

NV9601

NV9000 Control Panel

User's Guide

UG9601-03

13 Nov 2014



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Change History

Rev.	Date	ECO	Description	Approved
2.0	29 Mar 09	17503	Initial release.	D. Cox
2.1	05 Nov 10	17286	Updated. Added virtual level expand and contract buttons, etc.	D.Cox
2.2	18 Nov 14	19357	Reformatted and slight adjustments.	D.Cox

Safety Compliance

FCC FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Declaration of Conformance (CE)

All of the equipment described in this manual has been designed to conform with the required safety and emissions standards of the European Community. Products tested and verified to meet these standards are marked as required by law with the CE mark.

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Software License Agreement and Warranty Information

Contact Grass Valley for details on the software license agreement and product warranty.

Important Safeguards and Notices

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

WARNING

Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any service other than that contained in the operating instructions unless you are qualified to do so.

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Grass Valley is in compliance with EU Directive RoHS 2002/95/EC governing the restricted use of certain hazardous substances and materials in products and in our manufacturing processes.

Grass Valley has a substantial program in place for RoHS compliance that includes significant investment in our manufacturing process, and a migration of Grass Valley product electronic components and structural materials to RoHS compliance.

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1-800-719-1900 (toll-free) or

1-530-265-1000 (outside the U.S.).

Symbols and Their Meanings



The lightning flash with arrowhead symbol within an equilateral triangle alerts the user to the presence of dangerous voltages within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle alerts the user to the presence of important operating and maintenance/service instructions.



The Ground symbol represents a protective grounding terminal. Such a terminal must be connected to earth ground prior to making any other connections to the equipment.



The fuse symbol indicates that the fuse referenced in the text must be replaced with one having the ratings indicated.



The presence of this symbol in or on Grass Valley equipment means that it has been designed, tested and certified as complying with applicable Underwriter's Laboratory (USA) regulations and recommendations.



The presence of this symbol in or on Grass Valley equipment means that it has been designed, tested and certified as essentially complying with all applicable European Union (CE) regulations and recommendations.

General Warnings

A warning indicates a possible hazard to personnel which may cause injury or death. Observe the following general warnings when using or working on this equipment:

- Heed all warnings on the unit and in the operating instructions.
- Do not use this equipment in or near water.
- This equipment is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.
- Do not wear rings or wristwatches when troubleshooting high current circuits such as the power supplies.
- To avoid fire hazard, use only the specified fuse(s) with the correct type number, voltage and current ratings as referenced in the appropriate locations in the service instructions or on the equipment. Always refer fuse replacements to qualified service personnel.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Have qualified service personnel perform safety checks after any service.

General Cautions

A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

- When installing this equipment, do not attach the power cord to building surfaces.
- To prevent damage to equipment when replacing fuses, locate and correct the problem that caused the fuse to blow before re-applying power.
- Use only the specified replacement parts.
- Follow static precautions at all times when handling this equipment.
- This product should only be powered as described in the manual. To prevent equipment damage, select the proper line voltage on the power supply(ies) as described in the installation documentation.
- To prevent damage to the equipment, read the instructions in the equipment manual for proper input voltage range selection.
- Some products include a backup battery. There is a risk of explosion if the battery is replaced by a battery of an incorrect type. Dispose of batteries according to instructions.
- Products that have (1) no on/off switch and (2) use an external power supply must be installed in proximity to a main power outlet that is easily accessible.
- To reduce the risk of electrical shock, plug each power supply cord into a separate branch circuit having a separate service ground.

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1

Preface

Chapter 1 is an introduction to the NV9601 User's Guide.

Topics

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Chapter Structure

The following chapters provide detailed information regarding the NV9601 control panel:

- Chapter 1, [Preface](#), (this chapter) outlines ways to use this guide.
- Chapter 2, [Introduction](#), provides a functional description of the NV9601.
- Chapter 3, [Installation](#), provides installation, connection, and initialization instructions.
- Chapter 4, [Configuration](#), provides configuration instructions.

This chapter is for configurers, primarily.

- Chapter 5, [Operation](#), provides operating instructions.

This chapter is for operators, primarily.

- Chapter 6, [Technical Details](#), provides electrical, mechanical, and environmental specifications, product drawings, and default settings.
- An [index](#) and [glossary](#) are also provided for your reference.

