GRASS VALLEY GROUP

User Manual

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SERIES 7000
SIGNAL MANAGEMENT SYSTEM

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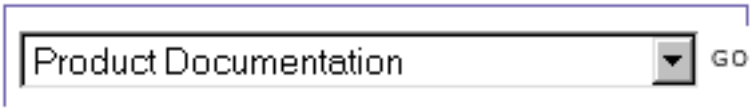

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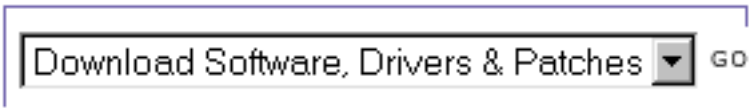


Contents

Preface

Section 1 — Overview

Section 2 — Operational Modes and Functions

Section 3 — Control Panels

Section 4 — Visual Status Display

Preface

About This Manual

This manual provides user information specific to Series 7000 Signal Management Systems.

Documentation Set

This User Manual is part of the Series 7000 manual set which also includes an Installation Manual, a Configuration Manual, and a Service Manual. Electronic copies of the manual set are onDocumentation CD-ROM.

Conventions Used In This Manual

Menu selections, soft buttons, or other software generated items in the Series 7000 Configuration Editor GUI are shown in the following type:

- Click **OK**.
- Under **ONLINE**, select **CONTROL,** then **TAKE** to access the Take window.
- **EXCLUDED** (software generated item) momentarily appears in the **PRESET** (control panel label text) display if a Take is attempted of a valid Source that is excluded by the system.

Button text and other labels on the Series 7000 Control Panels are shown in the following type:

- Press the **Protect** button.
- Press the **SRC** button.

Section 1

Overview

Introduction

The Series 7000 Signal Management System is controlled by configuration file settings. All control panels are configured using panel templates downloaded to the control panel's memory. The template determines how the panel operates. The configuration of an individual control panel or the Visual Status Display (VSD) will vary from installation to installation. Due to these variances, this manual addresses only the general operation of the control panels and the VSD.

This section describes general matrix control concepts. These concepts will clarify the step-by-step operation descriptions found in the following sections.

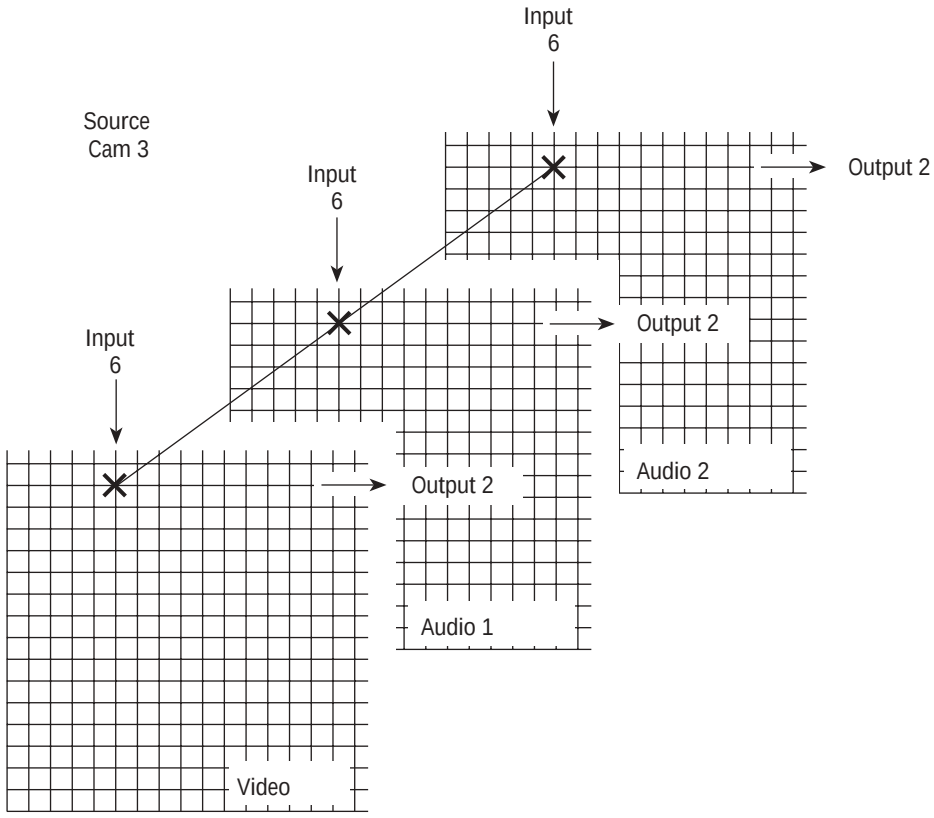
Topics include:

- Multi-Level Switching (All-Level / Breakaway)
- Source / Input Offsets
- Breakaway Takes
- Destination / Output Offsets

Multi-Level Switching

There are two modes of multi-level switching—All-level Takes and Breakaway Takes. All-level Takes have traditionally switched the same input number on all Levels, to the controlled Destination, as shown in Figure 1-1.

Figure 1-1. Traditional All-level Take

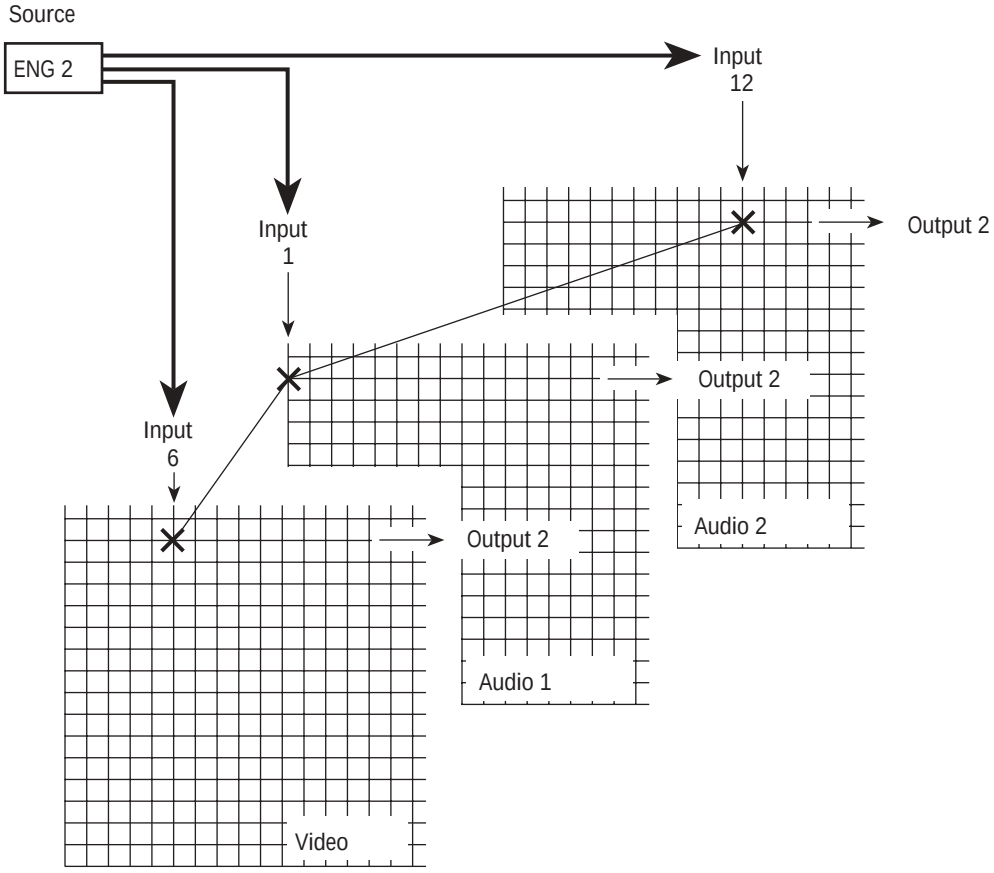


In this example, output bus (Destination) 2 has selected the same input (6) on all Levels in this 3-level system.

Source/Input Offsets

The Series 7000 allows a Source-name to be defined with arbitrary input connector offset as shown in Figure 1-2.

Figure 1-2. Source/Input Offset

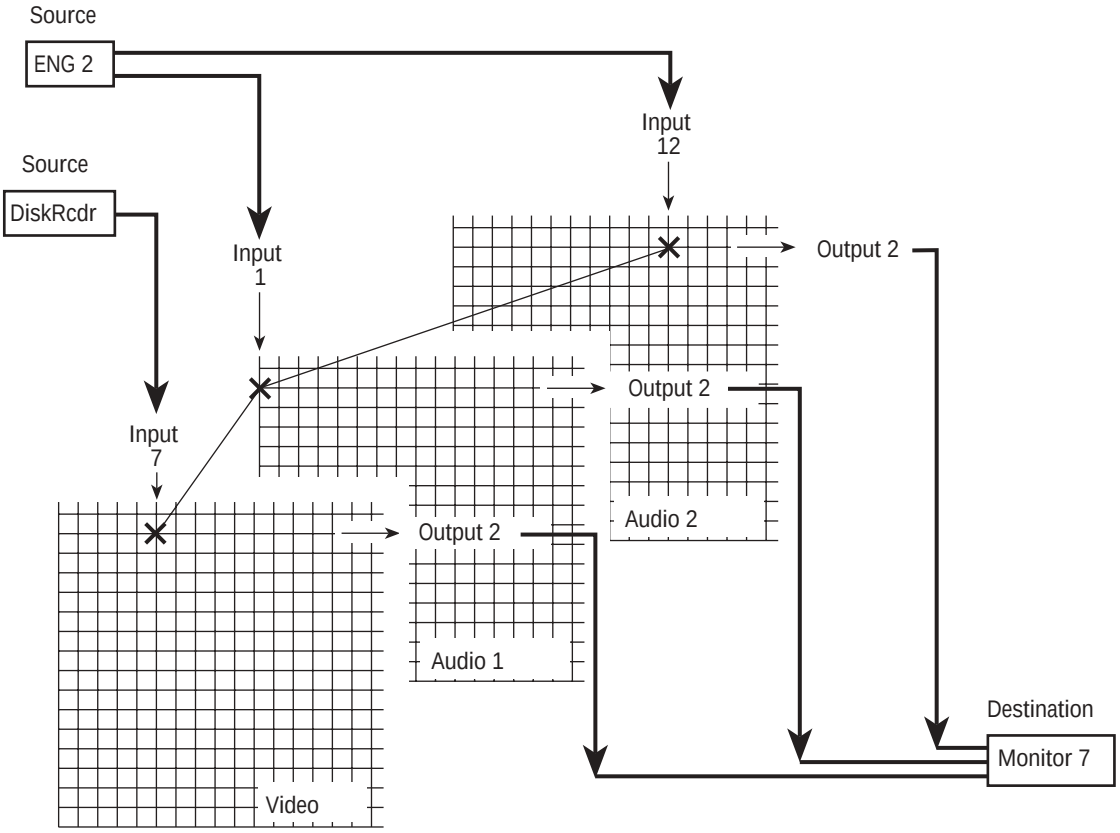


In this example, Source **ENG 2** is defined during Configuration as Input 6 (video), Input 1 (audio 1), and Input 12 (audio 2). An all-level Take of Source **ENG 2** will route all these inputs to the controlling Destination.

Breakaway Takes

A Breakaway Take is performed by accessing the control Levels of a Destination individually and selecting a different Source on at least one Level than that selected on the others. Breakaways allow a Destination to selectively utilize video and audio from different Sources.

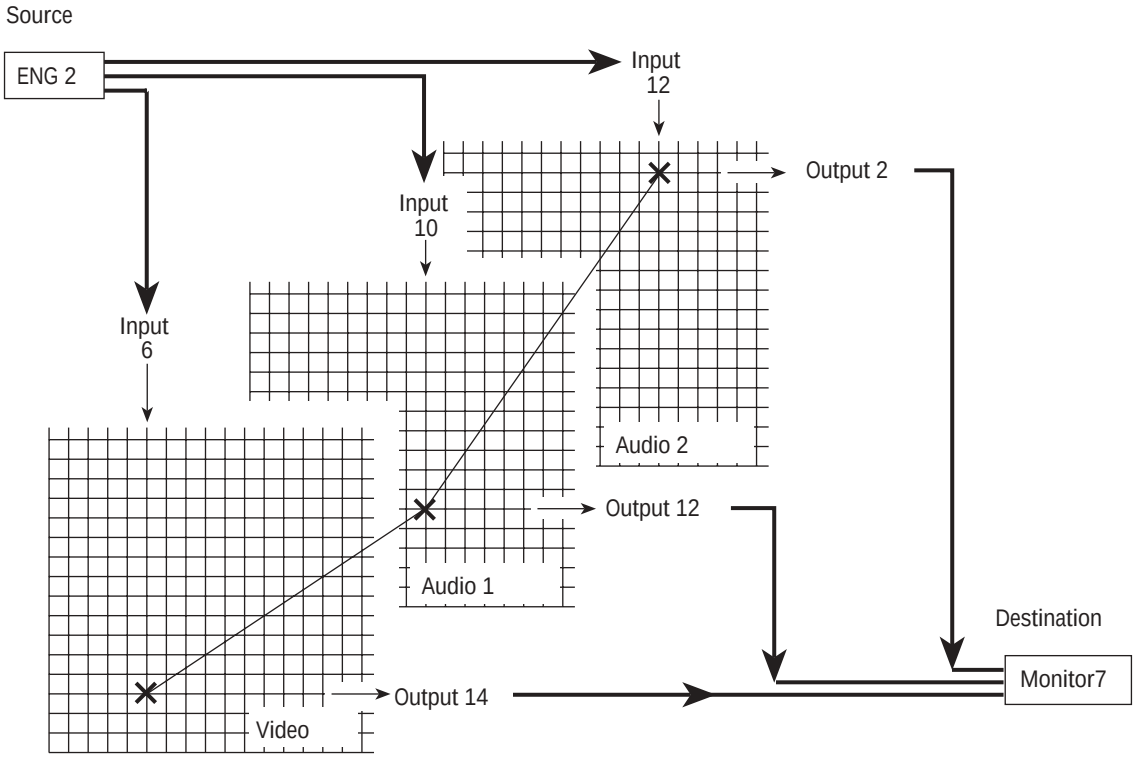
Figure 1-3. Breakaway Take



Destination/Output Offsets

In the same way, Sources can be composed of offset input numbers, Destinations can be composed of offset outputs.

Figure 1-4. Destination/Output Offsets



In this example, Destination Monitor7 is configured to include offset outputs 14 (video), 12 (audio 1), and 2 (audio 2).

The control panel operator views and selects Sources and Destinations by name and does not need to be concerned with the physical cabling or numbers of inputs and outputs, nor input/output offsets.

Section 2

Operational Modes and Functions

Introduction

All Grass Valley router control panels are programmable using the Series 7000 Configuration Editor Graphical User Interface (GUI) and can be configured to meet almost any requirement. Buttons can even be completely disabled. Templates are stored internally in non-volatile memory. This allows panels to re-boot quickly after a power outage without waiting for a configuration download from the control system. This also allows panels to be physically relocated without re-downloading configurations.

All panels connect to the 75-ohm coaxial control bus using a BNC T connector. This allows panels to be removed and relocated with-out affecting other panels downstream. All panels are powered by auto-ranging external power transformer units.

The panels feature buttons with positive tactile and light feedback to indicate switch has been pressed. Removable lens chips allow button source / destination labels to be changed as required. Displays are bright and easy to read in a variety of light levels and viewing angles.

Control panels allow direct signal interaction with the Series 7000 System. Each control panel has function buttons that will perform actions based upon which mode is active and how the programmable Keypads or Select buttons have been configured. This section addresses how to use the various control panel modes and functions.

Each control panel has an acronym to represent it. Table 2-1 shows the acronyms and the related control panels.

Table 2-1. Control Panel Acronyms

Acronym	Control Panel	Acronym	Control Panel
CLN	Client	EDP	Eight Destination Paging
MB8	Multibus 8	MB4	Multibus 4
P48	48 Button-Per-Source	P32	32 Button-Per-Source
PXD	XY Destination	PXS	XY Source
PXYE	XY Expansion	SCP	Simple Control Panel
SDP	Single Destination Paging	SVR	Server
UMD	Under Monitor Display	UCP	Universal Control Panel

Appearance

There are four elements that make up the physical appearance of the control panels. These elements are Mode / Function buttons, Eight-Character displays, programmable Keypads, and programmable Select buttons.

Mode and Function Buttons

Control panels have Mode and Function buttons. Mode buttons determine the state of the control panel and what functions the control panel can perform. If the control panel is in Source mode, then sources can be selected. If in Level mode, then levels can be selected. Function buttons perform actions based upon which control panel mode is active. A control panel always has one active mode.

Mode and Function buttons are labeled at the factory. Which modes and functions are available to a specific control panel is determined by the control panel feature set. Table 2-2 shows the Mode and Function buttons found on all the control panels. Some Modes and Functions may not have dedicated buttons, for this type of Mode or Function the Label cell in Table 2-2 is left blank.

Table 2-2. Control Panel Function/Mode Buttons

Label	Meaning	Location	Function	Mode	Usage
ALL LEVEL	All Level	P48	Yes	No	Used to select all available levels for a Source.
CE/CLEAR or **CLEAR**	Clear	SCP, EDP, MB4, MB8, UCP, & SVR	Yes	No	Use to clear presets.
CHOP	Chop	PXS, P32, EDP, MB4, MB8, P48, SDP, UCP, & SVR	No	Yes	When lit, chop is activated.
DEST	Destination	EDP, MB4, MB8, SDP, UCP, & SVR	No	Yes	When lit, available Destinations can be displayed and selected.

