pad.
• V12PD - 19” rack mount 1RU 12 pushbutton display panel.
• V24PD - 19” rack mount 2RU 24 pushbutton display panel with dial pad.
• V12LDE - 19” rack mount 1RU 12 lever key display expansion panel.
• V12PDE - 19” rack mount 1RU 12 pushbutton display expansion panel.
• V12LDD - desktop 12 lever key panel.

V-SERIES PANEL OPTIONS

The V series panels can be equipped with the following headset connector options (one connector only):

• XLR-4M locking headset connection.
• XLR-5F headset connection.
• XLR-7F headset connection (not V12LDD).

The V12LD and V24LD panels can support the following expansion panels:

• Up to eight V12LDE expansion panels in a daisy chain.

The V12PD and V24PD panels can support the following expansion panels:

• Up to eight V12PDE expansion panels in a daisy chain.
The V12LDD desktop panel does not support expansion panels. Expansion panel types (lever key or pushbutton) may not be mixed in a daisy chain of such panels and must be connected to a main panel of the same type.

FRONT-PANEL CONTROLS AND INDICATORS

This section describes the front-panel controls and indicators. These include:

• The displays for each key
• Intercom and program controls
• Talk/listen selectors and indicators
• “Answer Back” facility
• Keypad buttons (V24LD and V24PD panels only)
• Microphone and headset connectors

Figure 1-1 illustrates the V12LD front panel controls and indicators.

Figure 1-2 illustrates the V12PD front panel controls and indicators.
Figure 1-3 illustrates the V24LD front panel controls and indicators.

Figure 1-3: V24LD Front Panel Controls and Indicators

Figure 1-4 illustrates the V24PD front panel controls and indicators.

Figure 1-4: V24PD Front Panel Controls and Indicators

Figure 1-5 illustrates the V12LDD front panel controls and indicators.

Figure 1-5: V12LDD Front panel Controls and Indicators
Figure 1-6 illustrates the V12LDE expansion front panel controls and indicators.

![Figure 1-6: V12LDE Expansion Front Panel Controls and Indicators](image1)

Figure 1-7 illustrates the V12PDE expansion front panel controls and indicators.

![Figure 1-7: V12PDE Expansion Front Panel Controls and Indicators](image2)

**DISPLAY WINDOW**

A display window is located next to each selector and shows the currently assigned label for that selector. Assigned labels are accessed when the selector is pushed (pushbutton panel) or toggled (lever key panel). Each selector can be assigned as many as nine labels via the main page and eight shift pages. Each label can represent a talk or listen path to a panel, interface, fixed group, or party line, or can activate a programmable control function.

The display window for each key can display up to ten Latin or Katakana characters or five Kanji characters together with status indicators for the key. These indicators are:

- Currently selected page
- Latched talk indicator
- Latched listen indicator
- Panel monitoring indicator
- Microphone indicator
- Incoming Vox indicator
- Antenna active indicator
• Destination type indicator e.g. Party Line, IFB, Fixed Group
• Remote panel connection

KEY DISPLAY

The display associated with each line key provides a text area for up to ten characters to be used to display audio route labels or menu options, selection arrows, audio level indicator, scroll arrows and function/audio source indication.

![Figure 1-8: Line Key Display Window Areas](image)

- **Label Field** - 10 character field for the key label.
- **Latch Indicator** - indicates the talk/listen status of the key. A down arrow indicates that the key is a latched talk key, an up arrow indicates a latched listen key and both arrows together indicate an latched talk and listen key. If no arrows are displayed the key is not latched.
- **Audio Level** - a bar graph indicating the audio level set on that route. The audio level is controlled using the volume control buttons below the display.
- **Key Type** - indicates the type of route or action the panel key is connected to. These are:
  - PL - Party Line
  - IFB - Interruptible Foldback
  - FG - Fixed Group (includes stacked keys)
- **Key Status** - displays an icon indicating the status of this key. The icons are shown in the figure below.
The display associated with each line key provides a text area for up to ten characters to be used to display audio route labels or menu options, selection arrows, audio level indicator, scroll arrows and function/audio source indication.

- **Label Field** - 10 character field for the key label.
- **Latch Indicator** - indicates the talk/listen status of the key. A down arrow indicates that the key is a latched talk key, an up arrow indicates a latched listen key and both arrows together indicate an latched talk and listen key. If no arrows are displayed the key is not latched.
• Shift Page - A list of shift pages with those pages with incoming calls indicated by flashing text.

• Key Type - indicates the type of route or action the panel key is connected to. These are:
  • PL - Party Line
  • IFB - Interruptible Foldback
  • FG - Fixed Group

• Panel Monitoring - displays an ear icon if the panel is being monitored.

PANEL OPERATION

The operation of V-Series panels is described in this section. Lever key panels and pushbutton panels have some operational differences which will be described in this section.

MIC BUTTON

The MIC button and associated red indicator LED is used to enable and disable the panel gooseneck microphone plugged in to the panel microphone socket. To enable the panel microphone press and release the MIC button and the red LED will come on to indicate that the microphone is active. If a panel key is used to establish a talk connection the panel microphone will automatically be enabled and the indicator will light. When the connection is terminated the microphone will automatically be disabled.

SHIFT PAGE BUTTON

Momentarily pressing and releasing the shift page button shows the last selected shift page key labels. Pressing and holding the shift page button for more than 500ms changes the panel into shift page mode and displays the shift page menu on the display (see “Shift Menu” on page 1-41). The red indicator LED will light to show that shift page mode is on. Shift pages can then be selected and displayed on the main panel.

HEADSET SELECT BUTTON

The headset select button allows the operator to select the panel headset for audio output. When the headset is selected the red LED indicator will light and the panel microphone will be deselected if it is active.

MENU BUTTON

Pressing and releasing the menu button causes the panel to enter menu mode where the displays are cleared of labels and the panel
menus are displayed allowing panel functions to be configured. The menu indicator blue LED will light to show that the panel is in menu mode. The menu button can also be pressed to quickly exit any user menus active at the time.

Access to the menu option can be disabled in ECS using Advanced Settings > Soft Mode Options > Allow Access to Soft Mode.

MAIN VOLUME CONTROL

The main panel volume control comprises a rotary encoder with push-switch action and a tri-color loudspeaker volume indicator LED. The LED volume indications are:

- Red - high volume
- Amber - intermediate volume
- Green - low volume

Turning the volume control clockwise increases the loudspeaker volume and turning it anticlockwise decreases loudspeaker volume; the indicator LED will indicate the loudspeaker level. Above the main volume control is a loudspeaker cut indicator LED which will show red when the loudspeaker output has been muted. Pressing the volume control toggles the loudspeaker cut.

AUXILIARY VOLUME CONTROL

The auxiliary panel volume control comprises a rotary encoder with push-switch action and a tri-color loudspeaker volume indicator LED. The LED volume indications are:

- Red - high volume
- Amber - intermediate volume
- Green - low volume

The auxiliary volume control sets the volume on the optional external loudspeaker that can be connected to the auxiliary audio port on the rear of the panel.

Turning the volume control clockwise increases the loudspeaker volume and turning it anticlockwise decreases loudspeaker volume; the indicator LED will indicate the loudspeaker level.

LISTEN AGAIN REPLAY

Pressing the auxiliary volume control switch momentarily activates the ‘Listen Again’ feature that will replay the last stored audio (this feature is configured in ECS under Panel Options). A value of 0 will disable this option.
UP/DOWN VOLUME BUTTONS

Below each key display is a pair of buttons to adjust the volume on that connection. The left button reduces the volume and the right button increases the volume.

The buttons are also used to adjust some settings that are accessed through the panel menu such as sidetone gain (see “Level Adjust Menu” on page 1-18).

KEYPAD (2RU PANELS ONLY)

The keypad on the 2RU lever key and pushbutton panels may be used to access certain menu pages directly (as a shortcut) and to enter dialcodes to dial out via a telephone interface such as a TEL-14 interface unit.

The menu shortcuts available from the keypad are:

• 1 - Dial Menu
• 5 - Local Key Assign Menu

When the dialpad keys are used to access a menu function the menu indicator lights.

PTT OPERATION

PTT operation on V-Series panels may use either a PTT switch on the panel headset or the auxiliary audio connector on the rear of the panel. The operation of PTT on the V-series panels is determined by the Headset PTT Function set in ECS. The Headset PTT Function may be set to one of three options.