The PDF Document

This guide is provided in PDF format, allowing you to use Acrobat's "bookmarks" to navigate to any desired location. You can also easily print a hardcopy. Please note:

- Use the Table of Contents or the bookmarks page to jump to any desired section.
- Many hyperlinks are provided within the chapters.
- Use the Index to jump to specific topics within a chapter. Each page number in the index is a hyperlink.
- Use Acrobat's 'Go to Previous View' and 'Go to Next View' buttons to retrace your complete navigational path.

Use the 'First Page', 'Previous Page', and 'Next Page', and 'Last Page' buttons to go to the first, previous, next, or last page within a PDF file.

Note

To display the navigation buttons, right-click the Tool Bar area, and check 'Navigation'.

- Use Acrobat's extensive search capabilities, such as the 'Find' tool and 'Search' tool to perform comprehensive searches as required.

Terms, Conventions and Abbreviations

The following conventions are used throughout this guide:

- The symbol **p** denotes either an example or a special message.
- Entries enclosed in single quotation marks or Capital Letters denote physical control panel buttons, configuration buttons, or menu items.
 - Click 'Apply' to ...
 - Press the SRC 12 button ...

The following terms and abbreviations are used throughout this guide:

- The term "control panel" refers to the NV9601 control panel and to NV96xx control panels, in general.
- "High tally" means that a button is brightly illuminated.
- "Low tally" means that a button is illuminated at low intensity. Most buttons assume a low tally state until selected.
- "MD" is an abbreviation for multi-destination.
- "SE" is an abbreviation for NV9000-SE Utilities.

Other Documentation and Software

You should read and be familiar with the material presented in the following documents:

- NV960, NV920, or NV915 Quickstart Guide(s).
- NV9000-SE Utilities User's Guide (or NV9000-SE Utilities help files).
- The router manuals for whatever routers you have in your system.

You should also be familiar with the NV9000-SE Utilities software and NV9000 family router control systems.

2 Introduction

Chapter 2 provides a functional description of the NV9601.

Topics

Summary	3
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Summary

The NV9601¹ is a 2RU control panel, 9.17" deep. The NV9601 has a large alphanumeric display, 36 function buttons, 8 selection buttons, and 2 scrolling buttons. The alphanumeric display has 8 lines of 42 characters. The 8 selection buttons correspond to the 8 lines of the display, the left-most selection button corresponding to the top line and the rightmost button corresponding to the bottom line. Operators select what is displayed on the particular line with the matching button.

The panel is organized as shown in figures 2-1 and 2-2:

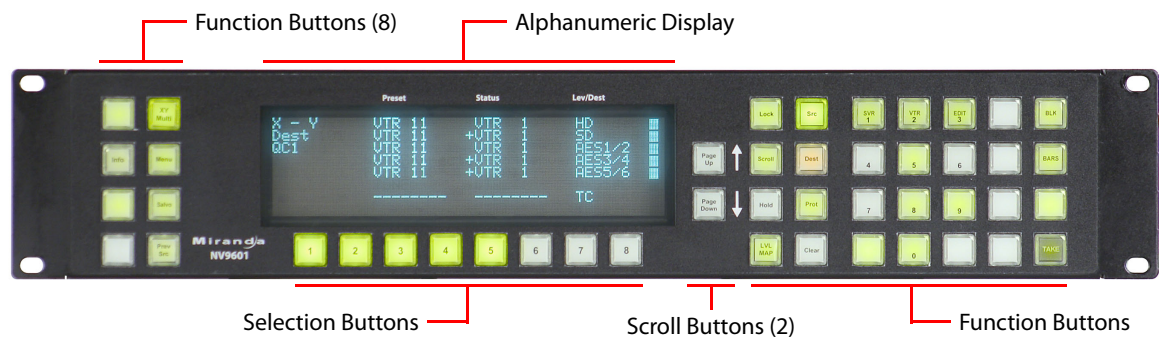


Fig. 2-1: NV9601 Front View

The panels can operate in one of 2 modes:

- X-Y mode.
- Multi-destination mode.

The panels can be configured so that either mode is selectable by the operator. The panels can also operate in several secondary modes, including salvo mode and menu mode.