Table 2-2. Control Panel Function/Mode Buttons - (continued)

Label	Meaning	Location	Function	Mode	Usage
DEST PAGE	Destination Page	EDP	No	Yes	When lit, available Destination Pages can be displayed and selected.
DST ↓ PG	Destination Page Down	MB4	Yes	No	Changes all busses showing Destinations to the next valid Destinations.
DST ↑ PG	Destination Page UP	MB4	Yes	No	Changes all busses showing Destinations to the previous valid Destinations.
	Flag	EDP	No	Yes	Used to activate configuration flags from the panel, when **ENABPSWD** flag is activated during configuration.
HOLD	Hold	EDP & MB4	Yes	No	When lit, indicates a Destination has been selected.
$\overline{\text{ID}}$, ID, $\underline{\text{ID}}$, or **IDENT**	Identification	PXS, PXYE, P32,SCP, EDP, MB4, MB8, P48, SDP, UCP, SVR & CLN	Yes	No	Press IDENT, ID, or $\underline{\text{ID}}$ once or $\overline{\text{ID}}$ four times to initiate the Panel Identification routine.
$\overline{\text{INV}}$	Invert	PXS	Yes	No	Toggles Levels on and off
LEVEL	Level	PXS, P32, EDP, MB4, MB8, SDP, UCP, & SVR	No	Yes	When lit, available Levels can be displayed and selected.
LEVEL PAGE	Level Page	EDP	No	Yes	When lit, available Level Pages can be displayed and selected.
LOAD	Load	CLN, MB4, & EDP	Yes	No	When lit, will load the item shown in the Preset Display.
NEXT	Next	PXS, EDP, MB4, MB8, SDP, UCP, & SVR	Yes	No	Shows next selection related to active mode. If Source mode is active will show next Source.
	Password	EDP	Yes	No	Used to activate Flag mode.
PREV	Previous	PXS, EDP, MB4, MB8, SDP, UCP, & SVR	Yes	No	Shows previous selection related to active mode. If Source mode is active will show previous Source.
PROT	Protect	PXS, P32, SCP, EDP, MB4, MB8, P48, SDP, UCP, & CLN	Yes	No	When Lit the Protect is active, when not lit the Protect is inactive.
RCL	Recall	MB8	Yes	No	Recalls stored settings.
SALVO	Salvo	MB4, MB8, SDP, UCP, & SVR	No	Yes	When lit, Salvo is activated.
SALVO PAGE	Salvo Page	EDP	No	Yes	When lit, available Salvo Pages can be displayed and selected.
SHIFT	Shift	SVR	Yes	No	Used with Keypad to select shifted prefixes or shifted suffixes.
SHIFT A	Shift A	EDP	Yes	No	Used with Keypad to access first set of shifted prefixes or shifted suffixes.
SHIFT B	Shift B	EDP	Yes	No	Used with Keypad to access second set of shifted prefixes or shifted suffixes.
SRC	Source	PXS, P32, EDP, MB4, MB8, SDP, UCP, &SVR	No	Yes	When lit, available Sources can be displayed and selected.
SRC PAGE	Source Page	EDP	No	Yes	When lit, available Source Pages can be displayed and selected.
STATUS	Status	SDP	Yes	No	Displays Status of selected item.
STO or **STORE**	Store	EDP & MB8	Yes	No	Stores current settings
TAKE	Take	SCP, EDP, MB4, MB8, SDP, UCP, & CLN	Yes	No	Initiates a Take.
TAKE ALL	Take All	SVR	Yes	No	Initiates all Takes.
TLYLVL	Tally Level	P48	Yes	No	When held down it allows a Level to be selected as the Tally Level.

Eight-Character Displays

The eight-character displays provide information related to or affected by the control panel's current mode. Most of the displays have a label which indicates what type of information will be displayed, such as **LEVEL** which shows the Level which will be affected by the operation being performed.

Programmable Keypads

The Keypad provides buttons for sets of Source or Destination names that are defined during System Configuration. Each Source or Destination name consists of an up to eight character prefix and a single character suffix. Keypad sets (containing prefixes) and Suffix sets are configured in groups of sixteen.

There are three types of keypads used on the Series 7000 System control panels:

- Standard 16-button keypad set of 4 by 4-buttons with one prefix and one suffix assigned to each button,
- Shifted 16-button keypad set of 4 by 4-buttons with one, two, or three prefixes and one, two, or three suffixes assigned to each button, and
- 24-button keypad set of three groups of 4 by 2-buttons with one prefix and one suffix assigned to each button.

Ten of the keypad buttons function as a ten-button (0 through 9) numeric suffix keypad in either Telephone (top row=1, 2, 3) or Calculator (top row=7, 8, 9) layout (see Figure 2-1). The first push of a button enters a prefix (typically alpha characters) and the second push enters a suffix (numeral or character).

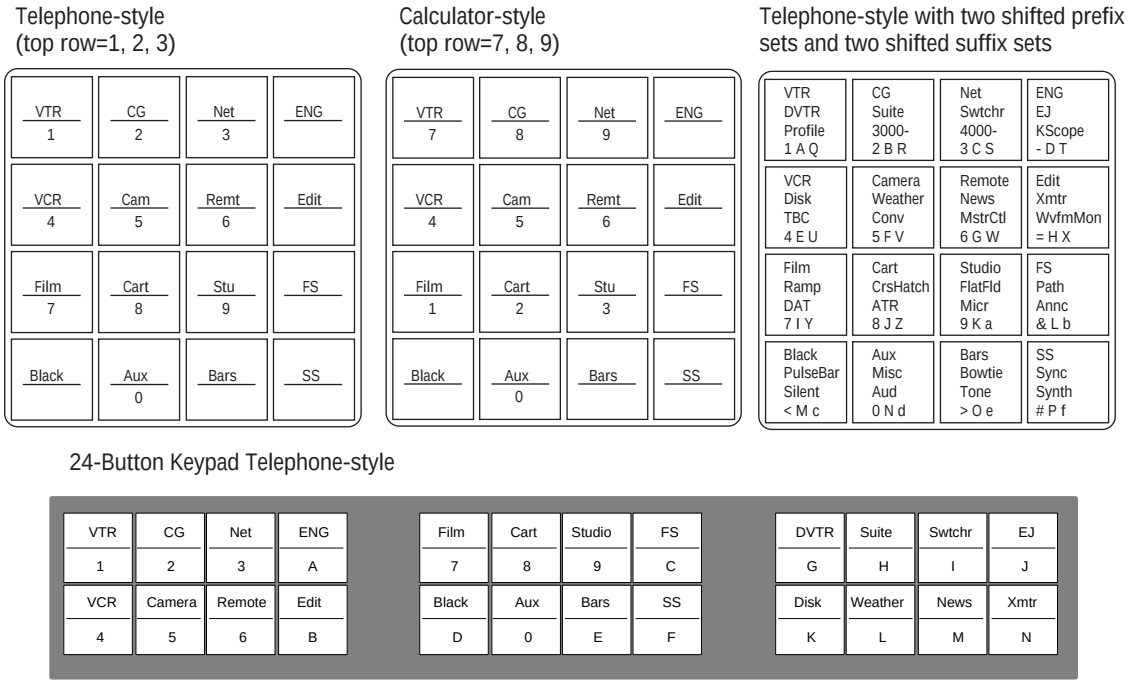
Similar to the function it performs on a computer keyboard, pressing the **SHIFT** button before selecting a prefix allows access to the additional 16 prefix names located above the center-line while pressing **SHIFT** before selecting a suffix allows access to an additional 16 suffix names located below the primary suffix set.

If both a shifted prefix and a shifted suffix are wanted then it will be necessary to press **SHIFT** before the prefix selection and again before the suffix selection.

On a keypad with three prefixes and three suffixes, the first shifted set of prefixes and suffixes are accessed by pressing the **SHIFT A** button and the second shifted set of prefixes and suffixes are accessed by pressing the **SHIFT B** button.

Figure 2-1. Keypads

Panels can be configured for Telephone-style or Calculator-style suffixes



Select Buttons

Select buttons are assigned destinations, sources, levels, or Salvos during configuration. The programmed Select buttons need to be labeled to indicate how they were configured.

Identification Routine

Control panels that have an **ID**, **ID**, **ID**, or **IDENT** button will run an identification routine. This routine will briefly display information specific to that panel in an eight-character display. The information displayed will confirm the panel's type, what software version it is using, and give the panel's current status.

Initiating the Identification Routine

- Press an **ID**, **IDENT,** or **ID** button once.
  or
  Press an **ID** button four times to initiate the identification routine.

  The **ID** button will have either **SRC** or **DEST** on the upper portion of the button. The first press of the button will put the panel in the mode on the upper portion of the button. Three more presses will activate the identification routine. If the button is already lit, it only requires three presses to start the identification routine.

  The following information will be briefly displayed:

  - Name of TieLine in use if any
  - Active Tally Level with text **TALLYLVL**
  - Controlled Destination if any
  - Panel Name
  - System Name
  - Application software version (i.e., **EDPX.YYZ**, where X, YY, and Z are specific to the version number)
  - **PROTOVRD** if the Protect Override is active

Destinations

All control panels have at least one destination. If a control panel has only one destination, this destination will be assigned during configuration as the default active destination. The only way to change the default active destination is to change the configuration file.

If a **DEST** mode button is on the panel, the control panel has a Destinatio- mode. Pressing the **DEST** button (lit) puts the control panel in destination mode, the current active destination will be shown in an eight-character display. You can display available destinations by either using the Keypad or the **PREV** and **NEXT** buttons. (The PXS panel has **PREV DEST** and **NEXT DEST** buttons.) Select a new destination to be the active destination by pressing the new destination's **TAKE** button.

On some control panels available destinations are assigned to programmable select buttons. Select a new active destination by pressing the button with the assigned destination.

Sources

All control panels have at least one source. If a control panel has only one source, this source will be assigned during configuration as the default active source. The only way to change the default active source is to change the configuration file.

If a **SRC** mode button is on the panel, the control panel has a Source mode. Pressing the **SRC** button (lit) puts the control panel in source mode, the current active source will be shown in an eight-character display.

You can display available sources by either using the Keypad or the **PREV** and **NEXT** buttons. (The PXS panel has **PREV SRC** and **NEXT SRC** buttons.) Select a new source to be the active source by pressing the new source's **TAKE** button.

On some control panels available sources are assigned to programmable select buttons. Select a new active source by pressing the button with the assigned source.

Levels

If a **LEVEL** (or **LVL**) or mode button is on the panel, the control panel has a Level mode. Pressing the **LEVEL** button (lit) puts the control panel in Level mode, the current active Level will be shown in an eight-character display.

Display available Levels by either using the Keypad or the **PREV** and **NEXT** buttons. Select a new Level to be the active Level by pressing the new Level's **TAKE** button.

On some control panels available Levels are assigned to programmable select buttons. Select a new active Level by pressing the button with the assigned source.

Levels may be configured to any combination of Selection Buttons (from none to all 8 buttons). If one or more Levels are configured on Selection Buttons, you may activate (indicated by a lit lamp) or deactivate (indicated by a extinguished lamp) any combination of configured Levels for the next and subsequent Takes. The selected Levels remain active until changed again by activating or deactivating Levels, or by changing Destinations. Default Levels are determined by the System and Control Panel configuration procedure (see the *Configuration Manual* for information on how panel templates are configured). After power-up, the default Levels selected during configuration are active.

NOT CTRL will be displayed momentarily if the Level is a valid Level for the controlled Destination, but the panel has not been configured to control the specific Level. In this condition, a Level not controlled may still be examined for its Source status.

NOT USED will be displayed momentarily if you try to select a button that is not programmed with a Level or other item (set by configuration).

MIN1LEVL will be displayed if you attempt to deactivate the only active Level. A minimum of one Level must be active on the panel at all times. This prevents leaving the panel in a condition where no crosspoints are controlled.

Changing Tally Level

The control panels tally either the active Source name or the active Destination name for the active Tally Level only. A default Tally Level designated during panel configuration, is made active upon power-up, and remains active until overridden or de-activated by the panel. The P48 panel functions for All Level and Tally Level are detailed in *P48 All Level and Tally Level Buttons* (see page 2-10).

Note If Levels are assigned to select buttons, be sure to configure the default Tally level to a button and if possible, each controlled level to a Select button.

To see the current Source on any Level, including those not controlled by this panel:

- Press the button for that Level twice while in Level Select mode
- The display will, twice in succession, temporarily show the name of the current Source / Destination selection and then the Level name for the button you pushed. (This also verifies the Level name on the lens chip for the button.)
- If you press an additional button before the display sequence has shown twice, the information required by the second button press will appear only after the complete display sequence is completed.
- If the currently active Tally Level is de-selected as an active Level by the panel, the panel automatically selects the next available (typically the upper left-most active) Level as the new Tally Level.

Overriding the New Tally Level

- Choose another active Level for Tally and de-activate all other Levels. Then re-activate all the other desired non-Tally Levels one at a time.

  Or,

- Press the button for the desired Tally Level four or more times consecutively until the lamp for that Level is lit.

During panel configuration, you may wish to assign the most frequently used Tally Level to the top left-most button. Then assign the desired Tally Level for your most common breakaway selection to the next button. For example, if Level **Video** is the normal Tally Level and occasionally Level **Stereo** is broken away, assign **Video** to the top left-most select button and assign **Stereo** to the next select button.

Inverting the Level Selection (PXY Panels)

The PXY (programmable X-Y) panels have an invert feature. PXY panels are in groups which can be made up of PXS (master), PXD (destinations), and PXYE (expansion) panels. In one step, you may invert (toggle) all active Levels (all which were active become inactive; all which were inactive become active).

On the PXS in the Group:

- If the **LEVEL/INV** mode button is lit, press it once.
- If the **LEVEL/INV** mode button is not lit, press it twice.

Successive presses toggle all active Levels to inactive and vice versa. This enables rapid Breakaway operations, especially for systems with a large number of Levels. For instance, with all Levels off except one, the Invert function toggles all those inactive Levels on. All the inactive Levels can be activated, and the active Levels deactivated, with a single key press.

Note This function always changes the Active Tally Level.

P48 All Level and Tally Level Buttons

The **ALL LVLS** button provides for single step selection of all controllable levels for the P48 panel.

When lit, the **ALL LVLS** button indicates that all configured controllable Levels for this panel are active. The button will remain lit until an individual Level select button is pressed. The **ALL LVLS** button does not toggle.

Changing the Tally Level on a P48 Panel

The P48 tallies the active source name for the active or default Tally Level. A default Tally Level is designated during panel configuration, and is made active upon power-up, and remains active until overridden or deactivated by the panel.

1. Press and hold down the **ID/TALLY LEVEL** button.

   The display shall show **SELTALLY**.

2. Hold down the **ID/TALLY LEVEL** button and simultaneously press one of the Level select buttons. This Level becomes the active Tally Level.

   or

   Press the **ID/TALLY LEVEL** and **ALL LVLS** button to cause the Default Tally Level (from the panel's configuration information) to become the active Tally Level.

Pressing the **ID/TALLY LEVEL** by itself or with any button that is not a Level such as a Source select button will activate the identification routine when the **ID/TALLY LEVEL** button is released.

Once the active Tally Level is set the panel is able to reactive the other level select buttons without effecting the active Tally Level.

The only other way to change the active Tally Level is to reconfigure.

Protect

The Protect function locks Source / Destination selections for individually controlled Levels of the Destination the panel is controlling. The function toggles on (button lit) and off with each push of the **PROT** button.

If the Destination controlled is in an Alien Matrix (a non-Series 7000 matrix) controlled by the Series 7000, the Protects are only secure in the 7000 control system. In this case a Protect is secure only if the Series 7000 has Exclusive control over the Alien Matrix Destination on all Levels.

If a subset of the available Levels is active, pressing the **PROT** button places (or removes) a protect on only those (active) Levels, while the Protect status of the inactive Levels will remain unchanged. The **PROT** lamp always indicates the Protect status for the active Tally Level. The Protect status of the active Tally Level is the basis for the toggle request. When the **PROT** lamp is on, pressing the **PROT** switch requests that all active Levels be unprotected, and vice versa. To see the Protect status on a specific Level, de-activate all other Levels temporarily. This makes the desired Level the active Tally Level.

If a Source / Destination Select button is pressed (or the **TAKE** button is pressed when lit) while the Protect function is on and the self-protect option is active for the panel (set during configuration), the display will show **SELFPROT** and disallow the Take, unless the Protect function is first turned off.

The GUI or the computer interface port may override the protects set by control panels. Also, control panels with the **PROTECT OVERRIDE** option set may override protects.

CAUTION The Protect Override option should be used with caution, as it will change crosspoints even when another panel has the same Source/Destination protected.

Panel configuration can disable the Protect function altogether by placing the SCP in Protect Lock mode (see the *Configuration Manual*). The display shows **PROTLOCK** when a protect is requested in this configuration.

If two devices are assigned to the same Destination but do not share any of that Destination's Levels, both may protect that Destination. If there is an overlap of Level sets, only one device at a time may protect the shared Levels of the Destination.

Breakaway Take

TAKE

Breakaway Takes are constructed by presetting Source / Level pairs for individual levels before executing the Take function. No crosspoints (matrix connections) are changed until a **TAKE** button is pressed. If the Breakaway set-up you desire has a single Source assigned to a majority of the system levels,

1. Preset this Source name with the panel in All Level mode (**ALL LEVEL** in the Level display).

   All Level is the default mode and is entered upon power-up or when **ALL LEVEL** is selected in level mode.

2. Enter Level mode as described previously and select the desired level for a Breakaway Preset. you may also examine each Breakaway level.

   EDP panels, if it is desirable to examine status on the upper left Bus (Dest 1) on more than one level at a time, use **LEVEL PAGE** mode (see page 2-17). Press the applicable **TAKE** button adjacent to the desired level. This will automatically return the panel to Source mode, so if using this approach, skip to step 4.

3. While viewing the level you want to change, enter Source mode by pressing the **SRC** button. Select the desired Breakaway Source, using either the **PREV/NEXT** control knob or the keypad.

   EDP panels, use Source Page mode (press the **SRC PAGE** button) to select a Breakaway Source (see page 2-19). This method is useful if you know where a desired Source is located on a specific page for rapid access.

4. You may clear the existing preset for the level you are examining by pressing the **CE/CLEAR** button once, or enter the new Source selection using either the Keypad or **PREV/NEXT** method.

5. Re-enter Level mode (or Level Page mode) to examine and / or set another level.

6. When all Levels have the desired Presets, Press the desired **TAKE** Button(s). To use a Preset on more than one bus, configure the panel with the **HOLDPST** flag active.

Example Breakaway Take

Source **CAM5** selected on level **VID NTSC**, and Source **VCR 16** on all other levels (substitute actual Source and Level names from your System). The panel is in Source mode with **ALL LEVEL** in the Level display.

1. Press the **VCR** prefix, and **1** and **6** suffix buttons on the keypad. This loads **VCR 16** into the Preset display for all levels.

2. Press the **LEVEL** button, then turn the **NEXT/PREV** control knob until the Level display shows the level **VID NTSC**.

3. Press the **SRC** mode button, then press the **Cam** prefix button, and the **5** suffix button. This loads **Cam5** into the Preset display for level **VID NTSC** only. Repeat steps 2 and 3 for any additional breakaway levels

4. Press a **TAKE** button.

NOLEVELS is displayed temporarily in the Preset display if a take is sent for one or more levels that do not pertain to the controlled Destination.