• No Function - headset PTT does not cause any talk or listen routes to become active.

• Activate All Talk Keys - headset PTT will cause the audio routes on all latched talk keys to become active. Unlatched talk keys and listen keys will not become active. See sections below for details of latched keys or pushbuttons.

• Activate Two-Way Radio Talk Keys - headset PTT will cause the audio routes on all latched talk keys attached to two-way radios to become active. Unlatched talk keys and listen keys will not become active. See sections below for details of latched keys or pushbuttons.

LEVER KEY PANEL OPERATION

Lever keys can have both Talk and Listen labels assigned to the same key in ECS and can be used as Talk or Listen keys depending on whether the key is moved up or down. If the key is moved upwards then the listen function is selected while if the key is moved down then the talk function is selected.
The lever keys normally default to latching unless the non-latching option is configured in ECS under Global Settings (Latch Disable set to True). In this case if the lever key is momentarily pressed up or down it will latch whereas if it is held in the talk or listen position for more than 200 ms it will not latch and the connection will terminate as soon as the key is released.

When the key is inactive the talk/listen status indicator below the key will display amber; when a talk path is active (key pressed down) the status will indicate red and when a listen path is active (key pressed up) the status will indicate green.

An incoming call to the panel will cause the reply key indicator to flash red; to take the call press the reply key down or to clear the call press the reply key up.

**PUSHBUTTON PANEL OPERATIONS**

Pushbuttons can only act as talk or listen keys depending on the function assigned to them in ECS. The pushbuttons normally default to latching unless the non-latching option is selected in ECS under Global Settings (Latch Disable set to True). In this case if the pushbutton is momentarily pressed it will latch whereas if it is held for more than 200 ms it will not latch and the connection will terminate as soon as the key is released.

When a pushbutton key is inactive (no talk or listen connection established) the pushbutton will illuminate dim red or green depending on whether it has been configured in ECS as a talk (red) or listen (green) route or a talk and listen (amber) route.

When a pushbutton is pressed to establish a route the illumination will change to bright red or green to indicate that a connection is established. To cancel the connection press the button and it will return to dim illumination.

An incoming call will be signalled by a flashing red reply pushbutton; to pick up the call press the reply pushbutton.

The audio block diagram for the V-Series panel is shown in Figure 1-11 below. This diagram shows all the allowed audio routes and valid crosspoints allowed by the V-Series panel.
Figure 1-11: V-Series Audio Block Diagram
PANEL MENU STRUCTURE

V-Series panels have a number of options accessed via a menu system. To enter menu mode press the menu button on the front panel to display the top level menu. The menu indicator LED will light and various menu options will be displayed on the key displays.

Note: Access to menu mode may be displayed on a panel by ECS.

To navigate the menu levels use the lever key or push button corresponding to the display showing the required menu item to select the option required. The selected menu options will then be displayed on the panel and the process is repeated until the panel item to be set or adjusted is reached. To return to the previous menu use the ‘REPLY’ key which will display the name of the current menu in inverse video.

For lever key panels in order to select a menu item the lever key should be pressed down (Talk); the up (Listen) direction is not active except in the case of the “View Keys” and “Local Keys” menus where both up and down (Talk and Listen) key presses will select the menu item.

Some menus can be accessed using the keypad on the 2RU panels. These are:

- 1 - Dial menu
- 5 - Local Key Assign menu

To scroll through lists of labels in sort groups use the ‘Up’ and ‘Down’ volume control keys.

To exit the menu options and return to the main page press the ‘Menu’ key on the front panel again.

TOP LEVEL MENU

To enter the menu system press the ‘MENU’ button on the front panel to display the top level menu. The blue LED will light to indicate the panel is now in menu mode. If the menu button is pressed when the panel is already in menu mode then the panel will exit menu mode and the LED will be extinguished.

![Figure 1-12: Main Menu Display for Rack Mount Panels](image-url)
Figure 1-13: Main Menu Display for Desktop Panels

The main menu options are:

- **SYS INFO** - access to menu options allowing panel keys and nearby panels to be viewed.
- **LOCAL PREF** - access to the menu for setting up preferences on the panel such as brightness levels, timeouts and audio levels.
- **SYS CONFIG** - provides access to the local panel configuration, input levels adjustment and output levels adjustment.
- **DIAL** - allows manual dialling on panel types without a keypad.
- **CALL** - display the CALL menu allowing labels to placed on the answerback stack to create a temporary user key.
- **DIAGNOSTIC** - access the diagnostic menu to display system information, reset the panel and test audio links.
- **SUPERVISE** - puts the panel into supervisor mode to supervise other panels. The Features Passcode must be entered in ECS under System Preferences and the supervise option must be enabled for the panel in ECS for this menu option to be displayed.
SYSTEM INFORMATION MENU

To select the ‘SYS INFO’ display use the lever key or pushbutton to display the system information menu.

The SYS INFO menu provides access to the following functions:

- VIEW KEYS - view the panel key setups.
- NEAR PNLS - list of panels configured as nearby panels in ECS.

View Keys Menu

To enter the ‘VIEW KEYS’ menu structure use the lever key or pushbutton to select the view keys function. The first level of the key information menus will be displayed.

Figure 1-14: System Information Display for Rack Mount Panels

Figure 1-15: System Information Display for Desktop Panels

Figure 1-16: View Keys Display for Rack Mount Panels
Each label displayed allows access to the configuration information for that label. To display the information use the corresponding talk/listen key to select the label and the information will be displayed.

**Key Info Menu**

- **Label 01**
- **Label 01 Alias**
- **Attributes**
- **Label entity**

- **KEY INFO**
- **Sys Name**

The items in italics are system and configuration dependant as follows:

- **Attributes** - may be Talk, Talk + Lstn, Talk + FL, Dual T+L, Listen or Force Lstn
Nearby Panels Menu

Selecting the ‘NEAR PNLS’ option on the main menu will display the labels associated with panels configured as ‘Nearby Panels’ in ECS. Panels designated as ‘Nearby Panels’ are within hearing distance of each other and an audio link between panels could result in an audio feedback loop. Audio paths to panels designated as nearby panels cannot be established.

![Figure 1-20: Nearby Panels Display for Rack Mount Panels](image1)

![Figure 1-21: Nearby Panels Display for Panels](image2)

Pressing the Up and Down buttons on the Reply key (NEAR PNLS) will scroll through the list of nearby panels.
LOCAL PREFERENCES MENU

Selecting the ‘LOCAL PREF’ option on the main menu will display panel setups that may be changed locally rather than by ECS.

The panel menu items are:

- **TIMEOUTS** - displays the timeouts setting menu.
- **LEVEL ADJ** - displays the menu to set the audio levels for the microphones, headset and loudspeaker.
- **BRIGHTNESS** - displays the brightness setup menu that allows the brightness of all labels and LEDs to be adjusted.
- **RESET XPTS** - displays the menu for resetting the panel crosspoints to default level.

### Timeouts

Selecting ‘TIMEOUTS’ from the local preferences menu will display the answerback and listen again timeouts setup menu.

The answerback timeout controls the length of time an unanswered call remains in the reply key stack. If the value is set to ‘OFF’ (0 seconds) or the function is disabled calls will remain in the reply key stack until actioned.

The listen again timeout controls the length of audio buffered within the panel that can be replayed using the listen again facility.
• ANSWERBACK - allows the panel answerback timeout to be set to a value from 0 (OFF) to 60 seconds in 10 second steps.
• DISABLE - selecting this items disables answerback timeout.
• LSTN AGAIN - allows the panel Listen Again time to be set to a value of 0, 5, 10 or 15 seconds. If the timeout is set to 0 the Listen Again facility is disabled (no audio recorded).

Level Adjust Menu
Selecting the 'LEVEL ADJ' menu item in the Local Pref menu will display the audio levels setup menu.

Figure 1-24: Timeout Display for Rack Mount Panels

Figure 1-25: Timeout Display for Desktop Panels

Figure 1-26: Level Adjust Display for Rack Mount Panels
Adjusts the audio gain values for gooseneck panel microphone and headset microphones to preset levels of 20, 40, 50, 60, 70 or 80 db.