1. An equivalent NV9601V—a GUI that is called a “virtual panel”—is available. It emulates the NV9601.

At the rear are power, serial, and network connectors:

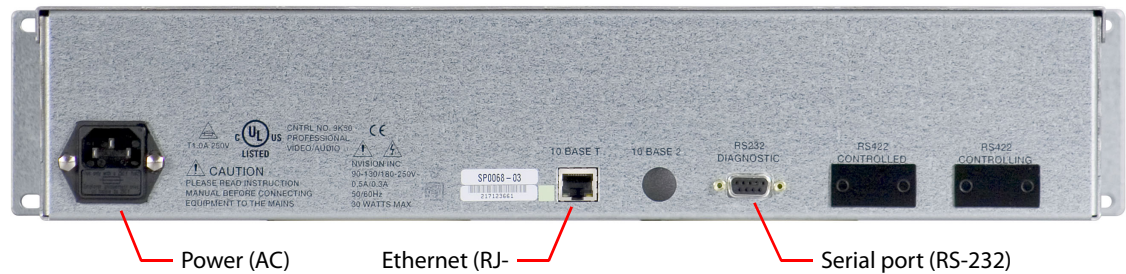


Fig. 2-2: NV9601 Rear

The ports labeled 10base2 and RS-422 are non-operational and are covered. Only the serial port and the Ethernet port are available.

▲ The AC connector has a compartment in which you can find a spare fuse.

(The Ethernet port is 10baseT. The system controller supports 10baseT as well as 100baseT.)

Panel Organization

Function Buttons

The NV9601 has an array of 8 function buttons on the left and 28 function buttons on the right. Function buttons either select sources and destinations or perform certain other functions such as locking a destination or switching to the menu.

Each button has *three* operational levels: high and low tally (green or amber), and off. Operators can adjust the illumination levels in increments of 10% using the panel's menu. Buttons that are turned off are said to be dark. (Their material is actually white or light gray.)

▲ Generally, green represents a source or a source function and amber represents a destination or a destination function. However, amber and green can represent other functions too.

The function buttons each have clear plastic keycaps under which you may place plastic inserts for button legends. It is a simple matter to change button legends.¹

Scroll Buttons

The NV9601 has 2 dedicated scroll buttons. These scroll the display up and down. A scroll button is illuminated when scrolling is possible in that direction and dark when scrolling is not possible.

1. The NV9601V (virtual panel) has automatically generated button legends. For instance, a source button's legend is the source name. Depending on the operating mode, the source button might have up to 3 lines of text.

Alphanumeric Display

The 8×42 alphanumeric display provides real-time feedback for the operators as they press buttons to execute takes and other operations. The panel functions in two modes: X-Y or multi-destination. The display changes according to the mode:

Preset	Status	Lev/Dest
X - Y	-----	HD
Dest	CAM--1	SD
VTR 1	CAM--1	AUDIO 1
	+CAM--1	AUDIO 2
	+CAM--1	AUDIO 3
	+CAM--1	AUDIO 4
	-----	TIMECODE
Page 1		

X-Y mode

Preset	Status	Lev/Dest
MultiDest	CAM--1	VTR--1
	CAM--1	VTR--2
	CAM--1	VTR--3
	CAM--1	VTR--4
	CAM--1	VTR--5
	CAM--1	VTR--6
	CAM--1	VTR--7
	CAM--1	VTR--8
Page 1		

Multi-destination mode

In either case, the display has 8 lines. Operators might need to scroll the display to see additional information. (The scroll buttons can be used to scroll the display.)

Display Fields

The display has 4 columns:

- Information (not labeled).

The first entry in this column is "X - Y" or "MultiDest" unless you have entered salvo mode, menu mode, or setup mode. See chapter 5 for those topics.

The bottom-most entry in this column is always the page number of the display.

In X-Y mode, the second entry is always the word "Dest" as a title for the third entry which identifies the current destination. In the preceding illustration, the current destination was VTR 1.

In MD mode, there are no entries in this column other than "MultiDest" and the page number.

- Lev/Dest.

In X-Y mode, this column identifies the levels of the currently selected destination. That destination is identified in the information column. In the illustration above, 'VTR 1' was selected. Operators might need to scroll to see or select a level.

In MD mode, the 'Level/Dest' column presents all the MD destinations defined in the NV9601 configuration. (Actual destinations are defined in the NV9000 configuration.) Operators might need to scroll to see or select a destination.

- Status.

The status column indicates what source was routed to the destination.