Note With each Breakaway Take, all preset crosspoint changes for the same Destination will be sent together to the system controller.

Any time there is a Breakaway condition existing in either the Preset or in Status, an asterisk (*****) will appear in the eighth character position of the respective display (if this position is occupied, the asterisk will alternate with the eighth character).

If no preset is entered on a given level, or a given level is not controlled by the panel, no take request is sent for that level.

Take/Take All (Server/Client Panels)

Individual Take operations are controlled by **Take** buttons for the individual Destination buses on the Client Panels. A register Preset (from one of the six control group memory registers, a retained Preset, or Server preset) must be selected for a Take to occur.

The **TAKE ALL** button on the Server causes all Presets on all the associated Client Control Panels to be immediately sent as Take requests. The **TAKE ALL**, **CHOP**, or **LEVEL** button is active (lit) whenever the Server is in Source mode or when a Salvo is Preset.

How a take is performed depends upon the way the Client Panel is configured. There are two possible Take scenarios.

- Default Mode - Factory programmed, uses **TAKE** button
- Quick Take- Immediate Take with memory register selection; this option must be intentionally set via the GUI and permits BPS-like register operation

Default Mode Takes

With no presets active the display of each Destination bus on the Client panel shows status—the name of the Source currently on the active tally Level connected to the controlled Destination. If there is a valid Preset for a bus (**TAKE** button lit or blinking), pressing **TAKE** will transfer that Preset to air. A new Source name may appear in the display after a new Preset is set on the active tally Level. If no Presets are set, Status will be displayed.

Recalling and Taking a Register Preset

1. Press the button (1 through 6) of the desired register
2. Press the **TAKE** button in the same Destination bus group

   The Source name (on the active Tally Level) stored in the register will appear in the corresponding display and also in the Preset display of the associated Server Panel. The **TAKE** button will light, indicating that the Preset is ready to take. The register button will blink, indicating that the bus Preset, and not the Server Preset or retained preset (if any) will be used for the take.
3. Press **TAKE** (or use **CE/CLEAR** to erase the entry if you made an error)

QuicTake Option

When this option is chosen (during configuration), each Destination Control Group display normally indicates the name of the Source currently on-air (status) for the active tally Level of the controlled Destination. If you want to view register contents before performing a Take, see the PST ID description below.

Performing a Take

Press the desired memory register button

The contents of the selected register are immediately taken to air. Or, if a valid Preset becomes available from the Server Panel, pressing **TAKE** will bring it to air just as in the other modes.

With QuicTake enabled, the function of the **PROT** button is changed to Preset Identification (**PST ID**). Lens chips are included with each panel to allow the user to re-legend the red, center button appropriately.

Note With QuicTake enabled, operation changes so that all Takes immediately invoke the Protect function, preventing other panels from changing the Source selected on the controlled Destination.

The **PST ID** button allows the operator to view the contents of a memory register before taking it to air.

Previewing Register Contents

- Press the **PST ID** button (Self Protect is temporarily invoked and the button will light)
- Press any of the memory register buttons to display contents of the Preset on the active Tally Level. Breakaway conditions (different Sources on two or more Levels) are indicated by an asterisk and can be further investigated using the Level function at the Server Panel.
- Press any blinking register button to extinguish its lamp, while the **PST ID** lamp is lit, after reviewing any register presets in that group
- Press **PST ID** a second time to exit the preview mode

Salvo

To perform a Salvo Take, simply press an assigned **SALVO** select button. The Salvo will change crosspoints for multiple Destinations on multiple levels and should be used with caution.

After taking a Salvo, the display will momentarily show the name of the selected Salvo indicating that it was sent to the system controller as a Salvo request.

Client and SCP panels that have QuicTake active will allow a take to occur with a single button press.

- If QuicTake is active:
  Press an assigned **SALVO** Select button. After taking a Salvo, the display momentarily shows the name of the selected Salvo indicating that it was sent to the system controller as a Salvo request.
- If QuicTake is not active:
  Press the desired **SALVO** Button. **^SALVO ^** appears momentarily in the display, followed by the name of the Salvo. The **CLEAR** lamp blinks and the **TAKE** lamp lights. Press **CLEAR** to discard the Salvo preset or **TAKE** to implement the Salvo.

CAUTION Salvos should be used with caution, as they may change crosspoints on many destinations at once, including destinations that might not be controlled or examined from the panel.

Chop

CHOP

Chop allows two sources to be rapidly switched on one destination; useful for signal timing, camera matching, etc. A Chop alternately switches the controlled Destination (on all applicable levels) between two Sources, in a repetitive manner. The Chop rate is examined and set via the system diagnostic console. Any Protect function may be used to protect any Destination and levels involved in the chop.

To Initiate a Chop

1. Take any Source. The **STATUS** display must show something other than **NOSTATUS**.
2. Press the **CHOP** button. Pressing the **SRC** button will display the first selected Source name on any bus.

   The **CHOP** lamp lights indicating any subsequent Takes will initiate a Chop. The message **CHOP TO:** appears in the display (momentarily if a preset is already entered).
3. Enter the desired preset Source and press a **TAKE** button. The **CHOP** lamp remains on; the display shows **CHOPPING**. The selected Destination is now switching alternately between either the two Sources previously shown in the **STATUS** display and the **PRESET** display or the two Source Select buttons will be lit.

To Change the Chop to Source

- Select a new Source

  The current Chop will stop, new Source button will light, the new Source name will display, a Chop will initiate between the original first Source selected and the new Source. The buttons for the two Sources and the Chop will remain illuminated and the display will show **Chopping**.

Changing Sources may be repeated to systematically compare multiple sources with the original first Source. For example, if a user selected color bars as the first Source and configured the other programmable buttons as Sources for cameras the user would then be able to systematically compare video inputs from each camera to the known color bar reference.

Exiting Chop Mode

- Press another mode button.

Or

- Press the **CHOP** button again to exit Chop mode. The **CHOP** lamp goes out indicating that the panel is no longer in Chop mode and that the next Take operation will be a normal Take. This does not stop active chops in the matrix; to do this follow the procedure *Stopping a Chop in the Matrix*.

In Source mode, a subsequent Take to any panel Destination will be a normal Take and will cancel the Chop in the matrix.

Stopping a Chop in the Matrix

1. Press the **CHOP** button until it goes out
2. Preset a Source and Take it

Paging

A page is a group of eight items (Sources, Destinations, Salvos, or Levels) configured to be displayed at the same time. A page set is several of the same type of pages connected together to be accessed by an EDP or SDP panel using **PREV/NEXT.**

The SDP panel will display two pages (16 items) at one time. The type of pages to be displayed is dependant on the current SDP panel mode. In Source mode pages of Sources will be displayed. Each of the 16 displays has a **TAKE** button. To select a displayed item press its **TAKE** button.

Panel Page Modes

The EDP and the SDP panels have page modes. To use the page modes see the item type page; *Level Page* (page 2-17), *Source Page* (page 2-19), *Destination Page* (page 2-20), or *Salvo Page* (page 2-21).

Level Page

Using Level Page Mode

- Load the desired Destination in the upper left hand bus (Dest 1) in Dest mode or Dest Page mode before entering Level Page mode.

The Destination (if any) appearing in the Dest 1 position will be used for all Level Page mode operations.

Level Page mode uses the 8 bus Dest displays to show the names of the first 8 levels applicable to the Destination and the 8 Status displays to show the Source names on those levels. The Level display will show **^ DEST ^** in this mode and the Preset display will show the name of the active Destination.

- To examine Breakaways on levels other than the first 8 applicable levels, use the **PREV/NEXT** knob to scroll through up to 3 additional pages of 8 levels.

  Or

- Press the keypad buttons with suffix designations of **1**, **2**, **3**, or **4** to access the corresponding pages of levels (as applicable). The 8 **PROT** lamps show the protect status for the Destination in the Preset display and the level name appearing the corresponding Dest display. The 8 **PROT** buttons will request toggles of the protect status on an individual level basis.

Use Source mode to request toggles of the protect status on all levels at once; (this is normally how protects would be handled).

- To return to the default level page (first page of applicable Levels), press **SHIFT A** (lighting the **SHIFT A** lamp) then press **LEVEL PAGE**.
- Normally when entering Level Page mode, the last accessed page will be used (if the **SHIFT A** lamp is not lit).
- Pressing a **TAKE/LOAD** switch with a level name appearing in the corresponding Dest display will immediately load that level name into the Level display and put the panel in Source mode.

This will put the panel in a state ready to receive a breakaway preset on the specified level.

- Pressing a **TAKE/LOAD** button with no level name appearing in the corresponding Dest display will result in a momentary display of **NOT USED** in the Level display, before returning to the prior state.

Exiting Level Page Mode

- Press another mode button -- **DEST, LEVEL, SRC, DEST PAGE, SRC PAGE, SALVO PAGE,** or **CHOP**.

  Pressing any **TAKE/LOAD** button with a level name appearing in an adjacent Dest display will also exit Level Page mode, by placing that level name in the Level display and returning the panel to Source mode.

Source Page

SRC PAGE

The Source Page mode uses the 8 Status displays to show the names of any of 48 pages of 8 frequently used Sources configured to be on that page. The default page appears upon start-up or by pressing **SHIFT A** before entering Source Page mode. Otherwise, the last accessed Source Page will appear upon entering Source Page mode. The default page may also be reached at any time in this mode by pressing the 0 and 1 buttons consecutively using the suffix designations on the keypad. The 8 Dest displays are blanked in this mode.

- To return to the first (default) Source Page (from another mode), press **SHIFT A** (lighting the **SHIFT A** lamp) then press **SRC PAGE**.

Source Page mode allows **PREV/NEXT** knob scrolling of pages of Source names. Pages will scroll up to 8 Sources at a time, selected from the set of Source pages.

Not all Source pages configured by the GUI may be available at a given panel, and there may be gaps in the sequence of pages in terms of page number. The **PREV/NEXT** control knob allows access to all configured pages (up to 48) available from the panel.

Keypad access to Source pages uses a two press sequence with the numeric suffix designations on the keypad. Pages numbered 1 through 9 require a leading 0 and become 01 through 09. Pages 10 and above do not require a leading 0.

Pressing a pair of keypad buttons in Source Page mode will briefly display **SRCPG#** and the two-digit number of the page in the Preset display and the 8-character name of the page in the Level display, while simultaneously loading the up to 8 stored Source names in the 8 Status displays, (i.e. one of 48 pages of 8 Sources.)

- If the **STROPCHS** (store operator changes) flag is active, pressing and holding the **STORE** button and then pressing a **PROT/HOLD** button (with the **STORE** button still held) will store a valid Source name appearing in the Preset (if any) into the Source page at the specified location.

  If the Preset display is blank, this action will store a blank (in the corresponding position.) If the **STROPCHS** (store operator changes) flag is not active, the message **PAGELOCK** will appear briefly in the Level display.

Exiting Source Page Mode

- Press another mode button -- **DEST**, **LEVEL**, **SRC**, **DEST PAGE**, **LEVEL PAGE**, **SALVO PAGE**, or **CHOP**.

Ganged Source Page Takes

Press and hold the **SHIFT A** button and a **PROT** button to Take all Sources on all busses in a given row (4 busses).

Press and hold the **SHIFT B** button and a **PROT** button to Take all Sources on the page (up to 8) to their respective 8 busses. Busses will not be changed if the corresponding Source page position does not have a Source.

Destination Page

DEST PAGE

Use Destination Page mode to show the names of any of 48 pages of 8 frequently used Destinations (on the 8 Dest displays) configured to be on that page.The default page appears upon start-up or by pressing **SHIFT A** before entering Destination Page mode. Otherwise, the last accessed Destination Page will appear upon entering Destination Page mode. The default page may also be reached at any time in this mode by pressing the **0** and **1** buttons consecutively using the designations on the keypad. The 8 Status displays are blanked upon entering this mode.

- To return to the first (default) destination page (from another mode), press **SHIFT A** (lighting the **SHIFT A** lamp), then press **DEST PAGE**.

Destination Page mode allows **PREV/NEXT** knob scrolling of pages of Destination names, (up to 8 Destinations at a time, selected from the set of Destination Pages (which may or may not be user-modified depending on the setting of the **STROPCHS** flag). Not all Destination Pages configured by the GUI may be available at a given panel, and there may be gaps in the sequence of pages in terms of page number. The **PREV/NEXT** control allows access to all configured pages (up to 48) available from the panel.

Keypad access to Destination Pages uses a two press sequence with the numeric suffix designations on the keypad. Pages numbered 1 through 9 require a leading 0 and become 01 through 09. Pages 10 and above do not require a leading 0.

Pressing a pair of keypad buttons in Destination Page mode will display **DSTPG#** and the two-digit number of the page in the Preset display and the 8-character name of the page in the Level display, while simultaneously loading the (up to 8) stored Destination names in the 8 Dest displays, (i.e. one of 48 pages of 8 Sources.) If the **STROPCHS** (store operator changes) flag is active, pressing and holding the **STORE** button and then pressing a **TAKE/LOAD** button (with the **STORE** button still held) will store a valid Destination name appearing in the Preset (if any) into the Destination page at the specified location. If the Preset display is blank, this action will store a blank (in the corresponding position.) If the **STROPCHS** (store operator changes) flag is not active, the message **PAGELOCK** will appear briefly in the Level display.

Pressing any **TAKE/LOAD** button adjacent to one of the 8 names which appear in the 8 Dest displays immediately selects the corresponding name and loads it into the Preset display, returning the operator automatically to Destination Page mode.

If a Destination exclusion set is configured for the panel, the Dest display for any bus which would otherwise show an excluded name will display the Destination name, but only after temporarily showing **EXCLUDED** in the

Dest display. This allows Destinations to be examined, but no crosspoints may be changed. Any attempt to request a take on an excluded bus will result in the corresponding Status display showing **EXCLUDED** before returning to the name of the Source on the active Tally Level for that Destination.

- Once a desired Destination has been loaded on one or more busses, press the **PROT/HOLD** button or buttons to hold the appropriate busses. The **PROT/HOLD** lamp(s) will light indicating that the paging functions will not over-write these held busses.

  Press the **PROT/HOLD** button again to allow over-writing on a specific bus. Individual busses within each page may always be modified using either of the two methods described above, allowing both speed and optimum versatility.

Note The Hold function also applies to Destination mode as well as Destination Page mode. This allows modification of Destination to bus assignments in either mode. The **PROT/HOLD** lamps indicate **HOLD** and **NOT PROT** status in both Destination mode and Destination Page mode.

You can only select Destinations which have defined levels corresponding to those the panel can control (set by configuration). Also, Destinations excluded during configuration will not appear in the **PREV/NEXT** scrolling list, nor will they be accessible from the keypad. If you can not access the desired Destination, consult your maintenance person.

Exiting Destination Page Mode

- Press another mode button -- **DEST**, **LEVEL**, **SRC**, **LEVEL PAGE**, **SRC PAGE**, **SALVO PAGE**, or **CHOP**.

  Whenever Destination Page is exited, the new bus assignments will become the last accessed Destination Page.

Salvo Page

A Salvo can change Sources on any or all Destinations in the system; therefore Salvos should be used with caution.

Each Salvo is defined and stored as a list of Source-Destination-Level groupings during the configuration procedure (see Configuration Manual).

Salvo Page mode allows **PREV/NEXT** knob scrolling of pages of Salvo names, (up to 8 Salvos at a time, selected from the set of Salvo pages (which may or may not be user-modified depending on the setting of the **STROPCHS** flag). Eight names appear at a time on an EDP panel. This provides access to Salvo names up to eight times faster than using **PREV/NEXT** on other panels. Not all Salvo names and/or pages configured by the GUI may be

available at a given panel, and there may be gaps in the sequence of pages in terms of page number. The **PREV/NEXT** control knob allows access to all pages (up to 32) available from the panel.

Accessing Salvos

1. Press the **SALVO PAGE** mode button, the Dest displays will be blank. The **SALVO PAGE** lamp lights. The Status displays will show up to eight Salvo names, the Level display will show the name of the Salvo Page (if configured), and the Preset display will show the Salvo Page Number in the format **SVOPG#NN** where nn is a 2 digit number from 01 to 32. Leading zeros are used for numbers less than 10.

   If no Salvos are available on the current page, the Preset, Status, and Dest displays will be blank.

2. Scroll through the Salvo Pages list using the **PREV** / **NEXT** control knob.
   or:
   Use the keypad to access Salvo pages with a two press sequence with the numeric suffix designations on the keypad. Pages numbered 1 through 9 require a leading 0 and become 01 through 09. Pages 10 and above do not require a leading 0.

3. Press the **TAKE/LOAD** button corresponding to the adjacent Salvo name of interest. This requests a take of the Salvo with that name from the system controller. The name of the selected Salvo will appear briefly in the Preset display.

The last accessed page appears upon entering Salvo Page mode.

- To return to the default Salvo page (from another mode), press **SHIFT A** (lighting the **SHIFT A** lamp), then press **SALVO PAGE**.

The default page may also be reached at any time in this mode by pressing the **0** and **1** buttons consecutively using the suffix designations on the keypad.

SALVEXCL will appear momentarily in the Preset display if the system has an Exclusion set for the selected Salvo. This means the Salvo take request was denied.

Storing Salvos

Press the **SHIFT A** button to use the **PREV/NEXT** control to scroll through Salvo names one at a time in the Preset display.

If the **STROPCHS** (store operator changes) flag is active, press and hold the **STORE** button, then press a **TAKE/LOAD** button (with the **STORE** button still held) to store a valid Salvo name appearing in the Preset (if any) into the Salvo page at the specified location. The **STROPCHS** message will appear fol-

lowed by the Salvo name in the adjacent display while returning from individual Salvo selection to normal Salvo Page mode. If the Preset display is blank, this action will store a blank (in the corresponding position.)

If the **STROPCHS** (store operator changes) flag is not active, the message **PAGELOCK** appears briefly in the Level display. (Press the **SHIFT A** button to resume normal Salvo Page mode operation.)

Note To confirm Salvo operation, examine the pertinent Destinations on all applicable levels either one at a time (using Level mode), eight at time (using Level Page mode) or use the status display of the system diagnostic console or VSD to examine many Destination/Level positions at a time.

Configuration of the elements of an individual Salvo (as contrasted with Salvo operation) from this panel is not supported.

Exiting Salvo Page Mode

- Press another mode button -- **DEST, LEVEL, SRC, DEST PAGE, LEVEL PAGE, SRC PAGE**, or **CHOP**.

Ganged Salvo Takes

Press and hold the **SHIFT A** button and a **TAKE** button to Take all Salvos on all busses in a given row (4 busses).