• GN MIC - gooseneck microphone gain setting. This is adjusted using the up/down controls.
• HS MIC - headset microphone gain setting. This is adjusted using the up/down controls.
• LS DIM - how much the loudspeaker is dimmed when a talk key is pressed (-70dB, -20dB, -12dB, -6dB). This is adjusted using the up/down controls.
• L SIDETONE - headset left sidetone level. The key is illuminated red when the left sidetone is on. To toggle left sidetone between ON and OFF press the key (pushbutton) or press the lever key down. Use the up/down controls to adjust the left sidetone level.
• R SIDETONE - headset right sidetone level. The key is illuminated red when the right sidetone is on. To toggle right sidetone between ON and OFF press the key (pushbutton) or press the lever key down. Use the up/down controls to adjust the right sidetone level.

*Note: When a monaural headset is being used only the headset left sidetone adjust operates; the right sidetone adjust has no effect.*

**Brightness Menu**
Selecting the ‘BRIGHTNESS’ item in the Local Pref menu will display the brightness adjustment menu.
Pressing the Up/Down buttons on the reply key will alter the brightness of the displays. The displays will automatically dim after the time limit set in ECS Panel Options (from 0 to 60 minutes) where 0 minutes sets the panel display to dim mode permanently. After a further period the display will change to provide a screensaver to increase the lifetime of the displays.

**Reset Crosspoints Menu**

**Reset Xpts**

Selecting ‘RESET XPTS’ from the local preferences menu displays the reset crosspoints menu offering the option to reset the panel crosspoints to their default levels.
Press the ‘YES’ key or pushbutton to reset the panel crosspoint levels to their default settings or the ‘NO’ key to cancel the operation and return the user to the local preferences menu.

SYSTEM CONFIGURATION MENU

Selecting ‘SYS CONFIG’ from the top level menu will display the system configuration menu for the panel.

• LOCAL PNL - displays the menu to configure the local panel and modify the attributes of the keys.
• INPUT LVLS - displays the menu to set input audio levels.
• OUTPUT LVL - displays the menu to set output audio levels.

Local Panel Menu

Selecting the ‘LOCAL PNL’ item in the system configuration menu will display the local panel configuration menu.

<table>
<thead>
<tr>
<th>LOCAL KEYS</th>
<th>ATTRIBUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>LOCAL PNL</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1-34: Local Panel Menu for Rack Mount Panels

<table>
<thead>
<tr>
<th>LOCAL KEYS</th>
<th>ATTRIBUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>LOCAL PNL</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1-35: Local Panel Menu for Desktop Panels

• LOCAL KEYS - displays the menu to assign keys on the panel.
• ATTRIBUTES - displays the attributes menu to allow the properties of the panel keys to be set.

Attributes Menu

Selecting the ‘ATTRIBUTES’ item from the local panel menu will display the attributes menu.

<table>
<thead>
<tr>
<th>Panel Label</th>
<th>TALK</th>
<th>TALK + LSTN</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATTRIBUTES</td>
<td>TALK + FL</td>
<td>LISTEN</td>
<td>DUAL T + L</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1-36: Panel Attributes Menu for Rack Mount Panels
This menu allows the user to set the attributes of a panel key to TALK, LISTEN, TALK + LSTN, TALK + FL or DUAL T+L.

- TALK sets a talk from this panel to a destination with no automatic listen to the destination.
- LISTEN sets a key to listen to the source without talking to the destination at the same time. Use as a monitor key. Press the volume level up/down buttons under the display to increase listen level.
- TALK + LSTN sets a talk key with listen. Press the volume level up/down buttons under the display to increase or mute the listen level.
- TALK+FL sets a talk key with permanently made listen. Press the volume level up/down buttons under the display to increase or mute the listen level.
- DUAL T+L sets a Dual talk and listen key (use only on pushbutton panel types). This makes the pushbutton activate a Talk and Listen on a press and hold or latch a Listen with a short press and release (less than 200ms) on the same pushbutton.
LOCAL KEYS MENU

The ‘LOCAL KEYS’ menu allows the panel user to select a key and display what is configured for the talk and listen keys.

![Figure 1-38: Local Key Assign Menu for Rack Mount Panels](image)

Selecting a label on the ‘LOCAL KEYS’ menu will display the ‘KEY ASSIGN’ menu allowing labels to be assigned to keys. Alternatively pressing the ‘5’ button on the panel keypad (2RU panels only) will go directly to the Key Assign menu.

Pressing a label lever key down will select and show what is configured on the talk key while pressing the key up will show what is configured on the listen key. Pressing a push button key will display the labels.

![Figure 1-39: Local Key Assign Menu for Desktop Panels](image)

![Figure 1-40: Key Assign Menu for Rack Mount Panels](image)
The highlight bar will appear below the first label to the right of the 'KEY ASSIGN' key.

Pressing the up/down buttons on the reply key will move the highlight bar to the next key to the right (up) or left (down). Alternatively select the next label by pressing the label button or lever key. The highlight bar will then be shown on this label to indicate it is the currently selected label.

Pressing the 'CLEAR' key will remove the highlighted label and shuffle the labels to the left.

Pressing the 'GET LABEL' key will display the possible Sort Groups the user can select a label from. Once chosen the original label will be replaced with the selected label.

Pressing the 'OK' key will confirm the settings and return to the 'LOCAL PNL' menu.

Get Label Menu

Selecting the 'GET LABEL' item from the 'KEY ASSIGN' menu will display the 'GET LABEL' menu showing the available sort groups.
The Up/Down buttons on the reply key are used to scroll through the list of available Sort Groups (see the Eclipse Configuration Menu for information on setting up Sort Groups). To select a Sort Group from the list use the pushbutton or lever key corresponding to the display window. The Sort Group menu will be displayed for the selected Sort Group.

**Figure 1-43: Get Label menu for Desktop Panels**

**Figure 1-44: Sort Group Menu for Rack Mount Panels**

**Figure 1-45: Sort Group Menu for Desktop Panels**
The Sort Group menu items are:

- Label - label of currently displayed key in sort group.
- Alias Label - alias of label currently displayed.
- START - takes the user to the start of the current sort group.
- MIDDLE - takes the user to the middle of the current sort group.
- END - takes the user to the end of the current sort group.
- OK - accept the currently displayed item and place it in the KEY ASSIGN menu.

To use the Sort Group membership menu:

The REPLY key displays the label of the selected Sort Group. The top row shows the first member of the Sort Group.

Pressing and releasing the down button on the reply key will step through the Sort Group.

Pressing and releasing the Up button on the reply key will step up through the Sort Group.

Selecting the ‘START’ key will take the user to the start of the Sort Group.

Selecting the ‘MIDDLE’ key will take the user to the middle of the Sort Group.

Selecting the ‘END’ key will take the user to the end of the Sort Group.

Pressing the ‘OK’ key will accept the currently displayed item and place it in the KEY ASSIGN menu and take the user to the KEY ASSIGN menu.

**Input Levels**

The ‘INPUT LVLS’ menu displays the sort groups available to the panel. Selecting one of the sort groups displays the membership menu for that sort group.

![Figure 1-46: Input Levels Menu for Rack Mount Panels](image-url)
Figure 1-47: Input Levels Menu for Desktop Panels

Holding down the Up button on the reply key will step through the sort group 10 labels at a time.

When a sort group is selected by pressing the corresponding lever key or pushbutton the sort group membership menu is displayed.

Figure 1-48: Sort Group Members Menu for Rack Mount Panels

To use the Sort Group membership menu:

The REPLY key displays the label of the selected Sort Group. The top row shows the first member of the Sort Group.

Pressing and releasing the down button on the reply key will step through the Sort Group.
Pressing and releasing the Up button on the reply key will step up through the Sort Group.

Selecting the ‘START’ key will take the user to the start of the Sort Group.

Selecting the ‘MIDDLE’ key will take the user to the middle of the Sort Group.

Selecting the ‘END’ key will take the user to the end of the Sort Group.

Pressing the ‘OK’ key will take the user to the INPUT LEVEL menu and uses the selected label if it is a port label.

The +10 dB represents the input level for the audio source of the label and may be adjusted using the up and down buttons below the display.

Selecting the ‘RESET’ key will reset the input levels back to the default of 0dB.
Output Levels

Output levels are set from the ‘OUTPUT LVL’ menu.

<table>
<thead>
<tr>
<th>SG:01Label</th>
<th>SG:03Label</th>
<th>SG:05Label</th>
<th>SG:07Label</th>
<th>SG:09Label</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUTPUT LVL</th>
<th>SG:02Label</th>
<th>SG:04Label</th>
<th>SG:06Label</th>
<th>SG:08Label</th>
<th>SG:10Label</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1-52: Output Level Configuration Menu for Rack Mount Panels

When a sort group is selected from the list by pressing the corresponding lever key or pushbutton on the output levels menu the sort group membership menu is displayed.