In X-Y mode, the status column represents the levels of a source or the levels of multiple sources under breakaway. These are called the *current source(s)*. The presence of '-----' in the status or preset columns means that that particular level is not defined for the destination. Therefore, no source selection for that level is possible. The illustration above shows that levels HD and 'TimeCode' are not defined for VTR 1.

In MD mode, the status column represents the sources routed to each of the destinations in the 'Level/Dest' column. Again, these are the *current sources*.

- **Preset.**

The preset column indicates what source will be routed to a destination when the operator presses the 'Take' button.

In X-Y mode, the preset column represents the levels of a source or the levels of multiple sources under breakaway. These are called the *preset source(s)*. After the take, they disappear from the preset column and re-appear in the status column, reflecting that the preset sources have now become current sources.

In MD mode, the preset column indicates the sources that will be routed to selected destinations in the 'Level/Dest' column. These are the *preset source(s)*. After the take, they disappear from the preset column and re-appear in the status column, reflecting that the preset sources have now become current sources.

The display fields can show either names from a name set or system mnemonics for devices depending on (1) the state of the 'Name Set Toggle' button (if the panel has one), (2) the default name set (3) the existence of name sets in the NV9000 configuration. (An alias is a name defined in a name set.)

Flags

The display also shows flags of different kinds next to the sources and destinations.

Selection Marks

At the far right of the display are marks (rectangles) that turn on to indicate selections.

In X-Y mode, the marks turn on to indicate that a level is selected. They are not visible otherwise. (The operator makes level selections using the selection buttons below the display.)

In MD mode, a mark appears to the right of the currently selected destination (and of all the currently selection destinations when the panel is in hold mode).

Other Signs

A plus sign (+) indicates that additional information is available. There is an 'Info' button that operators may press to view the additional information.

In MD mode, an asterisk (*) directly after a source name indicates a breakaway on that destination. In X-Y mode, an asterisk (*) directly after the destination name indicates a breakaway on that destination.

An 'L' indicates that a device has been locked. A 'P' indicates that a device has been protected. NV9601 operators may lock, protect or release sources and destinations if the panel configuration allows it. It is important for operators to know that other operators may lock, protect, or release sources and destinations.

Selection Buttons

Beneath the display are 8 selection buttons. The buttons correspond to the lines of the display. Each button selects the item on the corresponding line. The left button corresponds to line 1 (the top line). The rightmost button corresponds to line 8 (the bottom line).

Selection buttons can be used in any mode.

Modes of Operation

The panel operates in either X-Y mode or multi-destination (MD) mode. A single button (XY/MD) can toggle between the modes. A third mode—called “single-bus,” “single-destination,” or “button-per-source” mode—can be emulated in either X-Y mode or MD mode.

The primary modes of operation are:

- X-Y mode—individual control of all router *levels*. Choose a destination, optionally choose desired breakaway levels, choose a source, and press ‘Take’ to complete a desired route.
 - Multi-destination mode—lets you control multiple destinations. The display shows destinations and their sources. You can scroll through destination lists using the ‘Page Up’ and ‘Page Down’ buttons. Select a destination using selection buttons, choose a source, and repeat for all desired routes. Then press ‘Take’. Takes are “all level,” and breakaways cannot be performed.
- ▲ A ‘Hold’ button allows you to select many MD destinations at once.

The secondary modes of panel operation are:

- Setup mode—where the NV9601 is freshly powered up, but disconnected from the panel network. In this mode, you can preset the NV9601’s panel ID and perform a few diagnostic tasks.
 - Salvo mode—the operator presses a Salvo button to enter salvo mode where the display lists both system salvos and local salvos. The operator may select a salvo and then the ‘Take’ button to execute a salvo. (The duration of a salvo is indeterminate.)
 - Menu mode—pressing a Menu button places the NV9601 in “menu” mode. In menu mode, the display shows a menu that changes as needed during menu operation. Operators pick menu items using selection buttons.
 - Information mode—pressing an ‘Information’ button (when there is information to display) places the NV9601 in “information” mode. In information mode, the display reports information such as level mappings.
- ▲ Information is available, for example, when a plus sign appears next to a level in the display under X-Y mode.