Press and hold the **SHIFT B** button and a **TAKE** button to Take all Salvos on the active page (up to 8) to their respective 8 busses.

It is prudent to ensure that all Salvos on a given row or page have no conflicts before using these ganged functions. If you attempt to execute a ganged Salvo and a conflict does exist the ganged Salvo will not work and the most recently executed Salvo will not be overridden.

Flag Mode

Flag mode is used to enable / disable flags. Currently only the EDP panel uses the Flag mode. This mode is not a normal operating mode of the panel. It can only be reached by successfully entering the correct password. The **ENABPSWD** flag must be enabled during configuration (see the *Configuration Manual* for information about panel template configuration).

If the **ENABPSWD** flag is disabled at the panel while in Flag mode and Flag mode is exited, it will be necessary to send a configuration from the GUI with the **ENABPSWD** Flag enabled to resume Flag mode operations.

If **ENABPSWD** is inactive, attempting to access Password or Flag modes will not work.

Accessing Flag Mode

1. Press and hold the **LEVEL** button, then still holding the **LEVEL** button press the **SHIFT A** button.

   In this condition, the bus displays are blank and all lamps are off except for the **SRC** lamp which is blinking to indicate a quick way to exit the mode. The Level display shows **^ PSWD ^** and the Preset display is blank, awaiting entry of the valid password for the panel.

2. Select one character at a time, using suffix characters from the keypad, to spell out a 4 to 8 character password. **SHIFT A** and **SHIFT B** may be used to provide more choices with shifted suffixes.

3. Press any **TAKE/LOAD** button to check the password.

   If the **SRC-MODE-TIME-IN** time is exceeded before a **TAKE/LOAD** button is pressed, the panel returns to Source mode.

   If the password is correct, the panel immediately enters Flag mode.

   If the password is invalid the string **Bad Pswd** appears momentarily before returning to **^ PSWD ^**.

Setting a New Password

Whenever a new configuration is downloaded to a panel, the password is erased at the panel and a new one must be entered from the panel.

1. Press and hold the **LEVEL** button, then still holding the **LEVEL** button press the **SHIFT A** button.

   In this condition (not a normal operating mode), the bus displays are blank and all lamps are off except for the **SRC** lamp which is blinking to indicate a quick way to exit the mode. The Level display shows **NEW PSWD** and the Preset display is blank, awaiting entry of the new password for the panel.

2. Select one character at a time, using suffix characters from the keypad, to spell out a 4 to 8 character password. **SHIFT A** and **SHIFT B** may be used to provide more choices with shifted suffixes.

3. Press the **STORE** button to enter the password. **CONFIRM:** will appear in the Level display.

4. Enter the Password and press the **STORE** button.

   If the password is correctly duplicated the panel will enter Flag mode.

   If not, the **NEW PSWD, CONFIRM:** sequence will repeat until a password is correctly duplicated, or the **STORE** button is pressed twice consecutively, locking out the panel from Flag mode until a new configuration is sent from the GUI.

Exiting Password Mode

- Press the blinking **SRC** button; this immediately puts the panel in Source mode.

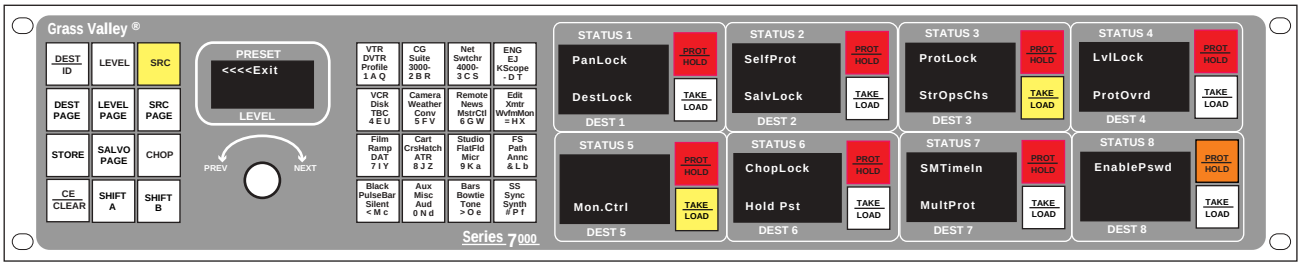
Toggling Flags

- Press any of the **PROT/HOLD** or **TAKE/LOAD** buttons to toggle the corresponding flag to the opposite state.

  Most of the sixteen bus displays show an up to 8-character abbreviation of the configuration flags which are preset by the GUI, but can be modified in this mode, see *Appendix B* for flag information. The flag abbreviations appear in the bus displays as shown in Figure 2-2.

  The state of each flag is indicated by the corresponding **PROT/HOLD** or **TAKE/LOAD** button lamp; if the adjacent lamp is lit, the flag is enabled, if the adjacent lamp is unlit, the flag is disabled.

Figure 2-2. EDP Panel in Flag Mode



Exiting Flag Mode

- Press the blinking **SRC** button; this immediately puts the panel in Source mode.

  In Flag mode, the Preset display shows **<<<<EXIT**, signifying that pressing the blinking **SRC** button will exit the mode at any time.

Joystick Override

The optional Joystick Override board is used for remote Source selection, typically for Camera Control Units. When the Joystick button on a Camera Control Unit is depressed, the associated Source is switched to the Destination controlled by the P32 or the P48. The Joystick Override board accepts up to 24 inputs, via opto-isolated inputs. (See the *Installation Manual* for external connections.)

Note A P32 or P48 with Joystick Override installed and configured with **SELFPROT** will not allow any Takes on a protected panel until the **PROT** is released.

The Joystick Override will continuously examine new remote data to determine if a switch closure has occurred. When a new switch closure is detected, the panel will store the existing status and immediately request a Take of the GUI preconfigured Source for that switch position. When the remote switch is released, the panel will ask for a Take of the prior stored status unless another switch is simultaneously pressed.

When two or more switches are pressed and held simultaneously, as each switch is released, the Joystick Override will request a Take of the switch with the lowest index (the assigned switch position in the GUI configuration column closest to index #1) still being held down. When the last remote switch is released, the panel will request a Take of the status prior to any remote switches being pressed.

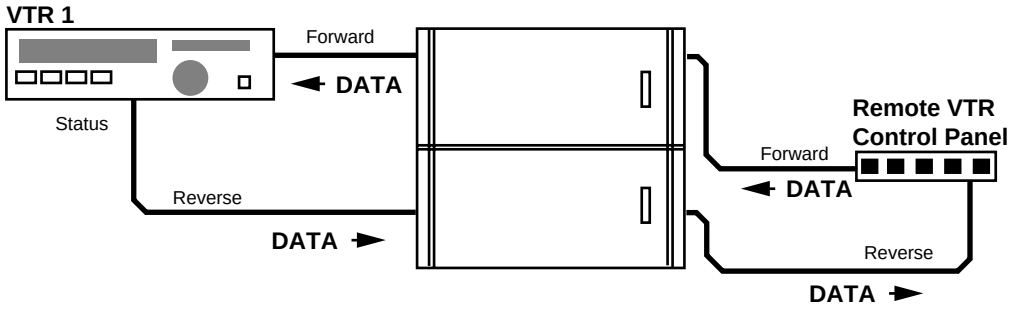
When the **HOLDREMT** (hold remote) configuration flag is active, the panel operation will differ from the inactive default. Remote closures will not revert to the prior front panel status but will become latching as do front panel switch closures.

All Joystick Override Sources use sources assigned during configuration. A 50-pin D connector is created to access the sources. Please refer to the *Installation Manual*.

Data Matrix Control

There are rules of operation unique to Data Matrix Levels. These rules affect exclusive and protected connections.

Figure 2-3. Example of Data Matrix Control



Exclusive Connections

The Series 7000 Data Matrix is designed for Exclusive source-to-destination connection (one to one), rather than Distributive connection (one to many) typical of routing switchers. A Data connection, from a remote control device to a machine, is not shared with other devices as is an audio or video source connection.

To make a connection in the data matrix, use a control panel controlling a Data Matrix Destination to Take a valid Data Matrix Source. If the connections are available, the Take command will be performed.

Protected Connections

The connection made is always subject to change from other control devices unless a Protect is issued by the current user. If a Protect is not active, another control panel requesting use of the same source or destination will be granted their Take and the connection will be automatically lost.

Note The danger of using Protects is that the panel can be inadvertently left in Protect Mode when the session is done and the operator has departed. Remember to remove Protects when finished with connections.

Release Source Disconnects

In a large facility with many operators, it may be desirable to establish a Disconnect or Release Source that is always Taken at the end of a Data Matrix session. The Release Source is a source in the Data Matrix Configuration that does not have a corresponding destination. Because it has no destination, this connection can have many destinations assigned to it. (A distributive connection).

Destinations connected to a Release Source could be identified on a Status Display as a pool of available Destinations for any operator to use. If all new connections are taken from the pool, it is not necessary to Protect the connection.

To set up a Release Source, see *Data Matrix*, in the *Configuration Manual.*

Identifying Protected Connections

If the Protect method of securing a connection is used, there may be an occasion to search for the location of an undesired Protected connection. To identify the panel that is holding the Protect, go to the status display (on the GUI or other PC equipped with the status Display) and view the data matrix level. By viewing the names of protecting devices it can be determined what the name is of the control panel that is locking a particular destination. If the control panel names have been assigned to convey their physical location within the facility, then locate the panel and remove the Protect.

Section 3

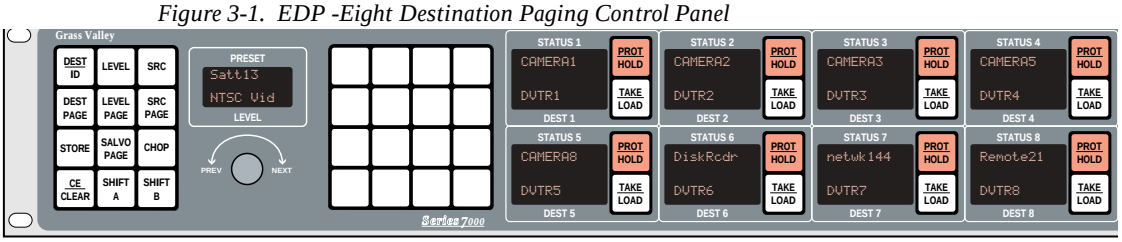
Control Panels

Introduction

Series 7000 Signal Management Systems use a wide variety of control panels and displays. This chapter describes the most frequently encountered panels and displays.

EDP - Eight Destination Paging Control Panel

Figure 3-1. EDP -Eight Destination Paging Control Panel



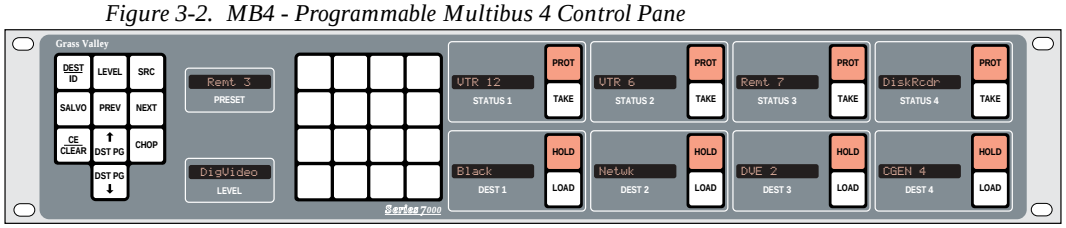
The EDP (Eight Destination Paging) Control Panel controls eight assigned output busses (Destinations). Destinations are front-panel selectable so the EDP can switch any Source to any Destination. For any Source Take, any combination of the available levels can be preset for Breakaway takes or chops. A 16-button keypad provides prefix / suffix access to frequently used names and pages of Sources, Destinations, Levels, and Salvos. To scroll through complete name lists use the **PREV/NEXT** control knob. The EDP panel can also execute configured Salvos.

Eight Dest and eight Status displays provide Sources and Destinations for 8 busses, as well as breakaway status for eight levels at a time.

Two shift buttons provide expanded Keypad access to 48 prefixes and 48 suffixes. The paging feature allows up to 48 pages of eight Destinations, 48 pages of eight Sources, and 32 pages of eight Salvos to be created during configuration. These pages can be accessed by entering the appropriate page mode and using the **PREV/NEXT** knob to scroll.

MB4 - Programmable Multibus 4 Control Panel

Figure 3-2. MB4 - Programmable Multibus 4 Control Pane



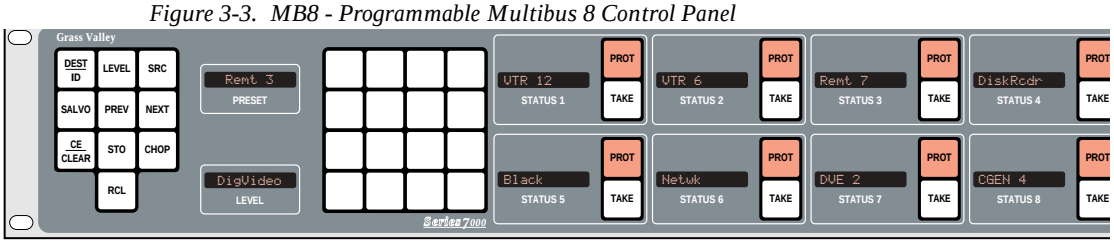
3388-4

The Multibus 4 Control Panel (MB4) controls four assigned output busses (Destinations). Status information and destination names are simultaneously displayed, eliminating much mode switching. Destinations are typically front-panel selectable so the MB4 can switch any Source to any Destination. (Depending on configuration if DestLock is not active.)

For any Source-take, any combination of the available Levels can be preset for Breakaway Takes or Chops. A 16-button keypad provides prefix / suffix access to frequently used sources and destinations. You can also scroll through complete name lists using the **PREV** and **NEXT** buttons. The MB4 panel can execute Salvos assembled during system configuration.

MB8 - Programmable Multibus 8 Control Panel

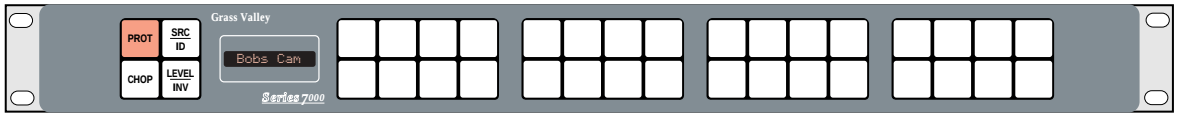
Figure 3-3. MB8 - Programmable Multibus 8 Control Panel



The Series 7000 Multibus Control Panel (MB8) controls eight assigned output buses (Destinations). Destinations are front-panel selectable so the MB8 can switch any Source to any Destination. For any Source-take, any combination of the available Levels can be preset for Breakaway Takes or Chops. A 16-button keypad provides prefix / suffix access to frequently used names. You can also scroll through complete name lists using the **PREV** and **NEXT** buttons. The MB8 panel can execute Salvos assembled during system configuration.

P32 - 32 Button-Per-Source Control Panel

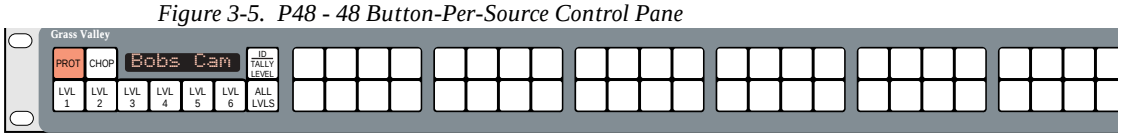
Figure 3-4. BPS32 - Programmable Button-Per-Source Control Panel



The Programmable 32 (P32) Control Panel is a button-per-Source panel that performs a Source-take with the single push of a button. The panel controls a single Destination (defined by the user during system configuration) and from one to all system Levels. For any Source-take, any combination of the available Levels can be made active (or inactive) for Breakaway switching. The P32 also offers Protect, Joystick Override, Chop, and other functions.

P48 - 48 Button-Per-Source Control Panel

Figure 3-5. P48 - 48 Button-Per-Source Control Pane

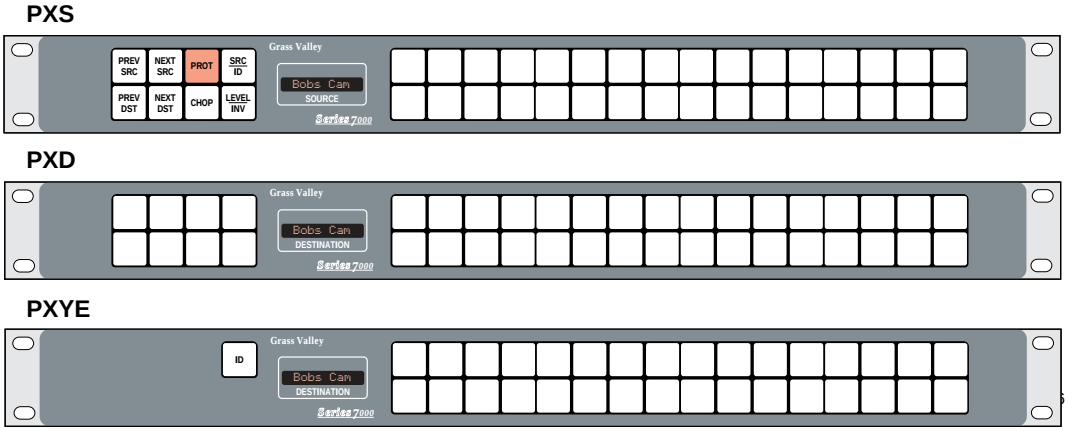


The Series 7000 P48 Control Panel is a 48 button-per-source panel that performs a source-take with the single push of a button. The panel controls a single destination (as defined in the configuration of the panel). The P48 also provides six programmable Level Keys for easy breakaways. For any source-take, any combination of the available levels can be made active (or inactive) for breakaway switching. The P48 also offers Protect, Chop, Special Level control, Joystick Override, and other functions.

Panel Configuration determines the sources, levels, and destination that the panel can control. It also determines how the panel performs in terms of Tally, Locks, Defaults, etc. It is possible for some of the operations to be limited by System or Panel configuration constraints.

PXY - Programmable X-Y Control Panels

Figure 3-6. PXY - Programmable X-Y Control Panels



The Programmable X-Y Control Panels are based on the P32 panel that performs a Source-Take with the single push of a button. The PXY panel set adds Destination and Salvo selection, and expansion capabilities.