<table>
<thead>
<tr>
<th>Label</th>
<th>Alias Label</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SG:02Label</th>
<th>START</th>
<th>MIDDLE</th>
<th>END</th>
<th>OK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1-54: Sort Group Output Levels Menu for Rack Mount Panels
To use the Sort Group menu:

The REPLY key displays the label of the selected Sort Group. The top row shows the first member of the Sort Group.

Pressing and releasing the Down button on the reply key will step through the Sort Group.

Pressing and releasing the Up button on the reply key will step up through the Sort Group.

Selecting the ‘START’ key will take the user to the start of the Sort Group.

Selecting the ‘MIDDLE’ key will take the user to the middle of the Sort Group.

Selecting the ‘END’ key will take the user to the end of the Sort Group.

Pressing the ‘OK’ key will take the user to the OUTPUT LEVEL menu and uses the selected label if it is a port label.
Figure 1-57: Output Level Set Menu for Desktop Panels

The ‘+ 5dB’ represents the input level for the audio source of the label and may be adjusted using the up and down buttons below the display.

Selecting the ‘RESET’ key will reset the input levels back to the default of 0dB.

*Note: Input and output settings can only be made for the local matrix. Gains for other matrices can be achieved within the ECS management software.*

DIAGNOSTIC MENU

The ‘DIAGNOSTIC’ menu is accessed from the top level menu.

![Diagram of Diagnostic Menu for Rack Mount Panels]
The diagnostic menu items are:

- SYSTEMDATA - selecting this item will display the system data menu.

- TEST TONE - selecting this will turn the LED indicator red and send a 1KHz test tone to the matrix output. Selecting Test Tone again will disable the tone and the red LED will be extinguished. Exiting the diagnostic menu will also turn off the Test Tone.

- RESET PANL - selecting ‘RESET PANL’ will reset the panel to factory defaults. It will also delete all locally assigned keys and reset all crosspoint levels to the factory default (0dB). Panel brightness will be reset to the brightness level configured for that panel in ECS.

- TEL RELEASE - selecting ‘TEL RELEAS‘ returns the user to the Direct Access Key (DAK) page and if a telephone key is then pressed the line will be released. Note that the panel must also have Remote Line Release enabled in ECS Advanced Settings for this to take effect.

The version number displayed in the diagnostic menu is that of the panel application only. In order to obtain the complete version numbers of all panel firmware and the IP address of a V-Series panel the panel must be taken off line. The panel will then display additional information for panel firmware and the IP address.
The information given (from the example above) is:

- M 0.20.0 - module application code version.
- U 0.0.11 - panel boot loader version.
- K 2.6.16 - panel kernel version.
- A 0.19.0 - panel application version.
- 172.16.86.101 - panel IP address (if set, otherwise blank).

This applies to main panels only; expansion panels do not display this information.

Alternatively the information can be obtained via ECS (see ECS manual for details).

**System Data**

Selecting the ‘SYSTEMDATA’ item displays the system information on the panel.
The system data menu displays the following information:

- **LD** - Time and date of last map download.
- **MAP** - Name of map.
- **NET** - Systems configured and connected to the panel
- **PORT** - Port number of the panel
- **Label** - Panel label

**CALL MENU**

The call menu will display a list of sort groups from which a label can be selected and placed on the answerback stack to create a temporary key.
Figure 1-65: Call Menu for Desktop Panels

Use the Up/Down buttons on the reply key to scroll through the available sort groups and select the name of the sort group containing the required label using the talk/listen key or pushbutton. This will display the sort group label selection menu.

Figure 1-66: Call Sort Menu for Rack Mount Panels

The selected sort group name is displayed on the reply key and the first member of the sort group is displayed on the top row of the display.

Figure 1-67: Call Sort Menu for Desktop Panels
Selecting ‘START’ will take the user to the start of the sort group, selecting ‘MIDDLE’ will take the user to the middle of the sort group and selecting ‘END’ will take the user to the end of the sort group.

Selecting ‘OK’ will select the currently displayed member of the sort group and place it at the top of the answerback stack and return the user to the main CALL menu.

To call the selected label the user should press the Reply key to take the label from the answerback stack and call.

**DIAL MENU**

The dial menu is provided on the 1RU panels to allow users to dial telephone numbers; the 2RU panels have a dial pad for dialling telephone numbers.

The display dialler is also available on 2RU panels via the ‘DIAL’ menu.

![Dial Menu for Rack Mount Panels](image1)

![Dial Menu for Desktop Panels](image2)

Pressing the Up or Down buttons under the numbers will dial the numbers as they are selected and enter them into the dial display on the lower line shown as ‘XXXX’. Telephone numbers of up to 30 digits may be displayed.

If the initial number dial is unsuccessful selecting the ‘RELEASE’ key will release the telephone line.

Selecting ‘REDIAL’ key will dial the number saved on the lower line of the display.
The ‘RELEASE’ and ‘REDIAL’ keys perform the same function on 2RU panels whether the keypad or panel keys are used to dial the number.

**SUPERVISE MENU**

The supervise menu allows the user to select another panel to supervise from the panels listed in the sort groups. The target panel cannot be the current panel (an error message will be displayed if this is selected) and must be a V-Series panel with the same number of keys or fewer keys than the supervising panel.

![Figure 1-70: Supervise Menu for Rack Mount Panels](image)

Use the Up/Down buttons of the reply key to scroll through the sort groups and the talk/listen key or pushbutton to select the required sort group. The sort group menu will then be displayed for that sort group.

![Figure 1-71: Supervise Menu for Desktop Panels](image)

![Figure 1-72: Supervise Label Menu for Rack Mount Panels](image)
Figure 1-73: Supervise Label Menu for Desktop Panels

The selected sort group name is displayed on the reply key and the first member of the sort group is displayed on the top row of the display.

Selecting ‘START’ will take the user to the start of the sort group, selecting ‘MIDDLE’ will take the user to the middle of the sort group and selecting ‘END’ will take the user to the end of the sort group.

Selecting ‘OK’ will select the currently displayed member of the sort group and place the panel corresponding to the label into supervised mode. If it is unable to supervise the panel an error screen is displayed.

Figure 1-74: Supervisor Error Message for Rack Mount Panels
When the panel is actively supervising another panel the key displays on both panels are inverted to indicate the current state i.e. instead of light text on a dark background the key displays will show dark text on a light background.

When in Supervisor Mode the V-Series panel can mimic and control any 'target' V-Series panel in the local system. This involves remote actioning of key presses and displaying a mimic of the target panel's display. Whilst in Supervisor Mode all key presses are processed at the target panel.

V12LD, V24LD, V12PD and V24PD panel types can be selected as target panels. When a Supervisor Panel selects any other Matrix Plus 3 or 4000 Series II panels as a target panel an error message is displayed on the supervisor panel.

The following target panel features can be mimicked or controlled:

- Audio to the target panel
- Display text
- Display level control bars
- Key presses and releases
- Cross-point level control
- Microphone gain
- Loudspeaker cut
- Head-set select
- Microphone mute
- Side-tone control
General purpose inputs and outputs are not mimicked or remotely controllable as they may not be connected to the same hardware on the supervisor and target panels.

In particular, some of the general-purpose inputs and outputs have dedicated functions on a Supervisor Panel. Busy Feedback is not mimicked.

Pushbutton panels can supervise lever key panels but will not be able to mimic or control lever key up assignments, only the lever key down assignments will be supervised.

To exit supervisor mode the user must hold down the ‘menu’ button on the keypad for at least 3 seconds. The key displays on both panels will then return to the normal (non-supervised) state.

A supervisor hot key can be configured in ECS which will allow rapid entry to supervisor mode. When the supervise hot key is selected the labels to panels which may be supervised will flash and the reply key will display ‘SUPERVISE’ in highlighted mode. Pressing the ‘SUPERVISE’ key will exit this mode.

Use the key or pushbutton to select one of the available panels to supervise and the panels will enter supervise mode.

To exit supervise mode press and hold the menu button.