Other modes of operation are:

- Hold mode—when the operator presses the ‘Hold’ button, hold mode becomes active and when the operator presses it again, hold mode becomes inactive. See [Hold](#) on page 42.
- Save preset mode—when the operator presses the ‘Save Preset’ button, ‘Save Preset’ mode becomes active and when the operator presses it again, ‘Save Preset’ mode becomes inactive. See [Save Preset](#) on page 47.
- Scroll mode—when the operator presses a ‘Scroll’ button, scroll mode becomes active and the operator may scroll through lists of devices for a category (during category device selection). Note that scroll mode does **not** cause the *display* to scroll.

Other NV9601 Functions

The NV9601 can be configured to perform the following additional functions:

- Previous source, free source, and source/destination buttons.
- Return to a pre-defined (or default) state.
- Hold breakaway levels.
- System salvos and local salvos.
- Lock/protect/release for destinations.
- Forced release of locked or protected devices.
- Device selection using category indexes or suffixes.

The NV9601 provides the following additional features:

- The NV9601 supports multiple-level breakaways in X-Y mode. This lets you route multiple sources to the same destination *on different levels*.
- The panel supports gang or dub switching in multi-destination mode.
- Broadcast data routing in X-Y mode.
- Level mapping.

3 Installation

Chapter 3 provides installation and connection instructions.

Topics

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Package Contents

If you have ordered one or more NV9601 control panels from Grass Valley, inspect the shipping container for damage. If you find any container damage, unpack and inspect the contents. If the contents are damaged, notify the carrier immediately.

As you unpack the shipping container, look for the packing slip and compare it against the contents to verify that you received everything as ordered. If anything is missing (or if you find equipment damage unrelated to shipping), please contact technical support. Refer to [Grass Valley Technical Support](#) on page 73.

Depending on your order, the NV9601 items that can ship include:

- One or more NV9601 control panels.
- An AC power cord.

The package does not contain network cables, serial cables, or mounting screws.

You do not need to take any special precautions regarding ESD.

This document does not address the shipment or installation of any other equipment or software that can be used in conjunction with the NV9601 (including any system controllers, other NV96xx control panels, EC9700 GUI, EC9710 GUI, and configuration programs such as UniConfig, MRC, or NV9000-SE Utilities).

This document does briefly address the use of NV9000-SE Utilities and the Panel IP Configuration Utility as they pertain to panel configuration.

Installation

Follow these steps to install a NV9601 control panel:

- 1 Mount, and secure, the panel in the rack.
The NV9601 is designed to mount in a standard 19" rack. Rack-mounting is not a requirement.
- 2 We assume that you have an Ethernet switch connected to the "Panel and Router Network" port of your system controller. Connect an Ethernet cable from that switch to the RJ-45 port at the rear of the NV9601.
- 3 Connect power.

Installing Software and Documentation

This document is available through the Grass Valley web site.

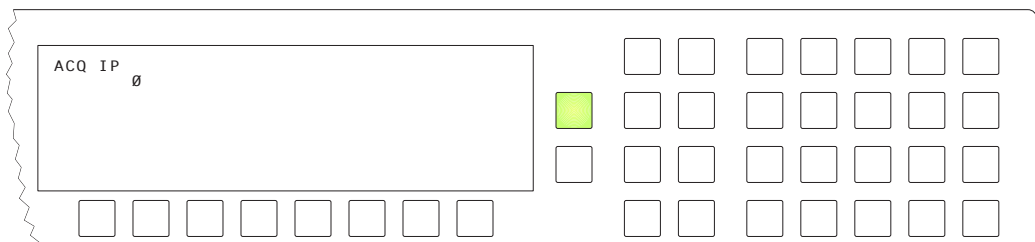
You must use NV9000-SE Utilities to configure the NV9601 control panel. Contact Grass Valley if you need to obtain the latest version of this NV9000 configuration software.

You may use the Panel IP Configuration Utility if you want to your NV9601 to have a static IP address or to use DHCP. The panel, as it comes from the factory, defaults to DHCP.