PXY Panel Set

The set consists of:

- PXS Master panel (typically configured with sources)
- PXD Expansion panel (typically configured with destinations)
- PXYE panel for Source, Salvo, or Destination Expansion

Any of the 32 select buttons on any PXY Panel may be configured to be a Source, Destination or Salvo in any arbitrary arrangement to suit particular needs. In addition, each of the Select buttons on a PXS (Master) Panel may have a level configured to that position.

The PXS can function alone or can work with one or more PXYE panels and / or a single PXD panel. Table 3-1 below illustrates the possible combinations that can comprise a PXY group. (PXD and PXYE panels will not function without a PXS panel.)

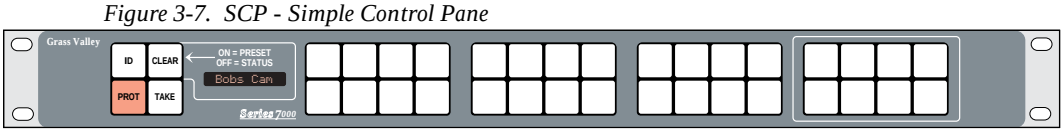
Table 3-1. Possible Panel Combinations[a]

Panel	Set A	Set B	Set C	Set D
PXS	1	1	1	1
PXD	None	1	None	1
PXYE	None	None	1 to 15	1 to 14

[a] The absolute maximum PXYE panels allowed in a single PXY group are shown in Sets C and D. Some speed degradation may occur in groups with more than 6 or 7 PXYE panels.

SCP - Simple Control Panel

Figure 3-7. SCP - Simple Control Pane

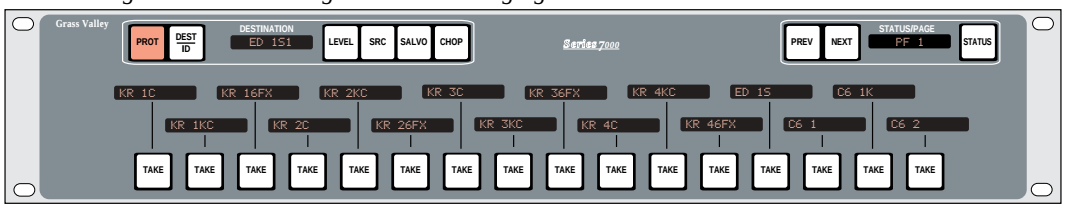


3388-8

The Simple Control Panel (SCP) is a hybrid mode panel that supports both keypad access of Sources (24 buttons) and button-per-item access (8 buttons) of Sources, Destinations, salvos or Levels in any combination. The panel may control a single Destination (defined by the user during system configuration) or up to 8 Destinations (if so configured) and from one to all system Levels. For any Source-take, any combination of up to 8 Levels can be made inactive (if so configured) for breakaway switching. The SCP also offers Protect and other functions.

SDP - Single Destination Paging Control Panel

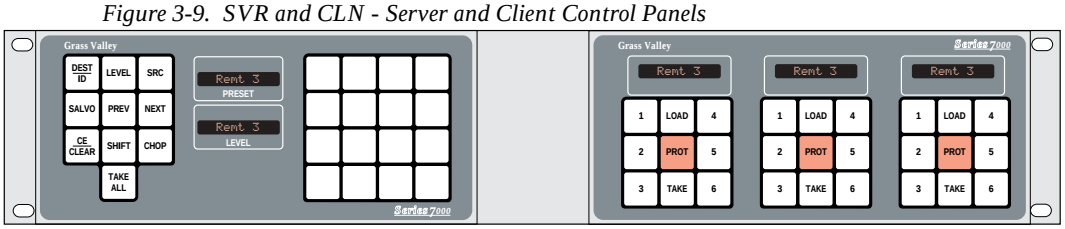
Figure 3-8. SDP - Single Destination Paging Control Panel



The Single Destination Paging control panel provides sixteen Preset Source displays and **TAKE** buttons, allowing the user to Take a source from one of the presets or from other Pages of presets. In addition to Sources, the SDP displays configured Page Sets of frequently used Destinations, Levels, or Salvos. The SDP also offers Protect, Chop, and other functions.

SVR and CLN - Server and Client Control Panels

Figure 3-9. SVR and CLN - Server and Client Control Panels

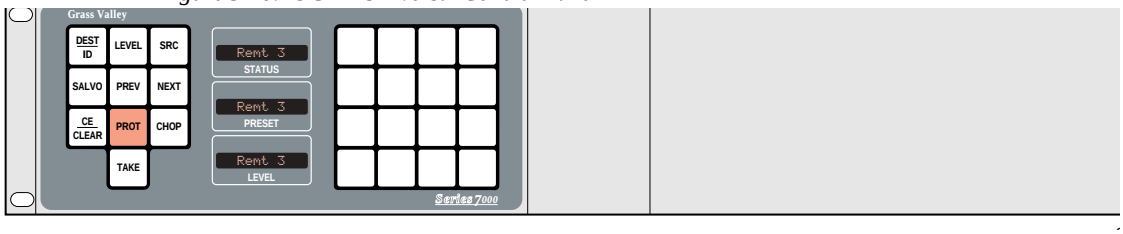


3388-13

Server and Client Control Panels fill a unique operational niche. The panels are complementary. The Server Panel provides quick keypad access to as many as 32 Source and Destination prefixes and suffixes, and **PREV** / **NEXT** scrolling access to all non-excluded system Sources and Destinations. Preset Source names are sent to Client Panels and stored in registers for convenient one-button recall or immediate use. A single Server Panel can be associated with up to 15 Client Panels within a single Client Server Group. Each Client Panel controls three Destinations. Thus, a single Server Panel can be used to set up six Source presets, each for up to forty-five router Destinations. Each preset could include Sources on up to 32 control Levels.

UCP - Universal Control Panel

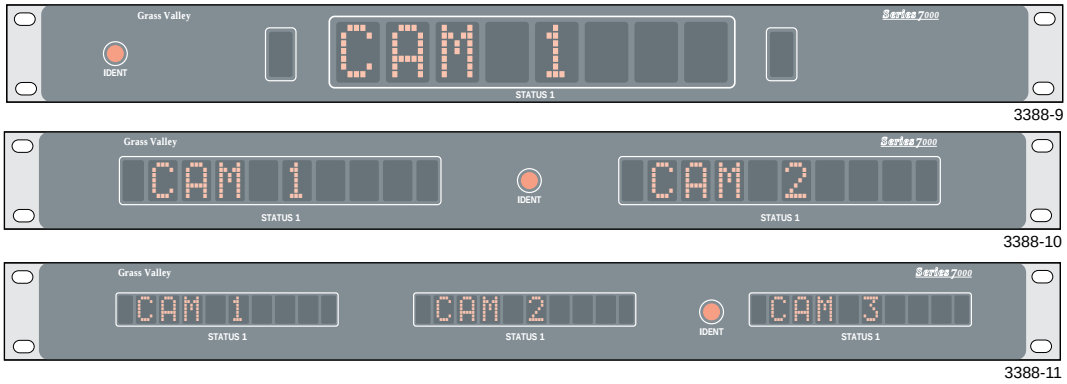
Figure 3-10. UCP - Universal Control Panel



The Universal Control Panel (UCP) switches any Source to any Destination and also performs Salvos. For any Source-take, any combination of the available Levels can be preset for Breakaway Takes or Chops. A 16-button keypad provides access to frequently used names through prefix / suffix selection. The UCP panel also allows you to rapidly scroll through complete name lists using the **PREV** and **NEXT** buttons.

UMD - Under Monitor Displays

Figure 3-11. UMD - Single, Double, and Triple Under Monitor Displays



The single Under Monitor Display (UMD) has an eight–character display which indicates the video source currently being displayed on the associated monitor. A single LED is at each end of the eight–character display; one LED is green, the other is red. The LEDs are software configured to provide Tally indications. The LEDs are intended to be used with the 7000 Tally Modules. The dual UMD has two eight–character displays with corresponding red and green LEDs and is intended to rack–mount beneath two video monitors (one display per associated monitor). A triple UMD is also available. All three UMDs have a single, recessed **IDENT** button which causes UMD configuration and software version to be displayed when pressed.

Section 4

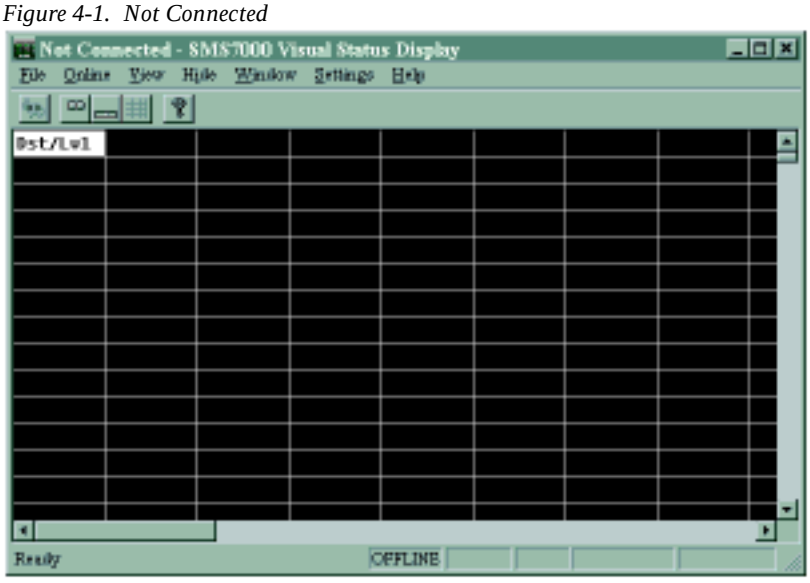
Visual Status Display

Introduction

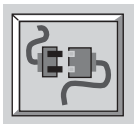
The Visual Status Display (VSD) application displays the current status of the Series 7000 Source-to-Destination connections.

Start the VSD program by double clicking on the SMS7000 VSD icon in the SMS7000 group in Windows. The program will run and display **NOT CONNECTED SMS7000 VISUAL STATUS DISPLAY** in the title bar.

Figure 4-1. Not Connected



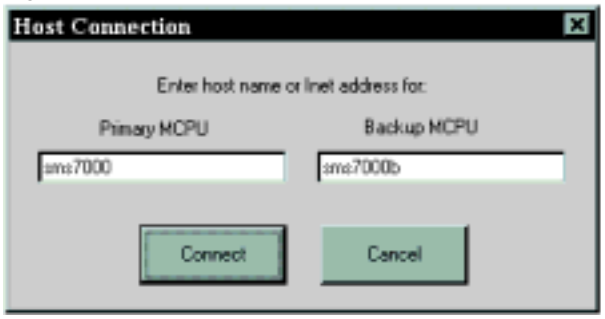
Connection



5. Click on the toolbar icon picture of a plug and its socket,
   or
   select the **CONNECT** option from the **ONLINE** menu.

6. VSD displays the **Host Connection** dialog box.

Figure 4-2. Host Connection Window



7. Enter the name of the primary MCPU in the Series 7000 system in the Primary MCPU box.

   If the SMS7000 system has a backup MCPU installed, also enter the backup MCPU name in the Backup MCPU box. You may enter either the name of the MCPU or its Inet address.

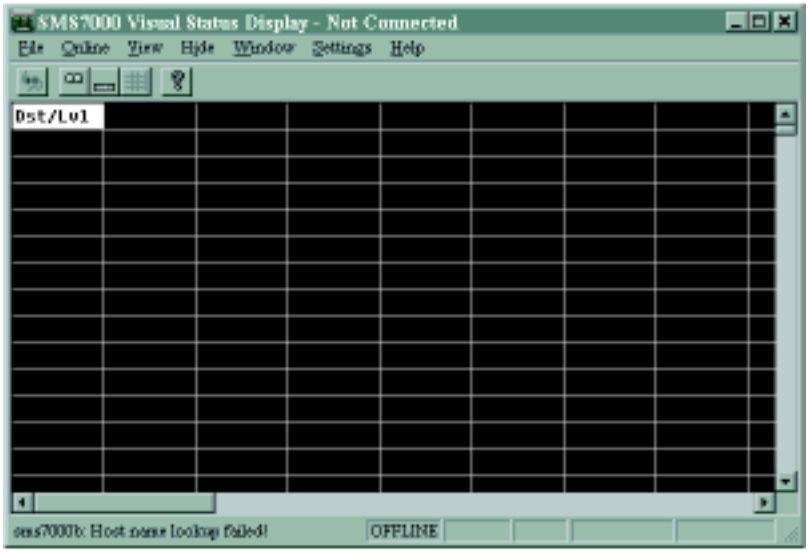
8. Click on the **CONNECT** button to connect to the Series 7000 system.

The VSD program will remember the last pair of names entered for Primary and Backup MCPUs. The next time a connection is requested, these names will appear in the dialog boxes, and need not be changed unless you wish to connect to a different Series 7000 system.

The status bar on the bottom of the VSD screen displays progress reports during the connection. When the program is connected to the Series 7000, the title bar displays the MCPU name.

If the program is unable to connect to the primary MCPU, it will attempt to connect to the backup MCPU (if one was specified). If this second connection attempt also fails, the status line shows the reason for the failure, and the title bar displays **NOT CONNECTED** see Figure 4-3.

Figure 4-3. VSD Appearance if Connection Failed



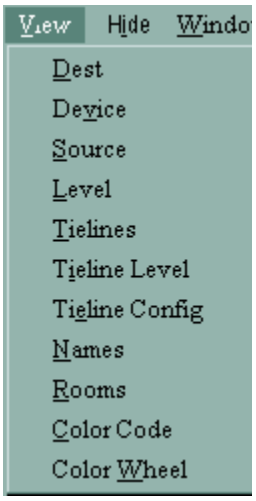
If the connection is made, but is later lost, the program attempts to reconnect to the primary and backup MCPUs.

Exit

Exiting the VSD

1. **DISCONNECT** from the Series 7000 MCPU. This releases MCPU resources more quickly than if the VSD program is exited directly.
2. Select **EXIT** from the **FILE** menu.

View Selection



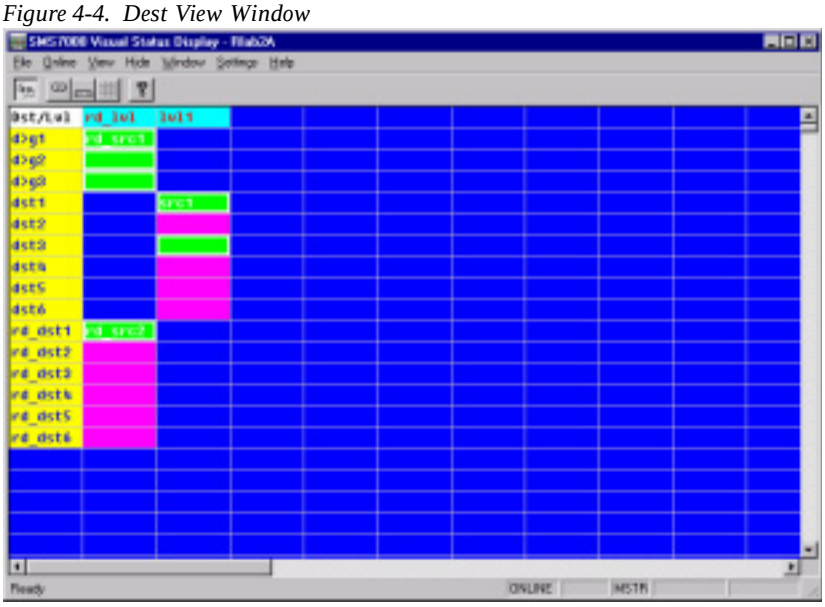
The VSD provides several ways of looking at the MCPU status. Each of these is selected by clicking on the **VIEW** menu and selecting one of the following views:

- Dest (Destination) page 4-5
- Device page 4-6
- Source page 4-7
- Level page 4-8
- Tielines page 4-9
- Tieline Level page 4-10
- Tieline Config (Configuration) page 4-11
- Names page 4-12
- Rooms page 4-12
- Color Code page 4-13
- Color Wheel page 4-14

Dest

This view shows the name of each Destination along the left hand side of the display. The top line of the display shows each of the Level names. The name of the Source routed to a given Destination on a given Level is in the box at the intersection of the Destination row and the Level column. A Destination displays the Levels that are defined for that Destination in a different color than the Levels that are not defined for that Destination.

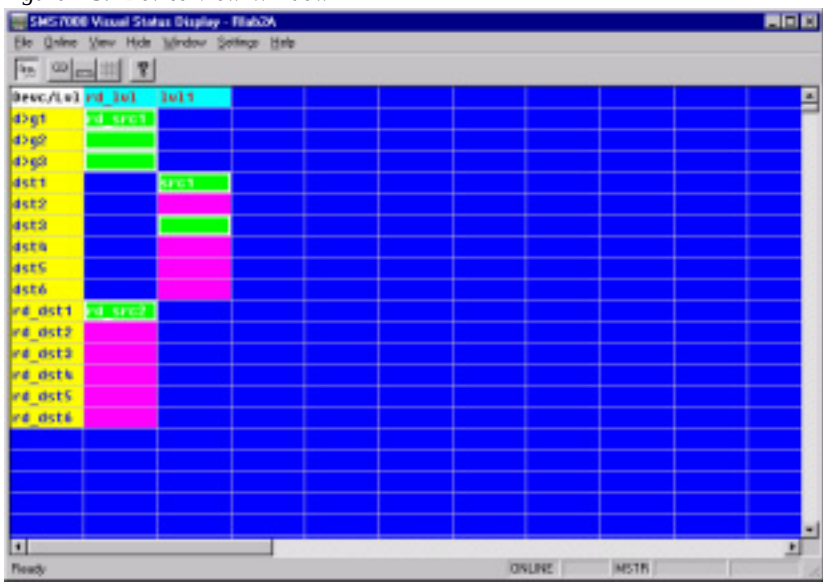
Figure 4-4. Dest View Window



Device

This view is almost identical to the Dest view, except that if a Destination is protected on a given Level, the name of the device that is protecting the Destination is displayed in the grid instead of the name of the Source that is routed to the Destination.

Figure 4-5. Device View Window



Source

The Source view shows all of the routings of a selected Source. When this view is selected the VSD program displays a dialog box asking you to select a specific Source.