**SHIFT MENU**

Pressing the ‘SHIFT’ key will display the shift menu to allow access to the eight shift pages. Pressing the shift key for less than 500ms will display the last selected shift page allowing the user to toggle between the main and shift page quickly. Pressing the shift key for more than 500ms will display the shift page menu.

```
<table>
<thead>
<tr>
<th>Main</th>
<th>Shift 01</th>
<th>Shift 03</th>
<th>Shift 05</th>
<th>Shift 07</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIFT</td>
<td>Shift 02</td>
<td>Shift 04</td>
<td>Shift 06</td>
<td>Shift 08</td>
</tr>
</tbody>
</table>
```

*Figure 1-76: Shift Page Menu for Rack Mount Panels*
The V-Series panels have up to nine pages of keys with page 0 being the main page by default. Pressing and holding the shift page button will display the shift page menu with the currently selected shift page indicated by a bar below the label.

The shift page labels will flash if there is an unanswered call on any key on the page. The talk/listen key or pushbutton is used to select a shift page and pressing and releasing the shift page button again will display the last selected shift page.

Pressing and releasing the shift page button will switch between the main page (page 0) and the last selected shift page.

*Note: Shift pages are only available on main panels and not on expansion panels.*
Figure 1-78: V-Series Menu Structure
CALL SIGNALLING
Pressing and holding both the Up and Down buttons of the label key will send a call signal to the destination label if the destination has been configured by ECS to allow call signalling tones.

DIAL PAD AND DTMF DIAL
The 2RU and desktop panels have a dial pad which can be used for DTMF dialling. To use the keypad for dialling press the ‘1’ key on the keypad to enter dial mode. Further key presses on the keypad will send DTMF tones to the matrix and comfort tones to the panel speaker or headset and the reply key will display ‘DIAL’.

Dial mode will automatically timeout after five seconds if no further digits are pressed. If the reply key or menu button is pressed dial mode will exit.

Communication-Error Indicator
If the panel should lose data communication with the matrix frame:

- It will display the message “Waiting for Eclipse”.

When data communication is restored, the panel will automatically return to normal operation.

Level Controls and Indicators
Main Level Control
A rotary encoder to adjust the speaker volume and an associated three-colour indicator to indicate the level setting (green for minimum setting, orange for midrange setting and red for maximum setting). There is also a separate red LED to indicate loudspeaker cut. The indicator shows red when the loudspeaker is muted.

The main level control has a momentary push action used for loudspeaker cut.

Auxiliary Level Control
A rotary encoder to adjust the auxiliary speaker volume and an associated three-colour indicator to indicate the level setting.

The auxiliary level control has a momentary push action for listen again and view listen labels on lever key panels if held.

LED Tallies
LED tallies indicate the status of the associated key or audio route. In the case of lever key panels the LED tallies are set under the display window for the switch they are associated with while in the case of push button panels the push buttons themselves act as tallies and
there are no separate LEDs. Pressing and holding the Aux Level Control button displays the listen labels on the lever key panels.

The signalling conventions for the indicator tallies are:

- Indicator on continuous bright red or green - audio route is active
- Indicator off - key is not configured or the menu option is not selectable
- Indicator flashing - user action requested or incoming call or call signal
- Indicator dim red - key is configured as a talk key or menu option is not selectable
- Indicator bright red - panel to matrix audio route established
- Indicator dim green - key is configured as a listen key or menu option is selectable
- Indicator bright green - matrix to panel audio route established

Control Buttons

There are four buttons provided on the V-Series to control the panel microphone, key pages, menu access and headset. The headset select button toggles between the panel microphone and the headset microphone.

Microphone Button

The microphone button enables and disables the panel microphone. A red indicator is lit when the panel microphone is on.

Shift Page Button

The shift page button allows the operator to swap between pages on the panel. A red indicator shows when a shift page has been selected.

Menu Button

The menu button displays the menu and allows navigation of the menu using the talk/listen keys.

Headset Pushbutton

The headset button enables and disables the panel headset. A red indicator shows when the headset is selected. Enabling the headset microphone will disable the panel microphone.

Keypad

The V24LD, V24PD and V12LDD panels also include a keypad providing 0-9, * and # keys. The keypad can be used as a shortcut to access certain menus.
• 1 - Dial menu
• 5 - Local Key Assign menu

**Level Adjustment Encoders**

**Listen Level Adjustment**
The listen level for each key is adjusted using the level adjust buttons situated below the display for that key.

**Headset Connector**
The headset connector provides a front-panel connection for a headset. Plugging in a headset will initially cause the panel to switch to headset-microphone operation and will turn the front panel and aux speakers off and the front panel microphone off. The LS Cut and Mic indicators will reflect the devices being disabled.

Unplugging the headset will cause the panel to switch to panel-microphone operation and will turn the speakers on. If the main speaker has already been cut before the headset was plugged in it would remain muted but when the headset was unplugged it would be enabled regardless of its previous state. Also, if the main volume switch is pressed while the headset is plugged the automatic LS Cut will be overridden and audio will be output on the main speaker as well as the headset. Similarly if the auxiliary speaker cut is manually overridden with the headset plugged in audio will be output through the auxiliary speaker.

If the Headset Select button is pressed when the headset is plugged in the headset audio will be disabled but audio output to the main and auxiliary speakers will not be automatically enabled, therefore if they are disabled there will be no audio output to headset or speaker.

**Talk/Listen Lever Keys and Indicators**
The following section describes the operation of the talk/listen lever keys and their associated indicators.

**Lever Key Operation**
The lever keys operate as both talk and listen selectors. Pressing a lever key down accesses a talk label; pushing it up accesses a listen label. Pushing the lever key down and quickly releasing it (less than 200 ms) will “latch” the key and the talk path will stay active until it is pressed again. Pressing and holding a lever key down causes the talk path to stay active only for as long as it is held down. The listen function operates in the same manner.

To prevent the lever key on the panel from latching in the talk position (local latch disable), or to prevent any panel from latching a talk to the panel (global latch disable) use the configuration program (ECS).
Talk and Listen Indicators

When a talk path is active, the talk LED lights bright red continuously. When a listen path is active, the listen LED lights bright green continuously.

Talk/Listen Pushbuttons and Indicators

The following section describes the operation of the talk/listen pushbuttons and their associated indicators.

Pushbutton Operation

The pushbuttons operate as talk or listen selectors depending on the key configuration. A combo key configuration will allow talk and listen or talk and forced listen. The pushbuttons are illuminated to show the talk or listen status. Pressing the button and quickly releasing it (less than 200 ms) will “latch” the button and the talk or listen path will stay active until it is pressed again. Pressing and holding a pushbutton down causes the talk path to stay active only for as long as it is held down. The listen function operates in the same manner.

To prevent a pushbutton on the panel from latching in the talk position (local latch disable), or to prevent any panel from latching a talk to the panel (global latch disable) use the configuration program (ECS).

Talk and Listen Indicators

The pushbuttons are illuminated to act as talk or listen indicators. The colors used to indicate status are:

- Red - Talk
- Green - Listen
- Amber - Talk and Listen

Monitoring/Eavesdropping Indicators

If any other panel begins monitoring a panel a beep (the monitoring-alert tone) will sound at the panel and the panel monitoring symbol will be displayed on the reply key.

To inhibit the monitoring-alert tone, use the configuration program ECS.

Call-Waiting Indicator

If a panel receives an incoming call from another panel and the called panel has a button configured as a route to the calling panel, the red LED on that button will flash rapidly (another color may be used if the panel has been configured for 4000 Series II emulation). This flashing is a call-waiting tally. To answer the incoming call, push the indicated talk selector. The call-waiting tally will be cleared when the call is answered or after the call is terminated and the answer-back, auto-clear time out lapses.
Regardless of whether a selection is programmed with a caller’s label, the label will be placed in the answer-back stack (unless reply key bar is set for that label in ECS).

**In-Use Tally Indicator**

If a selector is assigned to a label and another panel is currently using that label, the key indicator LED or pushbutton will double-flash once per second to indicate the label is in use. This tally must be enabled from the configuration software.

**Telephone Off-Hook Tally Indicator**

When a telephone interface is assigned to a talk selector, the talk LED will flash once per second if that telephone is off-hook. This tally must be enabled from the configuration program.

**Radio Receiver Active Tally Indicator**

When a two-way radio interface port is assigned to a talk selector, the key indicator LED or pushbutton will flash once per second when that radio’s receiver is active. This tally must be enabled from the configuration program.

**Audio Presence Tally Indicator**

When a label is assigned to a listen selector, the LED will flash green once per second to indicate someone is talking on that channel. This tally must be enabled from the configuration program.