Initialization

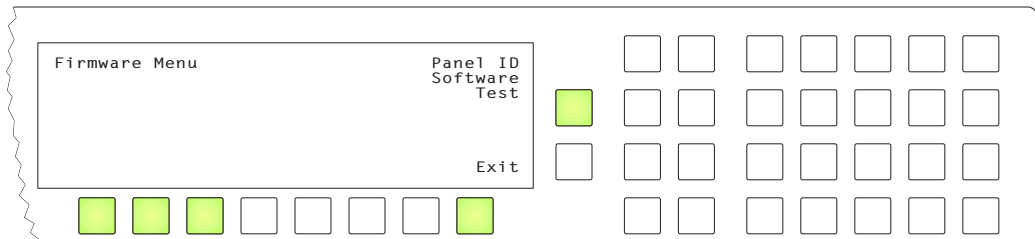
Before your system controller can communicate with an NV9601, you must give it a panel ID. Follow these steps for each NV9601 you are installing:

- 1 Power up the NV9601. Do not connect its Ethernet cable. (Disconnect it if it is connected.)
After a few seconds, the alphanumeric display will show 'ACQ IP' at the top and show the panel's current panel ID. The 'Page Up' button illuminates:



Press the 'Page Up' button to proceed.

- 2 The 'Firmware Menu' appears.

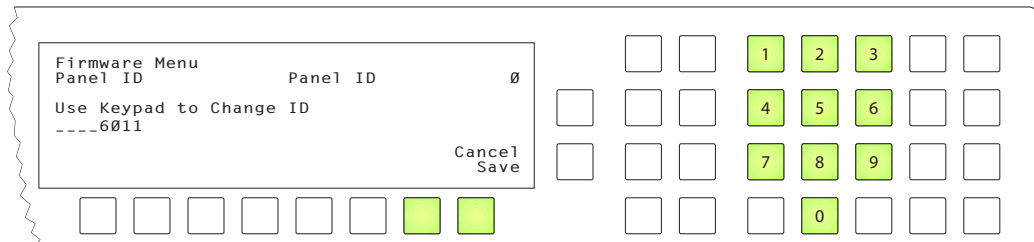


In this menu, you have 3 options:

- Set the panel ID.
- View the software versions.
- Perform a panel test.

Some of the selection buttons are illuminated. To select an option, press the corresponding selection button. To set the panel ID, press the leftmost selection button.

3 The 'Panel ID' menu appears and the "keypad" is activated:



The "keypad" is an array of function buttons, numbered in this illustration, that you can use to enter the panel ID. Press the button numbered '1' to enter the digit 1, and so on. Your new panel ID appears on the display where the dashes are.

You can press selection button 7 to cancel your entry. The panel's ID will remain unchanged.

Press selection button 8 to save your new entry. You can change it later at any time.

When you cancel, the display returns to the firmware menu. Press the selection button corresponding to 'Exit' to return to the initial display (that reads 'ACQ IP').

When you save, the display returns to the initial display.

4 After you designate the panel ID, reconnect the Ethernet cable. The system controller will detect your panel in a few seconds. (**All** panel IDs must be unique.)

You can now prepare an NV9601 configuration in NV9000-SE Utilities and upload the configuration to the NV9601. You need the panel ID to create a NV9601 configuration. When you upload the configuration, the panel ID you entered in NV9000-SE Utilities designates the actual panel to which the upload will occur. If no actual panel has that ID, the upload cannot occur.

Testing

As shown above in step 2, a panel test function is available when the NV9601 is disconnected from the system controller. Run the test to determine the health of your NV9601. See [Setup Mode](#) on page 56 for detail. Press the selection button for 'Software' to review the versions of installed software and firmware.

These are points to consider after you install your NV9601 control panel(s):

- 1 When the NV9601 powers up and it is connected to the system controller, it should initialize completely. (That takes several seconds.) The NV9000 system should access whatever configuration exists for that panel and the buttons appropriate for that configuration should light in the colors appropriate for the initial state of the panel.

If you continue to see "ACQ SVR" on the display, you have a problem. Reboot everything and try again.

- ▲ The NV9601, by default, acquires its IP address through DHCP on the system controller's panel/router network. You can use the Panel IP Configuration Utility to force the panel to have a static IP address.

If (in setup mode) you do not see your designated panel ID on the display, you have not initialized the panel.

- 2 Is the system controller actually running? With the typical noise levels in a facility, it can sometimes be difficult to tell. Use the 'System' pages of NV9000-SE Utilities to make the determination. You can determine whether the system has detected your panel by reviewing the control panels page for your particular system controller.
- 3 Does the configuration actually work? Is it useful? Can the operator perform tasks and perform other operations?

The design of an NV9601 "operator interface" is non-trivial. You might want to consider how well your operator interface works in addition to the basic question of whether it works.

4 Configuration

Chapter 4 provides configuration instructions for the NV9601.

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This chapter addresses configurers. Operators and other persons not interested in NV9601 configuration need not read this chapter.