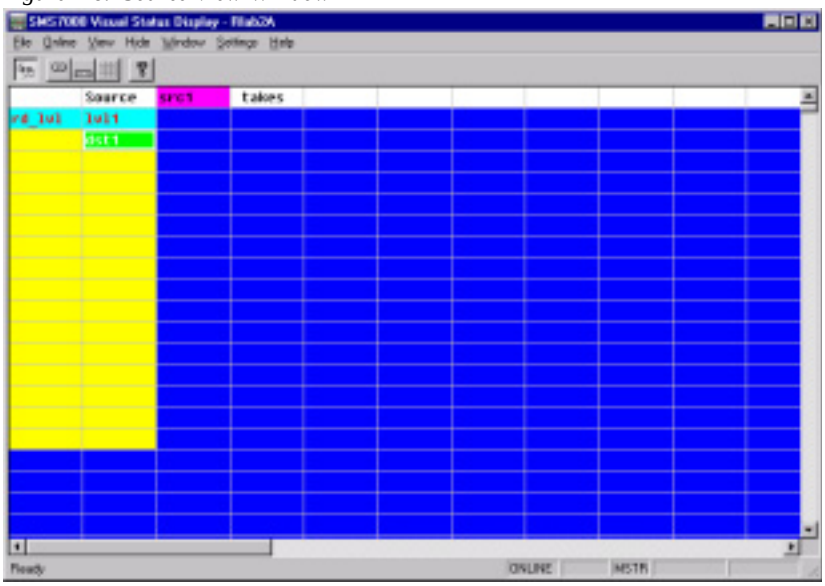
Selecting a Source

1. Click on the Source to display, in the pull-down menu.

2. Click the **OK** button to confirm Source selection.

The Source view lists all of the Levels across the top of the screen. For each Level, VSD displays a list of all Destinations receiving the selected Source's signal on that Level.

Figure 4-6. Source View Window



Level

The Level view shows all of the routings on a selected Level. When this view is selected the VSD program displays a dialog box asking you to select a specific Level.

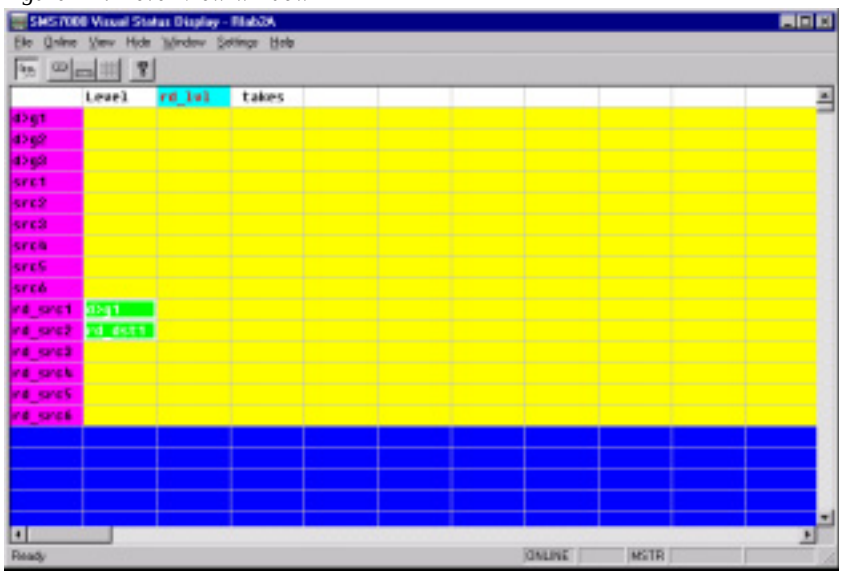
Selecting a Level

1. Click on the Level to display, in the pull-down menu.

2. Click the **OK** button to confirm Level selection.

The Level view lists all of the Sources on the left of the display. After each Source, VSD shows a list of all the Destinations to which the specified Level of that Source is routed.

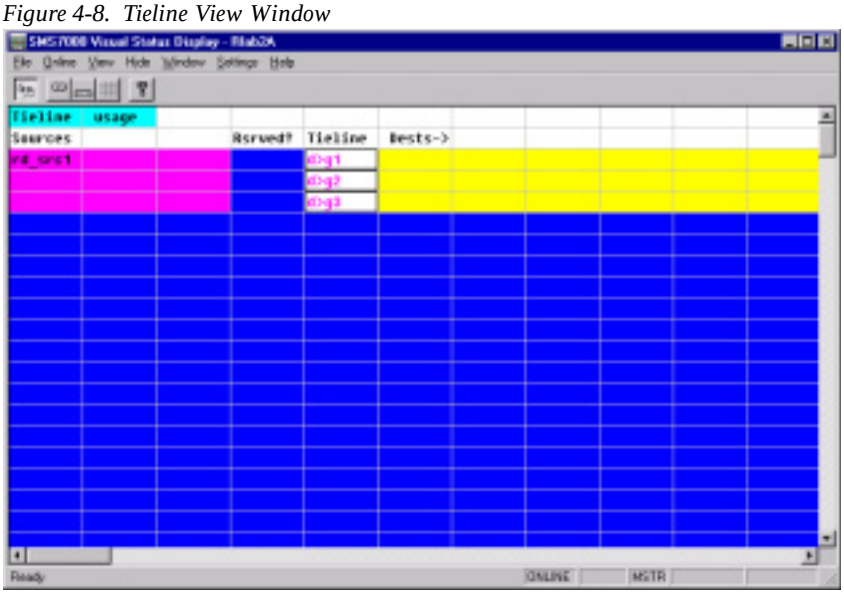
Figure 4-7. Level View window



Tieline

The Tieline view shows all the routings actually using Tielines without regard to level.

Figure 4-8. Tieline View Window



Tieline Level

The Tieline Level view shows all of the routings using Tielines on a selected Level. When you select this view, the VSD program requires you to select a Level exactly as in the Level view.

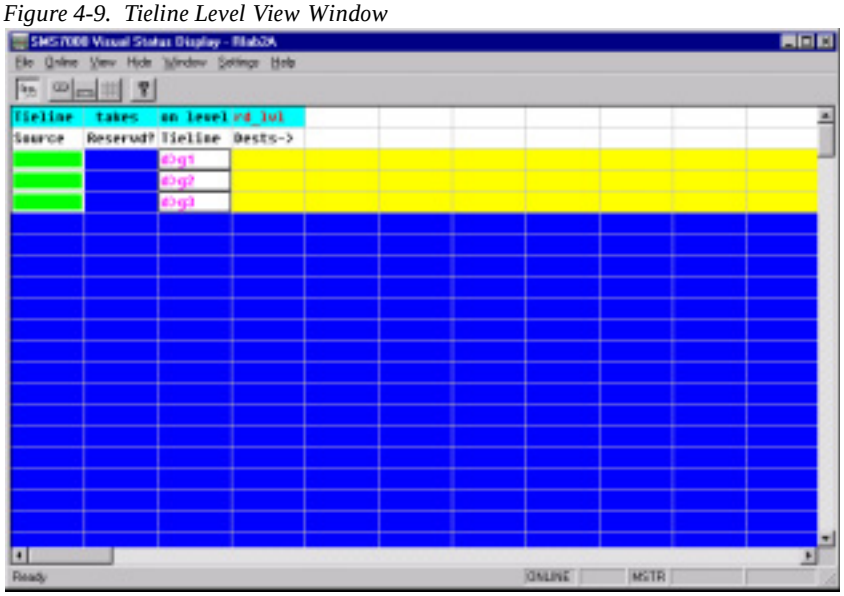
Selecting a Tieline Level

1. Click on the Level to display, in the pull-down menu.

2. Click the **OK** button to confirm Level selection.

This view shows a list of all Tielines in the second column. To the left of a Tieline name, VSD displays the name of the Source that is routed through that Tieline on the specified Level. To the immediate right of the Tieline name, VSD displays the name of the room or Destination to which the Tieline has been assigned (if it has been assigned). If the Tieline has been assigned to more than one room or to more than one Destination it displays in a different color. To the right of the assignment, VSD displays a list of all Destinations using this Tieline on this Level.

Figure 4-9. Tieline Level View Window

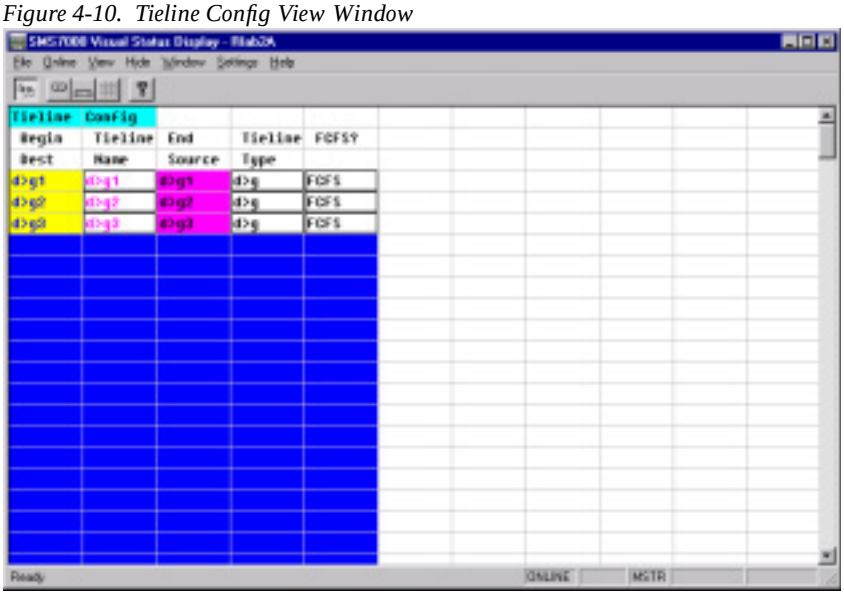


Note Destinations that are just monitoring the Tielines are not shown, as an example, if the operator were to Take the tieline's End Source to a destination.

Tieline Config

The Tieline Config view shows how the Tielines are configured in the MCPU. It also shows whether the Tieline is a Reserved or a First Come First Served Tieline.

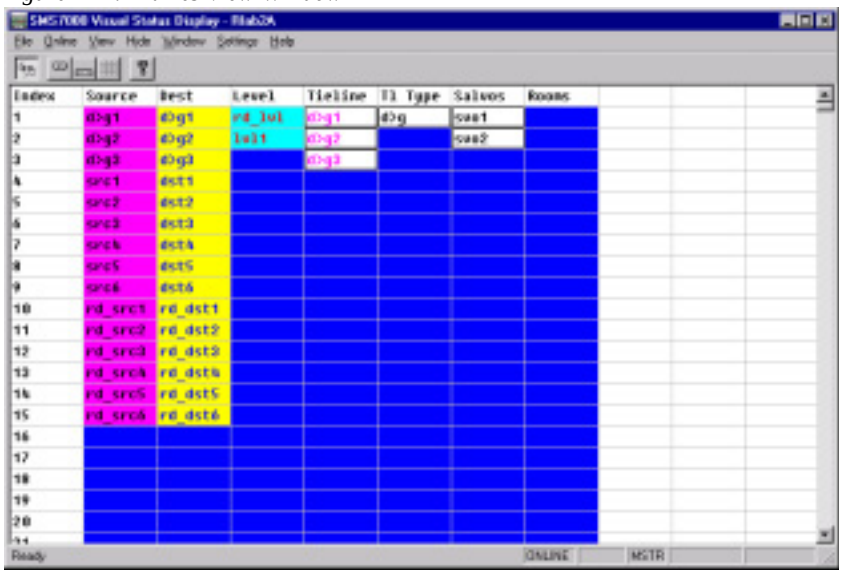
Figure 4-10. Tieline Config View Window



Names

The names view lists the names of all Sources, Destinations, Levels, Tielines, and Rooms in the Series 7000 configuration. No routing information is shown.

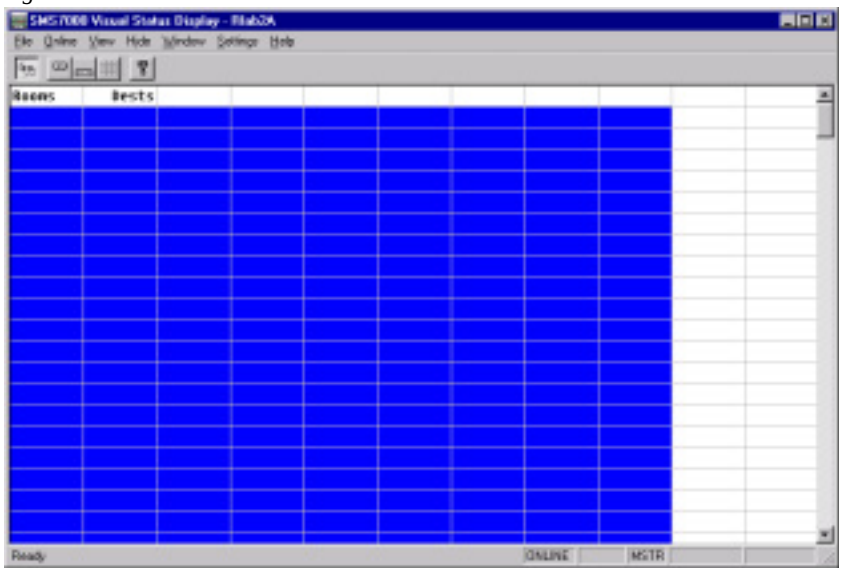
Figure 4-11. Names View Window



Rooms

The rooms view lists the names of all configured rooms and their configured Destinations

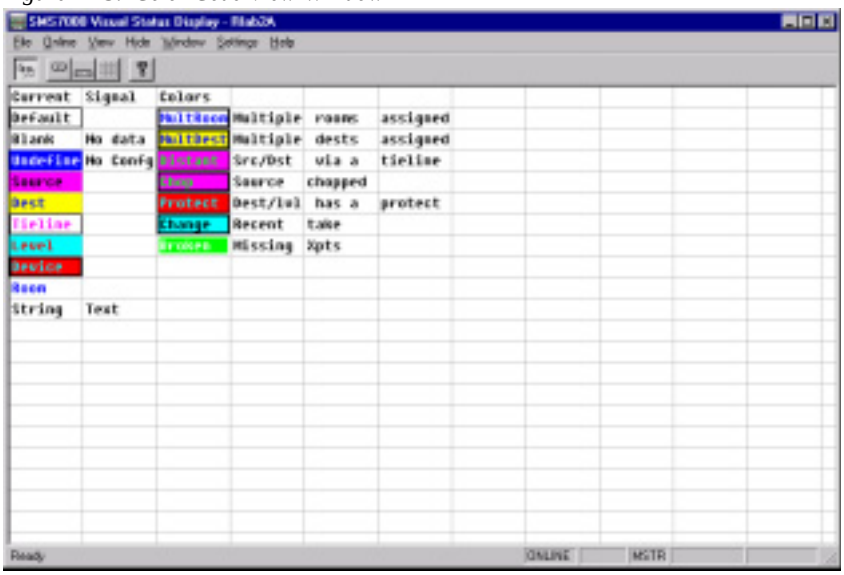
Figure 4-12. Rooms View Window



Color Code

The color code view displays the currently assigned colors and display boxes used by VSD to show different status information. The cells show both the color which is used to display a given status and the thickness of the box that will be drawn around a display cell.

Figure 4-13. Color Code View Window



The different status boxes are shown in Table 4-1.

Table 4-1. Color Code

Status Box	Usage
Default	This cell's colors are used for any status that does not explicitly have a different color pattern defined in the VSD.INI file.
Blank	This cell's colors are used as the window display background.
Undefine	When scrolling past the end of the list of Sources, Destinations, Levels or Tielines or when displaying a cell that corresponds to a Level that is not defined for a given Source or Destination, VSD displays the cell in this color.
Source	VSD normally displays a Source name in this color.
Dest	VSD normally displays a Destination name in this color.
Tieline	VSD normally displays a Tieline name in this color.
Level	VSD normally displays a Level name in this color.
Device	VSD normally displays the name of a Protecting Device in this color.
Room	VSD normally displays a Room Name in this color.
String	VSD displays permanent text information in this color.
MultRoom	If a Tieline is assigned to more than one room, VSD displays one room name in this color.
MultDest	If a Tieline is assigned to more than one Destination, but not to any rooms, VSD displays one of the Destination names in this color.

Table 4-1. Color Code

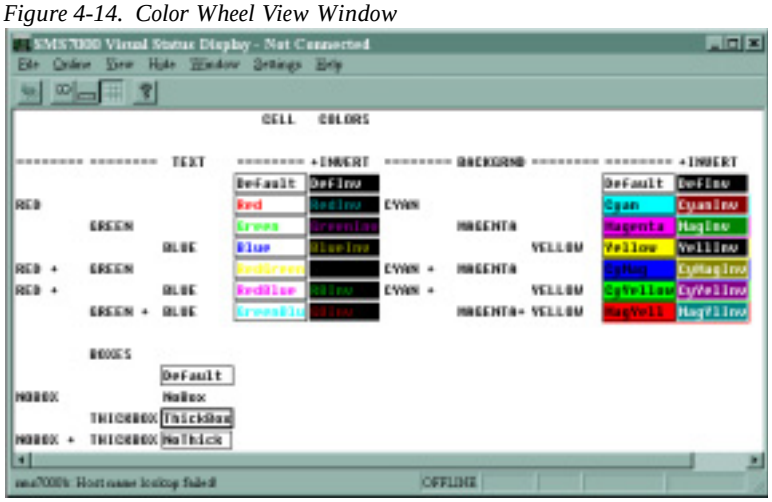
Status Box	Usage
Distant	If a routing passes through a Tieline, VSD displays the routed Source or Destination name in this color.
Chop	If a Destination has a chop enabled (and is alternating between the display of more than one Source), VSD displays the Source or Destination name in this color.
Protect	If a Level of a Destination is protected, VSD displays the Source routed to the Destination in this color.
Change	If a routing of a Source to a Destination has been changed recently, VSD displays the Source or Destination name in this color.
Broken	If a routing of a Source to a Destination is routed through missing crosspoints (so that the signal path is interrupted), then VSD displays the Source or Destination name in this color.

Note If more than one color code applies to a given routing, VSD uses the color code which appears furthest down on this list.

Color Wheel

This view shows the different colors and box border patterns that can be selected. The color wheel view shows no routing or status information.

Figure 4-14. Color Wheel View Window



Hide Data

The Hide menu of VSD permits you to hide parts of the display. This permits VSD to display more status information on the screen.