**REAR-PANEL CONNECTORS**

The rear panel connectors on the V Series main panels are:

- Power
- GPIO connector (DB25F)
- LAN connector (RJ45)
- Auxiliary Audio (DB25M)
- Matrix port (RJ45)
- Expansion panel (RJ45)

The rear panel connectors on the V Series expansion panels are:

- Expansion panel in (RJ45)
- Expansion panel out (RJ45)

The rear panel connectors are described in detail in the installation chapter.
INSTALLATION

INTRODUCTION

This chapter describes the installation of the V Series panels, including:

- Panel placement
- Wiring
- Mains AC power
- Adjustments
- Configuration
- Accessory panels

MOUNTING PANELS

Locate all panels at comfortable heights for operation and leave at least 2 inches (51 mm) of clearance behind the rear of the panel’s chassis to allow for cable connectors.

Expansion panels that are intended to expand or enhance main panel operation are usually mounted next to or near the panel with which they are associated. Leave at least 2 inches (51 mm) of clearance behind the rear of the panel to allow for cable connectors.

Expansion panels can be connected to the main panel in a daisy chain using cables not more than 16 ft (5 m) long between each panel. The cable length of any daisy chain of panels must not exceed 24 ft (7.5 m) in total.

The expansion panels should be connected using straight through 8-way shielded CAT5 cable with RJ45 connectors.

WIRING

This section provides detailed wiring diagrams for all the V series panel wiring systems.

Eclipse uses shielded CAT5 cable between the panel and the frame and between panels and expansion panels using the industry standard RJ-45 connector. Refer to Installing an Eclipse Matrix System: An Overview for RJ-45 connector installation and use, and the type of cable needed for connection between panels and frames and between panels and expansion panels.

Leave sufficient clearance behind the panel to accommodate the external power supply if it is to be fitted to the back of the panel using the clips provided.
Connections to external devices are via the GPIO connector using the DB-25F connector and the auxiliary audio connector using the DB-25M connector.

The external panel power supply is normally held in a mounting bracket on the rear of the panel. If required the power supply may be situated away from the panel and the power supply mounting bracket removed from the panel in order to save space.

The following sections describe connecting the panel to the matrix frame, all the connections between the panels and local devices and connections between panels and expansion panels. Each of the following sections describes cable and panel connector wiring:

• Mains power cord
• Power connector
• Digital matrix frame to panel wiring
• Panel to GPIO connector wiring
• Panel to Auxiliary Audio I/O wiring
• Expansion panel wiring
• LAN connector wiring

Figure 2-1: V Series Panel Rear Connectors

Figure 2-2: V Series Expansion Panel Rear Connectors
MAINS POWER CORD
The V-Series panels are powered by an external power supply which may be mounted in a clip on the back of the panel or located away from the panel. If the power supply is not mounted in the clip on the rear of the panel the clip can be detached to save space by removing the two mounting screws.

The cord to connect the external power supply to the mains supply must conform to the following:

- The mains power cord shall have an IEC C13 connector at one end and a mains power plug at the other end.
- An IEC C13 plug has three pins, the centre pin carrying the earth / ground. The other two pins carry neutral and live circuits.
- The conductors of the mains cords shall have adequate cross-sectional area for rated current consumption of the equipment.
- The mains plug that connects to the mains supply must be approved for use in the country where the equipment is to be used.
- The mains power cord must be an IEC mains power cord complying with standard IEC60320; IEC320/C13.
- Mains power cords used in the U.S. must also comply with standard UL817.

POWER CONNECTOR WIRING
The power supply is a 4 pin socket which is connected to an external 24V power supply. The pinout for the connector is shown below.

![Power Supply Socket Diagram](image-url)
The analog audio RS-422 data communications module uses a 4-pair wiring scheme between the frame and panels. This module requires an MVX-A16 card in the frame.

Four-pair analog wiring is wired with shielded CAT5 RJ-45 cable.

- Pair 1 transmits analog audio from the matrix port to the panel.
- Pair 2 transmits RS-422 data from the panel back to the matrix card port.
- Pair 3 transmits analog audio from the panel to the matrix card port.
- Pair 4 transmits RS-422 data from the matrix port back to the panel.

**POWER CONNECTOR PINOUT**

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not connected</td>
</tr>
<tr>
<td>2</td>
<td>24VDC</td>
</tr>
<tr>
<td>3</td>
<td>Not connected</td>
</tr>
<tr>
<td>4</td>
<td>0V</td>
</tr>
</tbody>
</table>

**ANALOG MATRIX FRAME TO PANEL WIRING**
MATRIX PANEL GPIO CONNECTOR WIRING

Most input/output devices (other than the matrix, expansion panels and auxiliary audio devices) are connected to the panel via the GPIO connector.

The following sections discuss how to wire the various functions available on the GPIO connector.
### GPIO Connector Pinout

<table>
<thead>
<tr>
<th>PIN</th>
<th>Description</th>
<th>PIN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Relay 1 output Normally Closed</td>
<td>14</td>
<td>Relay 1 output Common</td>
</tr>
<tr>
<td>2</td>
<td>Relay 1 output Normally Open</td>
<td>15</td>
<td>Relay 2 out Normally Closed</td>
</tr>
<tr>
<td>3</td>
<td>Relay 2 output Common</td>
<td>16</td>
<td>Relay 2 output Normally Open</td>
</tr>
<tr>
<td>4</td>
<td>not connected</td>
<td>17</td>
<td>not connected</td>
</tr>
<tr>
<td>5</td>
<td>not connected</td>
<td>18</td>
<td>not connected</td>
</tr>
<tr>
<td>6</td>
<td>not connected</td>
<td>19</td>
<td>not connected</td>
</tr>
<tr>
<td>7</td>
<td>not connected</td>
<td>20</td>
<td>5V</td>
</tr>
<tr>
<td>8</td>
<td>0V</td>
<td>21</td>
<td>5V</td>
</tr>
<tr>
<td>9</td>
<td>0V</td>
<td>22</td>
<td>Opto-isolated input A1</td>
</tr>
<tr>
<td>10</td>
<td>Opto-isolated input B1</td>
<td>23</td>
<td>Opto-isolated input A2</td>
</tr>
<tr>
<td>11</td>
<td>Opto-isolated input B2</td>
<td>24</td>
<td>Opto-isolated input A3</td>
</tr>
<tr>
<td>12</td>
<td>Opto-isolated input B3</td>
<td>25</td>
<td>Opto-isolated input A4</td>
</tr>
<tr>
<td>13</td>
<td>Opto-isolated input B4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Programmable Relay Contacts

Each panel includes two relays controlled by the matrix and independent of the local panel function. These relays can be assigned to any label(s) in the system, which will activate whenever a talk or listen is set to that label(s). If activating a relay is the only action desired, assign the relay to a Control label. See the *Eclipse Configuration System Manual* for more details.
The relay can activate an external device, such as an applause light in a studio, a cue light, or a security door lock. Any programmable relay in the system can be activated from any panel in the system, including a direct-inward-access caller. Figure 2-5 on page 2-5 shows the wiring of the relay contacts to the GPIO connector.

Both normally open and normally closed contacts are provided. They are rated at 1 Amp at 24 V DC. This relay is not designed for switching mains AC line voltage. To switch an external device running on mains AC line voltage, use an external relay (or other switching mechanism) activated by this relay.

**Opto-Isolated Inputs**

Each main panel provides two opto-isolated inputs using the GPIO interface. Each input has an operating range of 4V to 30V DC or AC. These inputs can be used for user programmable functions set up by ECS to execute other actions within the system such as switching a microphone on or off.

**AUXILIARY AUDIO CONNECTOR**

The auxiliary audio connector allows additional audio inputs and outputs to be connected to the panel.

![Figure 2-6: Auxiliary Audio Connector](image)

**AUXILIARY CONNECTOR PINOUT**

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Headset 2 MIC +ve</td>
<td>14</td>
<td>Headset 2 MIC -ve</td>
</tr>
<tr>
<td>2</td>
<td>Headset 2 Left Ear</td>
<td>15</td>
<td>Headset 2 Left Ear Ground</td>
</tr>
<tr>
<td>3</td>
<td>Headset 2 Right Ear</td>
<td>16</td>
<td>Headset 2 Right Ear Ground</td>
</tr>
<tr>
<td>4</td>
<td>Headset 2 PTT 1</td>
<td>17</td>
<td>Headset 2 PTT 2</td>
</tr>
<tr>
<td>5</td>
<td>0V</td>
<td>18</td>
<td>0V</td>
</tr>
</tbody>
</table>
LAN CONNECTOR

The LAN connection is an industry standard RJ45 socket that allows the panel to be connected to a network or the ethernet port of a PC.