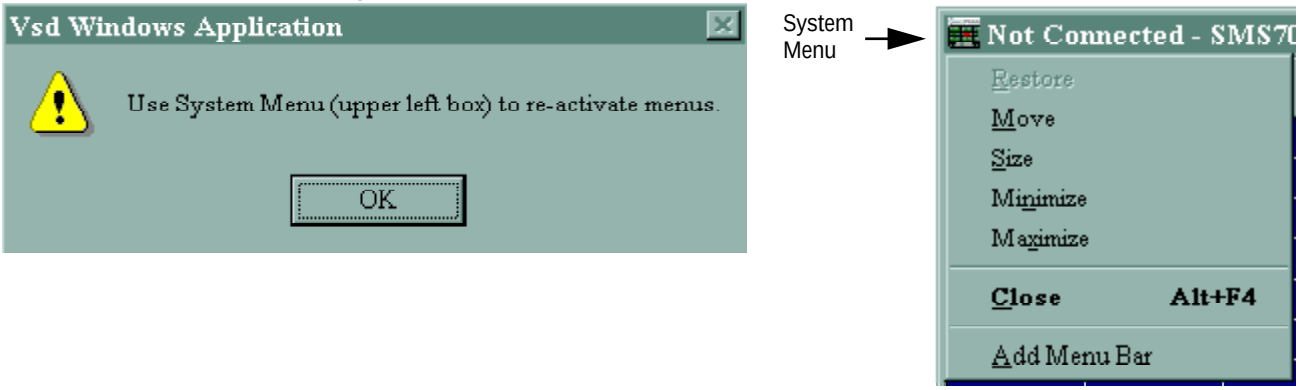
Select the **HIDE** menu and pick one or more of the following options shown in Table 4-3.

Table 4-2. Hide Menu Options

Hide Menu	Name	Usage
	Toolbar	VSD toggles the display of the toolbar line under the menu.
	Status Bar	VSD toggles the display of the status line on the bottom of the display.
	Gridlines	VSD toggles the display of gridlines in the display.
	Menu	VSD hides the Menu bar.

If the menu bar is hidden, none of the menu options may be selected.

Figure 4-15. Hide Menu Bar Windows



By clicking on the System Menu Box in the upper left corner of the display, a system menu will be displayed. Select **ADD MENU BAR** to re-enable the menu bar.

Toolbar Icons

The VSD toolbar displays 5 icon buttons.

Figure 4-16. VSD Toolbar Icons

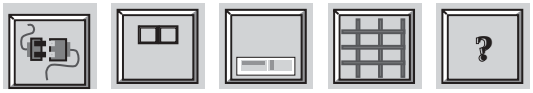
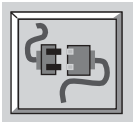
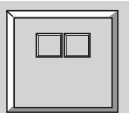
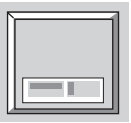
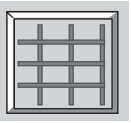


Table 4-3 shows the name and usage of the toolbar icon buttons.

Table 4-3. Toolbar Icon Buttons

Icon Button	Name	Usage
	Connection	To connect to the Series 7000 MCPU or to disconnect from the Series 7000. The button appears depressed while the VSD is connected.
	Toolbar	To hide the toolbar.
	Status Bar	To toggle the display of the status bar. When the status bar is hidden, the status bar button will be depressed.
	Gridlines	To toggle the display of gridlines. When the gridlines are turned off, the button will be shown as depressed.
	Help	To display the current version of the VSD program.

Status Bar

The bottom line of the VSD display shows the current status of the VSD connection to the MCPU.

The leftmost part of the status bar is used to display status messages.

The right part of the status bar consists of five boxes. The leftmost box contains the phrase **ONLINE** or **OFFLINE** depending on whether the VSD is connected to the SMS7000. The second box contains the phrase **LOADING** while VSD is loading the configuration from the SMS7000. The third box displays **MSTR** if the MCPU to which the VSD is connected is physically located in the master slot of the Series 7000. The fourth box displays **BKUP CONN** if the Series 7000 has a backup MCPU connected and operating. The fifth box displays **BKUP SYNC** if the backup MCPU of the Series 7000 is currently in sync (has the same configuration and crosspoint status) with the primary MCPU.

Figure 4-17. Status Bar

Window

The Window menu has a **REFRESH** selection which can be used to refresh the information shown in the Visual Status Display.

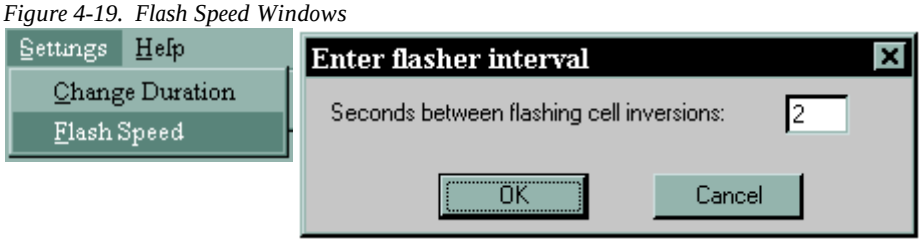
Settings

Change Duration is used to set the length of time that a changed item will be displayed in the color indicating change (the change color is shown in the color code). The duration can be from 1 to 300 seconds.

Figure 4-18. Change Duration Windows

Default views do not use Flash Speed. During custom view creation the Flash Speed can be assigned to cause an event to flash from the assigned default color to the assigned invert color. When Flash Speed is used the speed can be user modified using the **SETTINGS/FLASH SPEED WINDOW**. The flash speed can be from 1 to 20 seconds.

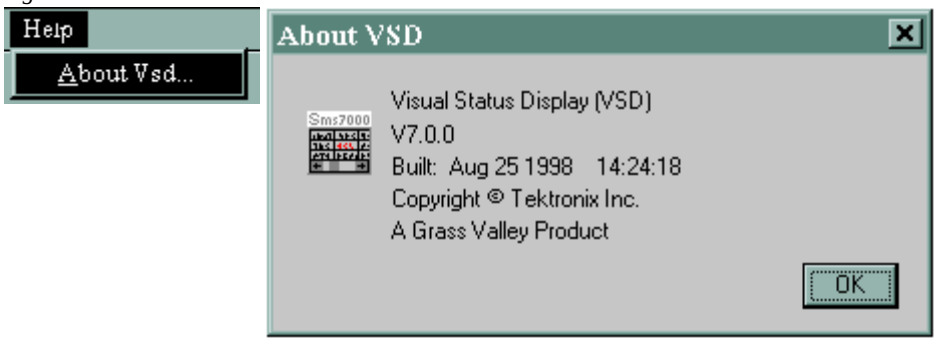
Figure 4-19. Flash Speed Windows



Help

The Help menu has an **ABOUT VSD** selection to access the About VSD window which shows the version information for the Visual Status Display.

Figure 4-20. About VSD Window



Appendix A

Messages

All Level

All applicable levels are ready for selection in subsequent Takes.

App Init

The initialization sequence for a panel during normal start-up is underway.

Bus Prot

The matrix change requested by the panel has been denied due to prior protection by another control device on the bus. The name of the protecting control device will be briefly shown after the bus protect message.

Bus Vers

Incompatible bus protocol version. Panel software incompatible with system MCPU software. Service required.

Chk +12V

Check +12 volts (may be cause of bad flash). Service required.

Chop To

A second source is needed to complete a Chop Take request.

ChopLock

The ability to use chops from the panel has been disabled (locked out) during configuration.

Chopping

The status on the bus is alternating between two sources on the active Tally level.

CPA#xxxx

Control Panel application version # string (where xxxx = current application version number)

CPU:BAD

Panel Central Processing Unit failure during start-up testing. Successful test briefly shows: **CPU**___ Service required.

^Dest ^

The item in the adjacent display (either spatially or chronologically) is a destination, rather than what would typically appear in the default mode.

DestLock

The ability to change destinations from this panel has been disabled (locked out) during configuration.

Dst>1024

PXY Panels Only – These panels may not be used with systems having more than 1024 destinations.

EEPM:BAD

Panel Electrically Erasable Program Memory failure. Successful test shows: **EEPM**___ Service required.

Error

An unspecified error.

Excluded

Destinations access to a source was denied by system configuration. Contact system administrator if reconfiguration is needed.

FlashBAD

Panel Flash program memory is bad. Service required.

Inv Lock

The ability to invert all Levels at once from this panel has been disabled (locked out) during configuration. The individual Levels may still be toggled one at a time, unless LevlLock is active.

LevlLock or LvlLock

The ability to change any of the active levels from this panel has been disabled (locked out) during configuration.

Lost Com

Communications failure; check Control Panel Bus coaxial cabling and BNC connectors.

MaxGroup

An attempt to exceed the maximum number of Destinations in a Destination Group was made.

Min1Levl

An attempt to remove all active Levels was made and denied. To deactivate the last active Level, first activate another. If the Invert function was used, first deactivate the desired Level(s) and then use the Invert function.

Mon Ctrl

The destination change has been sent to the system as a monitor crosspoint request for the active destination.

No Comm.

Communications failure; check Control Panel Bus coaxial cabling and BNC connectors.

No Progm

Control Panel Application program missing; Panel re-programming required, see *Configuration Manual*.

No Prot

The destination you have attempted to protect is already protected.

No XPT

Failure of matrix hardware and / or software to respond to a source Take or Salvo; may be a missing XPT module (check configuration) or invalid source / destination combination (no common levels). (Not reported for Alien Matrices controlled by Series 7000.)

NoAssign

The Take was denied due to lack of a necessary assignment.

NoConfig

Panel configuration is missing; panel re-configuration required, see *Configuration* manual.

NoLevels

Invalid source / destination combination (no common levels).

NoStatus

No source is presently connected to the destination on the active Tally level, or this information is not yet available to the panel.

Not Ctrl

The ability to control the desired level from this panel has been disabled (locked out) during configuration. This level may be examined but is not programmed as a controllable level.

Not Used

There is no name or function assigned to this button which applies to the current mode. This message may appear when an unused (invalid) name is entered using the keypad selection push-buttons. Use the **PREV** and **NEXT** buttons to find a valid name close to the current name shown in the display. If a take has not been requested with the most recent preset, remember to Clear the Preset display before using the keypad.

NoUnprot

The request to unprotect the specified destination was denied.

OldOSVer

The Control Panel Operating System version is out of date. Service required to replace Operating System ROM.

PanlLock

Requests for matrix changes from this panel have been disabled (locked out) during configuration. However, status on any level may be examined. In effect, panel operation becomes “read only.”

Prog Bad

Control Panel Application programming failure; Panel re-programming required, see *Configuration Manual*.

ProtLock

The ability to request protects from this panel has been disabled (locked out) during configuration.

ProtOvrd

This panel will override protects other panels or devices may have on common destinations.

^Salvo ^

The item in the adjacent display (either spacially or chronologically) is a salvo, rather than what would typically appear in the default mode.

SalvExcl

One or more elements of the salvo were denied because of a system-wide exclusion. Check individual destinations on each level to determine which salvo elements did not occur.

SalvLock

The ability to execute Salvos from this panel has been disabled (locked out) during configuration.

Sel Lvls

The panel (in Level mode) requests selection of active levels for subsequent Takes.

SelfProt

The Self Protect function of the panel is enabled by system configuration and is activated at this panel. Turn Protect off before attempting another Take. Protect may then be restored if desired.

Src Lock

Source selection using the chosen method has been disabled.

SW Reset

The Control Program software is being reset. Reset should take only a short period of time, if it persists, service is required.

TallyLvl

The active Tally Level of the bus is shown.

TL Busy

Indicates that the Take (which, to be executed, would have required a tieline or tielines) did not occur successfully. Even if you have no tielines in use, you can still get this message. The possible reasons are as follows:

No tielines are configured that go from the remote Source to the Destination on (all) the level(s) in question.

Tielines are configured to go between the requisite Levels, but they are of the wrong type & state (for example, if you only have Reservable tielines, and you haven't reserved any for this destination (by assigning the tieline end source to this destination).

There's no way to do the Take and have a good signal path (see **NOXPT**, page A-2). This could be because:

The relevant boards in the physical matrix are not present.

There's no Node Controller present to transmit the crosspoint change information.

If you want to ignore these problems, you can use the Diagnostic Terminal command **`ignoremissinganc on`** to make the router stop caring about (or showing) **NOXPT** situations, which will prevent this situation from causing you to get a **TL BUSY** error.

The **`ignoremissinganc on`** command does not propagate to the backup MCPU and is not retained over a reboot (whether warm or cold).

The needed tielines really are busy. You might want to consider configuring more tielines.

Too Many

Too many devices attempting to share the Control Panel Bus; try moving the panel to another coaxial cable Bus. A maximum of 16 panels per bus is currently supported.

Updating

The configuration, name data, or other information necessary for proper operation is updating. Please wait (usually only a second or two) until the update operation is completed.

WrongApp

The Control Panel Application software does not match the panel hardware (e.g. BPS32 Application loaded into a UCP panel).

XRAM:BAD

Panel memory failure. Service required.

Appendix B

Flags

ChopLock

When set, prevents the panel from initiating chops.

DMTimeIn

When set, causes the control panel to enter Destination mode after a specified length of time with no button activity (UCP panel only). If this is enabled during configuration, a window appears specifying this time in configurable 1/10 second increments. The **DMTimeIn** flag and the **SMTimeIn** flag can not be set at the same time on a control panel. Control panels with these flags available have three possible conditions; maintain selected current mode until new selection is made (neither flag set), enter Source mode after specified length of time (**SMTimeIn** set), or enter Destination mode after specified length of time (**DMTimeIn** set).

DataProt

Custom panels only. Enables bit in Take packets.

DestLock

When set, disables Destination changes at the control panel.

Hold Pst

When set, panels hold presets for additional Takes. (If not set, Source presets are cleared after each Take.)

HoldRemt

When using Joystick Override option on a BPS panel, setting this flag causes the Joystick selected Source to remain when the Joystick closure is released. Otherwise, the Source would revert to the prior selection.

LvlInvLk

When set, inhibits the invert Level feature of the panel (BPS and PXS panels only).

LvlLock

When set, prevents users from initiating a breakaway from a panel to the extent possible, although some sources (by definition) cause a breakaway to occur, due to their lower number of levels.

Mon.Ctrl

When set, allows the panel to control system Monitor Crosspoints while operating in Destination Mode, with each destination Take.

MultProt

When set, allows protects to be placed on multiple Destinations, which are not active on any bus for that panel.

PanlLock

When set, the panel becomes read only. This prevents changes to the matrix, although monitor control (if active) is not affected.

ProtLock

When set, prevents the Panel from initiating Protects.

ProtOvrd

When set, allows the panel to override Protects placed by other panels or devices in the system.

QuicTake

On Client Panel, displays indicate status, unless a Preset is available from the associated Server Panel. Memory register Takes require only that the operator press the recall button of the desired register. Registers can be interrogated using the PST/ID button.

On SCP Panel, allows Takes to occur with a single key press of a select button, for example, without pressing the Take button.

SalvLock

When set, prevents salvo operation from affected panels.

SelfProt

When the panel has a Protect set and the Self-Protect flag is set, then the panel (as well as the system) is prevented from changing crosspoints on the Protected Destination until the Protect is removed. The Self Protect function of the panel is enabled by system configuration and is activated at the panel. Turn Protect off before attempting another Take. Protect may then be restored if desired.

SMTimeIn

When set, causes the control panel to enter Source Mode after a configured length of time with no button activity (UCP panel only). If this is enabled during configuration, a window appears specifying this time in configurable 1/10 second increments. The **DMTimeIn** flag and the **SMTimeIn** flag can not be set at the same time on a control panel. Control panels with these flags available have three possible conditions; maintain selected current mode until new selection is made (neither flag set), enter Source mode after specified length of time (**SMTimeIn** set), or enter Destination mode after specified length of time (**DMTimeIn** set).

SrcLock

When set, disables **PREV** and **NEXT** buttons for Source selection only.

StrOpChs

When set, stores operator settings in battery backed-up memory.

Glossary

AES

Audio Engineering Society. AES represents any of the digital audio standards established by the Audio Engineering Society.

AES/EBU

Name for a digital audio standards established jointly by the Audio Engineering Society and European Broadcasting Union. The sampling frequencies for this standard vary depending on the format being used.

Alarm

A signal indicating major or minor alarm conditions.

Alien Matrices

Any matrix which is not a part of the Series 7000 router product line.

All-level Takes

Switch the same input number on all Levels, to the controlled Destination.

Amezi

Asynchronous Mezzanine board. An RS-422/RS-232 communications board which mounts on the 7000 MCPU or a 7000 Communications Interface (CIF) module and provides RS-422 and RS-232 ports. The Asynchronous Mezzanine board is one of several mezzanine boards of differing functionality.

ANC

Active Node Controller. An ANC is communicating with the MCPU and will appear in a list of Active Node Controllers when polled by the GUI. The Enhanced Node Controller and the Matrix Controller modules also appear in the list. ANCs include both the primary and backup Controller modules.

ANSI

American National Standards Institute.

Assignment

Assignment is an action that grants permission for exclusive control of a resource. Multiple devices may be assigned permission for exclusive control of a single device, however only one may exercise control at a specific point in time.

Control of particular sources and TieLines can be Assigned to destinations on a case-by-case basis. The Assignment system is enabled (Machine and TieLine Assignment) through the GUI Enables menu. Active Assignments are controlled through the GUI (on-line, OnLine menu, Assignments submenu) or may be handled by an external automation or scheduling system.

Backplane (Rear connector channel, Motherboard)

The circuit board at the back of an electronics frame where modules (from the front) and cables (from the rear) are plugged-in.

BNC

Bayonet Neill-Concelman (BNC) connector. (Named for its inventors). A type of coaxial cable connector.

BPI

Backplane Interface. This is required for a Communications Interface module to communicate with a MCPU module.

BPS

Button Per Source. Name given to a panel feature that performs a source take with the single push of a button.

Breakaway

A Take operation which is performed by accessing the control Levels of a Destination individually and selecting a different Source on at least one Level than that selected on the others. Breakaways allow a Destination to selectively utilize video and audio from different Sources.

BSY

Busy. This is commonly found on the modules to identify the yellow busy LED.

Bus

A signal path to which a number of inputs may be connected to feed one or more outputs. Also, a signal path used to communicate between devices such as the node bus or the Control Panel bus. the node bus is used to communicate between the MCPU and the Controller modules. The Control Panel bus is used to communicate between the MCPU and Control Panels.

Chop

A variation of a Take command that alternately connects each of two different Sources to a single Destination (flip-flopping) at a designated switching rate (the chop rate).

CIF

Communication Interface. A Series 7000 optional CIF module is a general purpose communications interface module used to augment the capability of the Series 7000 MCPU when the MCPU is housed in a standalone Control Frame. Each CIF module will support four mezzanine submodules; mezzanine submodules in turn provide a particular communications capability.

CLN

Client Control Panel. A companion panel used with the Server panel to expand Source and Destination selection. Each Client controls three Destinations.