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0V</td>
<td>19</td>
<td>0V</td>
</tr>
<tr>
<td>7</td>
<td>External Output 2 +ve</td>
<td>20</td>
<td>External Output 2 -ve</td>
</tr>
<tr>
<td>8</td>
<td>External Output 1 +ve</td>
<td>21</td>
<td>External Output 1 -ve</td>
</tr>
<tr>
<td>9</td>
<td>Hot MIC Output +ve</td>
<td>22</td>
<td>Hot MIC Output -ve</td>
</tr>
<tr>
<td>10</td>
<td>Auxiliary Loudspeaker Output +ve</td>
<td>23</td>
<td>Auxiliary Loudspeaker Output -ve</td>
</tr>
<tr>
<td>11</td>
<td>External Input 2 +ve</td>
<td>24</td>
<td>External Input 2 -ve</td>
</tr>
<tr>
<td>12</td>
<td>External Input 1 +ve</td>
<td>25</td>
<td>External Input 1 -ve</td>
</tr>
<tr>
<td>13</td>
<td>0V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LAN Connector Pinout**

EXPANSION PANEL OUTPUT

V Series main panels have an industry standard RJ45 socket allowing up to eight V Series expansion panels to be daisy chained from it.
The CAT5 cables used to connect V Series main panels to expansion panels and expansion panels to further expansion panels are wired as straight through and the same signals are present along the daisy chain.

Each cable connecting a V Series main panel to an expansion panel or an expansion panel to another expansion panel must not exceed 5...
metres in length, and the total length of any expansion panel daisy chain must not exceed 7.5 metres in length.

**FRONT PANEL CONNECTORS**

The V-Series main panels have a microphone connection and a headset connection on the front. The microphone connection is always a three pin socket while the headset connector may be an XLR-4M, XLR-5F or XLR-7F connector. The pinouts for the connectors are given below.

**MICROPHONE CONNECTOR**

![Microphone Connector Pinout](image)

The pin assignments for the microphone connector are:

*Figure 2-10: Microphone Connector Pinout*

*Table 2-1: Microphone Socket Pinout*

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Screen</td>
</tr>
<tr>
<td>2</td>
<td>Microphone input +</td>
</tr>
<tr>
<td>3</td>
<td>Microphone input -</td>
</tr>
</tbody>
</table>

**HEADSET CONNECTORS**

The headset connector may be one of three types; XLR-4M, XLR-5F or XLR-7F. The pinouts for each type are shown below.
Table 2-2: XLR-4M Headset Connector Pinout

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microphone Screen</td>
</tr>
<tr>
<td>2</td>
<td>Microphone Input</td>
</tr>
<tr>
<td>3</td>
<td>Headphone Return</td>
</tr>
<tr>
<td>4</td>
<td>Headphone Output</td>
</tr>
</tbody>
</table>

Table 2-3: XLR-5F Headset Connector Pinout

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microphone Screen</td>
</tr>
<tr>
<td>2</td>
<td>Microphone Input</td>
</tr>
</tbody>
</table>
### Figure 2-13: XLR-7F Headset Connector

### Table 2-4: XLR-7F Headset Connector Pinout

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microphone -ve</td>
</tr>
<tr>
<td>2</td>
<td>Microphone +ve</td>
</tr>
<tr>
<td>3</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>Left Headphone Output</td>
</tr>
<tr>
<td>5</td>
<td>Right Headphone Output</td>
</tr>
<tr>
<td>6</td>
<td>PTT1</td>
</tr>
<tr>
<td>7</td>
<td>PTT2/Headset Detect</td>
</tr>
</tbody>
</table>

Table 2-4: XLR-7F Headset Connector Pinout

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Headphone Return</td>
</tr>
<tr>
<td>4</td>
<td>Left Headphone Output</td>
</tr>
<tr>
<td>5</td>
<td>Right Headphone Output</td>
</tr>
</tbody>
</table>
MAINS AC POWER

The panel has a separate, external DC power supply. The power supply is "universal," operating over a voltage range of 100 to 240 VAC and 50 to 60 Hz. The maximum power dissipation is 50 W.

A bracket has been provided to mount this external supply if necessary.

ADJUSTMENTS

The following panel parameters are adjustable by selecting options in the configuration program (ECS):

- Headset Sidetone
- Panel Microphone Gain
- Speaker Dim
- Page Volume Level
- Panel-to-Matrix card Baud Rate

All these parameters are set to factory defaults. Most panels should operate at these default settings; however, some applications may required adjustment.

HEADSET SIDETONE

Sidetone is the sound of the user’s voice in his headset.

Refer to the Eclipse Configuration System Instruction Manual for instructions on adjusting sidetone.

PANEL MICROPHONE GAIN

The preamplifier gain of the panel microphone can be adjusted over a range of -10 to +10 dB; the panel microphone gain’s default setting is 0 dB. However, if two panels are talking to each other at the same time with the panel microphone gain set to maximum, feedback may occur even if the speaker dim (see “Speaker Dim”) is set to maximum in ECS. In this case, it will be necessary to turn the panel microphone gain down. Similarly, in some noisy environments it may be necessary to turn the panel microphone gain down and have the operator talk more closely into the microphone.

Refer to the Eclipse Configuration System Instruction Manual for instructions on adjusting panel microphone gain.

SPEAKER DIM

When a panel microphone and a speaker are used together, feedback is possible. To reduce this possibility, the panel software will mute (turn
down) the speaker level by some predetermined amount when both the microphone and speaker are enabled. The speaker mute can be adjusted from 0 to 15 dB; its default setting is 6 dB.

Refer to the *Eclipse Configuration System Instruction Manual* for instructions on muting the speaker.

**PAGE VOLUME LEVEL**

When Page Override is assigned to a label, the audio level at the destination panel(s) is predetermined. This function allows talking to someone even if his panel volume control is off. Two things will happen when a panel activates such a label:

• If the destination speaker was off, it will turn on.

• The panel speaker output will be at the predetermined level regardless of the “Intercom” volume control setting, unless this control is set higher than the predetermined level.

The page volume level can be adjusted from 0 to 10 in steps of 1 with 0 being off and 10 being full volume. The page volume level’s default setting is 5.

Refer to the *Eclipse Configuration System Instruction Manual* for further instructions on using Page Override.

**CONFIGURATION**

Assign each panel name and other parameters by using the Eclipse Configuration System Program (see *Eclipse Configuration System Manual* for more information). Also refer to the Operation chapter for details regarding the configuration options available from the V-Series panel menus.

**EXPANSION PANELS**

The following sections describes how to install the following optional, accessory key panels:

• The V12LDE Lever Key Expansion Panel adds 12 lever key talk/listen selectors to a panel.

• The V12PDE Pushbutton Expansion Panel adds 12 pushbutton talk/listen selectors to a panel.

The installation procedure is identical for these two panels.

**V SERIES EXPANSION PANELS**

Only one rack unit (1RU) of a standard Electronics Industry Association equipment rack is required for each expansion panel. The panels’ compact size makes them ideal for use in TV control rooms,
edit suites, mobile OB vans, and any other location where many talk/listen keys are necessary but space it at a premium.

Both panels provide 12 additional selectors with displays.

MOUNTING

All accessory panels are mounted in a standard 19-inch wide (48.3 cm) standard Electronics Industry Association rack, requiring one unit of rack space each. Leave at least 2 in. (51 mm) of clearance behind the rear of the chassis to allow for cable connectors.

POWER

Each expansion panel is powered by an external power supply which may be mounted on the back of the panel using the mounting clip provided. To connect the power supply to an expansion panel, route the transformer’s output lead to the power connector on the back of the panel. This is a 4 pin connector.

PANEL CONNECTION

A cable is supplied with each panel to connect it to a main panel or to additional expansion panels. The cable is a 6-ft. long (1.8 m) CAT5 cable with RJ45 connectors at each end. If custom length cables are to be made, they should be made with cable with 22 to 24 AWG wire. The pins should be wired one-to-one between the RJ45 connectors. The maximum distance between the panel and the last expansion panel should be 25 ft. (7.6 m).

To connect an expansion panel to a main panel:
1. Plug one end of the CAT5 cable into the RJ45 expansion socket on the back of the main panel.
2. Plug the other end of the CAT5 cable into the input connector on the back of the expansion panel.

To connect an additional accessory panel:
1. Plug the CAT5 cable into the output connector of the last expansion panel in the chain.
2. Plug the other end of the CAT5 cable into the input connector of the new expansion panel. More panels can be added by using this “daisy-chaining” method.

The numbering of expansion selectors will be in the order of the daisy chaining.

CONFIGURATION

After physically placing the expansion panels and connecting them to a main panel, the expansion panels must be programmed into the configuration program. Refer to the Eclipse Configuration System Instruction Manual for more information.
3

SPECIFICATIONS

Note: 0 dBu is referenced to 0.775 V RMS

FRONT-PANEL CONTROLS AND CONNECTORS
Talk/Listen Switches: 11 or 23
Answer Back Switch 1
Volume Controls 2
Headset Connector 1 XLR-4M or XLR-5F or XLR-7F
Panel Mic Connector 1 3-pin

MAIN PANEL REAR CONNECTORS
GPIO DB-25F
To Matrix RJ-45 in XLR shell
Auxiliary Audio DB-25M
Expansion RJ-45
LAN RJ-45
DC Power 4 Pin

EXPANSION PANEL REAR CONNECTORS
Expansion In RJ-45
Expansion Out RJ-45
DC Power 4 Pin

PANEL MICROPHONE INPUT
Type: Electret
Input Level -70 to -40 dBu
Impedance 1700 Ohms +/- 10% Electret mic
1000 Ohms +/- 10% Dynamic mic

HEADSET MICROPHONE INPUT
Type: Electret or Dynamic
Input Level -70 to -40 dBu

AC MAINS POWER SUPPLY (EXTERNAL)
Voltage 100 - 240VAC
Frequency 50 - 60 Hz
Power 50W maximum

TEMPERATURE
Operating between 0° and 50° C (32 to 125 F)
Storage between 0° and 70° C (32 to 150 F)

HUMIDITY
Operation and Storage Between 20% and 90%, Non-Condensing

DIMENSIONS (1RU PANELS)
Height 1.82 in. (4.63 cm), (1 RU, EIA rack)
Width 19.0 in. (48.26 cm)
Depth 6.75 in. (17.15 cm)
Weight 3.5 lbs. (1.6 kg)

DIMENSIONS (2RU PANELS)
Height 3.5 in. (8.89 cm), (2 RU, EIA rack)
Width 19.0 in. (48.26 cm)
Depth 6.75 in. (17.15 cm)
Weight 7.5 lbs. (4.0 kg)

Notice About Specifications
While Vitec Group Communications makes every attempt to maintain the accuracy of the information contained in its product manuals, that information is subject to change without notice. Performance specifications included in this manual are design-center specifications and are included for customer guidance and to facilitate system installation. Actual operating performance may vary.
LIMITED WARRANTY

Vitec Group Communications (VGC) warrants that at the time of purchase, the equipment supplied complies with any specification in the order confirmation when used under normal conditions, and is free from defects in workmanship and materials during the warranty period.

During the warranty period VGC, or any service company authorized by VGC, will in a commercially reasonable time remedy defects in materials, design, and workmanship free of charge by repairing, or should VGC in its discretion deem it necessary, replacing the product in accordance with this limited warranty. In no event will VGC be responsible for incidental, consequential, or special loss or damage, however caused.

WARRANTY PERIOD

The product may consist of several parts, each covered by a different warranty period. The warranty periods are:

• Cables, accessories, components, and consumable items have a limited warranty of 90 days.
• Headsets, handsets, microphones, and spare parts have a limited warranty of one year.
• UHF wireless IFB products have a limited warranty of one year.
• UHF wireless intercom systems have a limited warranty of three years.
• All other Clear-Com and Drake brand systems and products, including beltpacks, have a limited warranty of two years.

The warranty starts at the time of the product’s original purchase. The warranty start date for contracts which include installation and commissioning will commence from the earlier of date of the Site Acceptance Test or three months from purchase.

TECHNICAL SUPPORT

To ensure complete and timely support to its customers, VGC’s User Support Center is staffed by qualified technical personnel. Telephone and email technical support is offered worldwide by the User Support Center.

The User Support Center is available to VGC’s customers during the full course of their warranty period.

Instructions for reaching VGC’s User Support Centers are given below.
Telephone for Europe, Middle East and Africa: +49 40 6688 4040 or +44 1223 815000

Telephone for the Americas and Asia: +1 510 337 6600

Email: vitec.support@AVC.de

Once the standard warranty period has expired, the User Support Center will continue to provide telephone support if you have purchased an Extended Warranty.

For latest contact information please refer to the Service and Support section at www.clearcom.com.

**WARRANTY REPAIRS AND RETURNS**

Before returning equipment for repair, contact a User Support Center to obtain a Return Material Authorization (RMA). VGC representatives will give you instructions and addresses for returning your equipment. You must ship the equipment at your expense, and the support center will return the equipment at VGC’s expense.

For out-of-box failures, use the following contact information:

**Europe, Middle East and Africa**

Tel: +44 1223 815000  Email: customerservicesEMEA@vitecgroup.com

**North America, Canada, Mexico, Caribbean & US Military**

Tel: +1 510 337 6600  Email: customerservicesUS@vitecgroup.com

**Asia Pacific & South America**

Tel: +1 510 337 6600  Email: customerservicesAPAC@vitecgroup.com

VGC has the right to inspect the equipment and/or installation or relevant packaging.

For latest contact information please refer to the Service and Support section at www.clearcom.com.

**NON-WARRANTY REPAIRS AND RETURNS**

For items not under warranty, you must obtain an RMA by contacting the User Support Center. VGC representatives will give you instructions and addresses for returning your equipment.

You must pay all charges to have the equipment shipped to the support center and returned to you, in addition to the costs of the repair.
EXTENDED WARRANTY

You can purchase an extended warranty at the time of purchase or at any time during the first two years of ownership of the product. The purchase of an extended warranty extends to five years the warranty of any product offered with a standard two-year warranty. The total warranty period will not extend beyond five years.

Note: VGC does not offer warranty extensions on UHF wireless intercom systems, or on any product with a 1-year or 90-day warranty.

LIABILITY

THE FOREGOING WARRANTY IS VGC'S SOLE AND EXCLUSIVE WARRANTY. THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY OTHER REQUIRED IMPLIED WARRANTY SHALL EXPIRE AT THE END OF THE WARRANTY PERIOD. THERE ARE NO OTHER WARRANTIES (INCLUDING WITHOUT LIMITATION WARRANTIES FOR CONSUMABLES AND OTHER SUPPLIES) OF ANY NATURE WHATSOEVER, WHETHER ARISING IN CONTRACT, TORT, NEGLIGENCE OF ANY DEGREE, STRICT LIABILITY OR OTHERWISE, WITH RESPECT TO THE PRODUCTS OR ANY PART THEREOF DELIVERED HEREUNDER, OR FOR ANY DAMAGES AND/OR LOSSES (INCLUDING LOSS OF USE, REVENUE, AND/OR PROFITS). SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR THE LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. IN ANY EVENT, TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAW, VGC'S LIABILITY TO CUSTOMER HEREUNDER SHALL NOT UNDER ANY CIRCUMSTANCES EXCEED THE COST OF REPAIRING OR REPLACING ANY PART(S) FOUND TO BE DEFECTIVE WITHIN THE WARRANTY PERIOD AS AFORESAID.

This warranty does not cover any damage to a product resulting from cause other than part defect and malfunction. The VGC warranty does not cover any defect, malfunction, or failure caused beyond the control of VGC, including unreasonable or negligent operation, abuse, accident, failure to follow instructions in the manual, defective or improperly associated equipment, attempts at modification and repair not approved by VGC, and shipping damage. Products with their serial numbers removed or defaced are not covered by this warranty.

This warranty does not include defects arising from installation (when not performed by VGC), lightning, power outages and fluctuations, air conditioning failure, improper integration with non-approved components, defects or failures of customer furnished components resulting in damage to VGC provided product.
This limited warranty is not transferable and cannot be enforced by anyone other than the original consumer purchaser. This warranty gives you specific legal rights and you may have other rights which vary from country to country.