Coaxial Cable (coax)

A cable which has a metallic noise shield surrounding a signal-carrying conductor. In video, the cable impedance is typically 75 ohms. Ethernet coax is typically 50Ω impedance.

Cold Start

A boot from power off.

Component Video

The un-encoded output of a camera, videotape recorder, etc., consisting of 3 primary color signals: Red, Green, and Blue (RGB) that together convey all necessary picture information. In some component video formats, these three components have been translated into a luminance signal and two color difference signals, e.g. Y, R-Y, B-Y.

Composite Video

An encoded video signal, such as NTSC or PAL video, that includes horizontal and vertical synchronizing information.

Control Device

Panel, computer, or other device that controls router crosspoint selections.

Control Panel Bus (CP bus)

Communications path between control panels or devices and the MCPU which controls the routing matrices.

Controllers

Part of the control system, Controllers are circuit modules which interface between the MCPU and signal processing modules.

COS

Cubicle or Studio. A custom configuration set.

CPO

Clear Protected Output.

Crosspoint (XPT)

An electronic switch that allows a signal to pass from an input to an output when the switch is closed.

DA

Distribution Amplifier. The Series 7000 uses DAs to expand outputs.

Data Matrix

A signal processing matrix containing modules that route RS-422 or RS-485 data.

Default

The setup condition existing when a device is first powered-up or after a system restart.

Destination (DEST or DST)

The point to which Source signals are routed. In Series 7000, a Destination may include one or more outputs, across multiple Levels, with any connector number offset (user-defined in system configuration). (See Multi-level Switching in Section 1.)

Destination Exclusion Set (DXS)

User-determined set of Destinations excluded from control by a particular panel. If used, Destination Exclusion Sets are included in a Panel Template before the template is downloaded to a particular control panel. A specific Destination Exclusion Set may be shared by more than one panel template.

DGND

Digital Ground.

DST

See *Destination (DEST or DST)*.

DSVOM

Dual Sync Video Output Monitor. Part of the DV Series.

Dumb Terminal

A conversational slave to a host computer.

EC I/F

External Control Interface.

EDP

Eight Destination Paging control panel.

EMI

Electromagnetic interference.

ENC

Enhanced Node Controller. Designed to replace the Node Controller it can be used in all Classic and DV Series matrices. The ENC is required for Dual Control of a matrix by the Series 7000 Control System and an external device such as a PC. The ENC does not support the Kscope Interface Mezzanine.

EPROM

Erasable Programmable Read Only Memory. EPROMs are non-volatile memory chips. They are commonly called Flash memory chips.

ERR

Error. This is commonly found on the modules to identify the red error LED.

Ethernet

A local area network (LAN) technology capable of transmitting information between computers at speeds of 10 and 100 Mbps.

Exclusion

User-determined Sources excluded from routing to a particular Destination.

FC

Frame Controller.

FET

Field Effect Transistor.

First Come First Served (FCFS)

Tieline status where it is not necessary to create a reservation to use the specified Tieline.

Flag

A parameter that can be set in a control panel template to control how the panel operates.

Flash Memory

See: *EPROM*.

Flip-Flopping

Alternately connecting each of two different Sources to a single Destination (at a designated switching rate (See: *Chop*).

GBR (Green, Blue & Red)

The three primary colors used in video processing, often referring to the three un-encoded outputs of a color camera. The sequence of GBR indicates the mechanical sequence of the connectors in the SMPTE standard. *Also see: RGB.*

GPI

General Purpose Interface. Refers to the HX-GPI or Horizon General Purpose Interface used to connect a Horizon Routing Switcher to a Series 7000 System.

GSC

Global Serial Channel. Refers to the GSC Mezzanine which provides additional BNC, serial communications ports for the Series 7000 MCPU. The four additional BNCs provided per mezzanine can be used as additional control panel bus or Tally System ports. The GSC can also be used to provide Node Control Bus expansion. In this capacity, only one of the four BNCs can be used because traffic density is too great for all four BNCs to be serviced by a single communications controller.

GUI

Graphical User Interface. Refers to the Configuration Editor software program used to configure the Series 7000 System.

Hardware

1. Electrical devices connected through physical wiring. 2. Electronic programming technique using physical connections and therefore essentially unalterable.

HDTV

Television with a resolution approximately four times that of Conventional Definition Television and a 16:9 (H x V) picture aspect ratio.

Heartbeat

A health status message provided by networked frames that are polled by MCPUs.

Horizon

A Grass Valley line of routing switchers.

HX

Grass Valley Horizon Series Crosspoint Routing System.

IBOP

Interconnect /Break Out Panel. An option panel used to add BNC connectors to an audio matrix using 50-pin D connectors.

ID or IDENT

A software routine that identifies a device (e.g. a control panel). Includes such information as:

- controlled Destination
- active tally level
- panel name
- software version
- system name

I/O

Abbreviation for input/output. Typically refers to sending information or data signals to and from devices.

Input

A single physical, numerically designated connection point of an in-coming signal to a matrix. One or more Series 7000 inputs can be assigned to a Source name during System Configuration.

Input Offset

Unlike traditional multi-level systems, Series 7000 Sources do not have to use the same input connector number on each matrix Level (i.e. RGB inputs for one Source can use input #1 in one matrix for R, input #4 in another matrix for G, etc.) The offset of the input numbers used is logged in the System Configuration.

J Number

Jack Number.

Jumper

A short conductor used to manually bridge two contact points. Used in Series 7000 Alarm system. Also called a strap.

Kadenza

A Grass Valley Group digital video effects system that can be used in an integrated environment with the Series 7000.

Kaleidoscope

A Grass Valley Group digital video effects system that can be used in an integrated environment with the Series 7000.

KISS

Key Input Source Select. Used in configuring the Kscope Key Sources.

KScope

The collective name for Kadenza and Kaleidoscope.

Krystal

A Grass Valley Group digital video effects system.

LED

Light emitting Diode. In Grass Valley products, LEDs illuminate to indicate a specific state (such as normal, error, on-line, and so on).

Level

Level is a name given to a group of signals that have something in common such as video, audio right, audio left, R, G, or B. This grouping becomes an independently controllable stratum of signals or crosspoints within a Physical Matrix or routing system. A Level may include more than one Virtual matrix as a slaved set. All elements in a Level respond to commands addressed to that Level.

Local

Local is used during configuration to identify local Sources and Destinations. Local Sources and Destinations are inputs and outputs physically connected to the Series 7000 System using the related configuration file.

Master

A module that controls a subordinate (slave) module.

Matrices

Plural of matrix.

Matrix

A configuration of potentially intersecting inputs and outputs. In routing switchers, signal switching hardware configured such that any input may be switched to any output.

MB4

Programmable Multibus 4 Control Panel.

MB8

Programmable Multibus 8 Control Panel.

MC

Matrix Controller. Controller module used in 7500 Series matrices.

MCO

Machine Control Only Control Panel.

MCPU

Master Control Processing Unit. This module provides:

- Overall system control
- Node manager interface to Series 7000 matrices
- Direct control panel support for up to 64 control panels
- Programmable real-time clock, date and time stamping for logged events
- Redundant controller interface (allows primary and backup MCPU pairs)
- Static RAM sizes (ranging from 128k bytes to 4M bytes) are supported
- Flash ROM sizes (ranging from 128k bytes to 4M bytes) are supported

MEC

Matrix Element Control. The MEC bus connects the control circuits of the various matrix modules in a frame section to the Node Controller. In some cases, when the MCPU and Node Controller reside in the same frame, these connections are all internal to the frame. More often, there are multiple Node Controllers in a system and a coaxial cable is run between Node Bus ports of each frame in the system. Only secondary systems and a particular compact configuration run external MEC buses.

MEDIC

Matrix Element Decode Integrated Circuit. Used as a communications bus between the MCPU and Controllers.

Mezzanine

A secondary printed circuit module consisting of a flat circuit board of insulating material with conductive circuits etched on and/or components mounted on its surface. These submodules generally plug into a primary module. Sometimes referred to as a submodule or daughter board.

Module

A single circuit board or assembly of circuit boards that can be readily removed from an electronics frame without first having to remove screws or other mounting hardware.

Multiformat

Ability to pass multiple signal types, such as serial digital, analog component, and analog composite.

Name(s)

Sources, Destinations, Levels, Salvos, Control Panels, Node Controllers, MCPUs, Mezzanine Boards, Tally Modules, and other components of the Series 7000 system all have names. When system software sets out to perform a function, a Take for instance, it looks for the source name, determines the inputs involved, and Takes the Source to the Destination specified (by name). Naming conventions are discussed in Section 1 of the *Configuration* manual. Names are important to operation and equally so to configuration.

NB (Node Bus)

Node Bus. A name for the communications bus between the MCPU and Controllers.

NB (Narrow Band)

Identifies the 7500 Series AES Audio Matrices.

NC

Node Controller. Controller used by Classic and DV Series matrices. The controller collects information from the modules in a matrix, sends the information to the system MCPU, and receives instructions from the MCPU.

Node Controller

See *NC*.

NTSC

Standard for scanning television signals. Used in the U.S., Canada, and Japan.

Output

A single physical, numerically designated connection point of an out-going signal from a matrix. One or more Series 7000 outputs can be assigned to a Destination name during System Configuration.

P32

32 Button-per-source Control Panel.

P48

48 Button-per-source Control Panel.

PAL

Standard for scanning television signals. Used in most European countries.

Panel Prefixes

A set of 1-to-8 printable ASCII character strings assigned to the 16-button or 24-button keypads on control panels. Used with suffixes to comprise a complete Source or Destination name. (Prefixes and 1-character suffixes are assigned to panel Keypad sets.)

Panel Suffix Set

A set of single printable ASCII characters usually the numbers 0-9 assigned to 10 buttons of a control panel 16-button or 24-button keypad. Pre-configured defaults exist for Telephone and Calculator style suffix sets.

Panel Template

Configuration data specifying control panel configuration; which includes items such as Tally Level, Destination, button assignments, and Flags restricting or allowing certain actions. Completed templates are downloaded to specific control panels.

Physical Matrix

Defines the total Input / Output size of a like signal type matrix. A Physical Matrix may be sized from 16x16 to 1,024x1,024 in increments of 16. Physical Matrices may be used to unite discrete frames in a large matrix or to fragment a single frame into smaller matrices. Every system must have at least one Physical Matrix and one Controller slice.

PLD

Programmable Logic Device.

Port

A connector, usually bidirectional, through which one device communicates with others.

Preset

Selecting a Source in preparation to taking it to air; a tentative change to one or more crosspoints which has not yet been executed.

Protect (PROT)

A control function which prevents control panels or devices from changing the current Source selection for the specified Destination.

PROTOVRD

Protect Override.

PWR

Power. This is commonly found on the modules to identify the green power LED.

PXD

X-Y Destination Control Panel.

PXS

Programmable X-Y Source Control Panel.

PXY

Programmable X-Y. Used to identify a group of control panels consisting of a PXS, and one or more PXYE and PXD panels.

PXYE

Programmable X-Y Expansion Control Panel.

Rack

An equipment rack. A standard EIA equipment rack is 19 inches (48.26 am) wide.

Rack Unit (RU)

Unit of measure of vertical space in an equipment rack. One rack unit is equal to 1.75 inches (445 mm). The height of a GVG electronics frame is typically specified in rack units.

RAM

Random access memory.

RAS

Remote Access Service.

Rear Connector Channel

See *Backplane (Rear connector channel, Motherboard)*.

Reboot (Reset)

To restart a computer, reloading the software.

Redundant Power Supply

Backup power supply which takes over immediately if the primary power supply fails.

Remote

Remote is used during configuration to identify remote Sources and Destinations. Remote Sources and Destinations are inputs and outputs not physically connected to the Series 7000 System using the related configuration file. These remote Sources and Destinations are controlled over a network.

Reserved

Tieline status where a reservation is required to use a specified Tieline. See *First Come First Served (FCFS)*.

Reset

See reboot.

Resource Group

A resource group is an association of machine control devices all within a single work area.

RGB (Red, Green & Blue)

The three primary colors used in video processing, often referring to the three un-encoded outputs of a color camera. *See GBR (Green, Blue & Red)*.

ROM

Read Only Memory.

Room

A group of Destinations (usually a physical studio or control room within a facility) to which machine control and tally assignments can be made by an automated facility control system or the GUI Assignments menu. An assignment made to one Destination in a room allows control by any of the Destinations in that room.

RP

Rear Panel. RPs are special connector channels that support the various mezzanine boards. They are attached to the back of the stand-alone Control Frame according to which mezzanines are on the associated CIF module.

RS-232 or RS-232C

A serial data communications standard. RS-232C is a low-speed serial interface which uses a single-ended (unbalanced) interconnection scheme. Commonly used in telecommunications to connect computers and terminals to modems and other devices. The C suffix refers to the version of the RS-232 standard.

RS-485

A high-speed serial interface connection between data communications equipment. RS-485 specifies the characteristics of a balanced (differential) multipoint transceiver / receiver interface.

RU

Rack Unit. See *Rack Unit (RU)*.

Salvo (SVO)

A named, system-wide Preset which, when executed, may change crosspoints on one or more Destinations at the same time.

Salvo Elements

The individual take commands (Source to Destination connections) which comprise a Salvo.

Salvo Permission Set

User-determined set of Salvos permitted to be controlled by a specific panel. If used, Salvo Permission Sets are included in a Panel Template before the template is downloaded to a particular control panel. A single Salvo Permission Set may be used by more than one panel template.

SCP

Simple Control Panel.

SDP

Single Destination Paging control panel.

SDV

Serial Digital Video.

SERIM

Serial Interface Module.

SID

Source Identification panel.

Slave

Component in a system that does not act independently, but only under the control of another component.

Slice

A group of inputs and outputs assigned to a Controller.

SLIP

Serial Line Internet Protocol. Used only in SMS-V64x64 Systems to communicate with the GUI.

SMS

Signal Management System.

Source

Software defined, can be made up of one or more inputs on one or more Levels (i.e., a Source may consist of one input on the video Level and two inputs [left and right] on the audio Level). Two different Sources may share one or more inputs on one or more Levels. For example, if the Source **BARSTONE** (Bars, Tone) consists of a video and an audio input connected to a Color bar generator, BarsSil (Bars, Silent) can use the same video input.

Source Exclusion

This provides a means for limiting system access to specified sources on a Destination by Destination basis. Also, it prevents the inadvertent transmission of material that might be inappropriate for a specified Destination. Source Exclusion is applicable to all Levels on which a specified Source appears. Multiple Sources shall be excluded for single or multiple Destinations.

SMPTE

Society of Motion Picture and Television Engineers.

SRC

Source. See *Source*.

SS

Secondary Switch. The Series 7000 uses SSs to expand inputs.

Status

The current Source connected to a given Destination on a specific Level (usually the Tally level); sometimes referred to as the on air signal.

STB

Strobe.

Strap

A short conductor used to manually bridge two contact points. Used in Series 7000 Alarm system. Also called a jumper.

STROPCHS

Store Operator Changes.

Submodule

A small circuit board designed to mount on a larger module. Also known as a mezzanine board.

SVO

See *Salvo (SVO)*.

SVR

Server.

System Controller

Another term for the MCPU.

Take

Direct, immediate switching from one Source to another, occurring during the vertical interval for clean transition. The control operation which switches a Source or Sources to a Destination.

Tally

An acknowledgment returned to a control panel or terminal that an operation has been executed.

Tally Level, Active

Initially set to the default tally level, the active tally level will tally if the default tally level is not defined for the Destination assigned to a bus. In the UCP,MB8, and Client panels, the name(s) of this / these Level(s) appear(s) in the status display(s) at the start of the IDENT function.

Tally Level, Default

Set during Configuration, this level is the default Level that will tally in panel displays if no other Level tally is activated by control panel operation. In the UCP, MB8, and Server panels, the name of this Level appears in the Preset display at the start of the IDENT function.

Tally Modules

Circuit modules, housed in Grass Valley MAX Series frames, which use opto-isolated inputs and relay closure outputs to facilitate visual or aural tally indicators within a facility. For example, when a Source machine is selected on a Destination, the returned tally could light a lamp to let the machine operator know that a machine was in use.

TCI

Terminal Computer Interface.

Terminate, Termination

To complete a circuit by connecting a resistive load to it. A video termination is typically a male BNC connector which contains a 75-ohm resistive load.

TieLine

A physical connection used to give a Destination connected to the output of one matrix access to Source equipment connected to the input of another matrix. A signal which passes through 2 or more matrices; more specifically the path (consisting of 1 or more Tie Wires) which links a Destination of one matrix to a Source of another matrix. Tielines are established during system configuration.

TieLine Type

Is the Level created to be assigned to one end of a TieLine. Each TieLine must have two TieLine Types, one for each end.

Tie Wire

A physical cable which links the output of one matrix to the input of another matrix. One or more tie wires comprise a tie line.

Time Code

Timing code laid down on video tape to give each frame a unique number to ensure exact transitions during editing.

Timing Scatter

The temporal range of the different electrical lengths of router paths.

TLYLVL

Tally Level.

TM

Tally Module.

Toggle

To switch back and forth between two settings.

Twisted Pair

A cable composed of two small insulated conductors twisted together without a common covering.

UART

Universal Asynchronous Receiver Transmitter.

UCP

Universal Control Panel.

UMD

Under Monitor Display.

VI

Vertical Interval.

Virtual Matrix

Virtual Matrices can be used to fragment a Physical Matrix. Inputs and Outputs within a Virtual Matrix need not be contiguous. Only Destinations with Outputs in a given Virtual Matrix will be able to directly, without using a TieLine, access the Sources within that Virtual Matrix. As an example of their functionality, Virtual Matrices, working with control Levels, allow you set up selected Inputs and Outputs to handle R, G, B video signals by assigning each component to its own Virtual Matrix. Extending this example, if you assign the R, G, and B Virtual Matrices to the same control Level, they will always switch together as a married block; if you assign the R component Virtual Matrix to one Level, and the G and B Virtual Matrices to a second Level, you would then be able to break the R component away from the other two by selecting to control only the R Virtual Matrix associated Level at the control panel.

VISS

Video Input Source Select.

VITC

Vertical Interval Time Code.

VOM

Video Output Monitor

VSD

Visual Status Display.

VT100

A standard protocol for dumb terminals. VT100 terminals may be used for router dignostics.

Warm Start

A boot from power on, where the CPU and peripherals are already powered up (warm).

A warm boot might be performed after a software crash or a hardware reset.‘

WO

Which block of Outputs.

XPT

See Crosspoint.

YUV

A type of video which employs luminance (Y) and two color components (U [B-Y] and V [R-Y]).

Index

Symbols

Numerics

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y