Summary

The NV9601 has a relatively simple interface: a scrollable display and 36 function buttons. Each of its buttons (green or amber, low- or high-tally) can either execute a function or select a source or a destination.

The 8×42 alphanumeric display presents the status of operations as they occur. Under the display are 8 selection buttons that correspond to the 8 lines of the display. Pressing a selection button selects (or deselects) the item in the corresponding line of the display.

NV9000-SE Utilities is the software with which to configure the NV9601. Figure 4-1, following, shows the default NV9601 panel configuration page from NV9000-SE Utilities.

Adding a Panel to an NV9000 Configuration

You must create configurations for the NV9601 using NV9000-SE Utilities. We assume that you are familiar enough with NV9000-SE Utilities that you can understand the following material. It is not difficult material, but some of the concepts might not be familiar to everyone.

It takes only a few seconds to add a new panel configuration.

Configuration

Adding a Panel to an NV9000 Configuration

After launching NV9000-SE Utilities, choose 'Control Panels' from the Configuration pane in the navigation area. The 'Control Panels' configuration page appears:

ID	Panel ID	Panel	Panel Type	Configuration Name	User
6011	NV601_1	NV9601		\\nvision\\envy\\usersys\\live\\NV601_1.601	

Click 'Add Control Panel' at the bottom of the configuration page. The 'Add Control Panel' page appears:

Type: NV9601
ID: 123
Name: Demo 01
User: EnvyUser

Configuration Options:

☐ New, named: [] copied from: PROD 6011.601
☐ Existing: PROD 6011.601
☒ New (default), named: D 01

Previous Next Finish Cancel Suffix Navigate

Choose "NV9601" from the 'Type' field. In the ID field, enter the panel ID you assigned to the panel while it was in setup mode. Give a name to the panel in the name field and select a user.

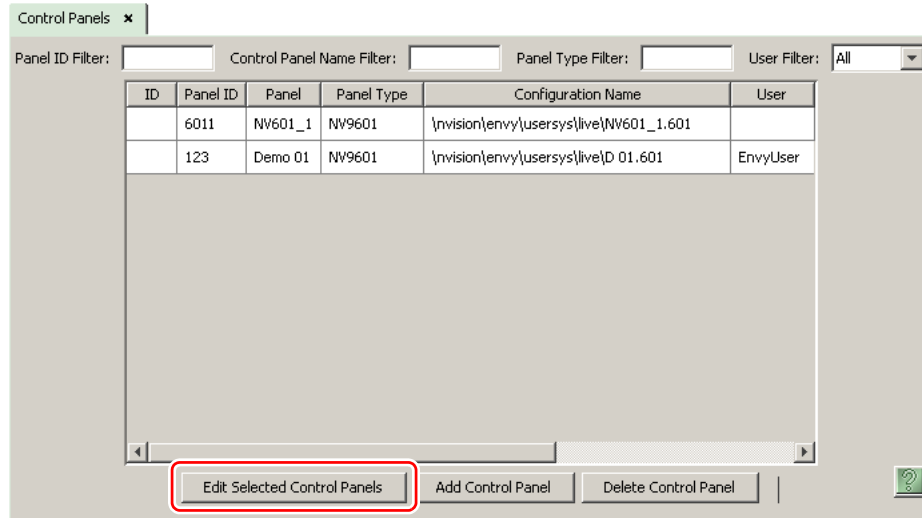
When you are creating a panel configuration you have 3 options. These options are presented in the 'Configuration Options' area:

- 1 Make a copy of an existing configuration file, giving it a new file name.
- 2 Use an existing configuration file. (This allows several panels to share a single configuration.)
- 3 Create an entirely new configuration file.

In the first and third cases, you will create a new configuration file whose name you designate. The file extension for an NV9601 configuration file is .601. Click 'Next' or 'Finish' to proceed.

- ▲ There are 2 other buttons, 'Suffix' and 'Navigate', both dim (disabled). These do not apply to the NV9601.

Return to the 'Control Panels' page to view your new entry. To edit an NV9601 configuration, either double-click its list entry or select the entry with a check in the checkbox and then click 'Edit Selected Control Panels':



You will then see the panel configuration page for the selected NV9601.

The following section of this guide discusses using the panel configuration page in which you configure an NV9601.

NV9601 Panel Configuration Page

This is the default NV9601 panel configuration page in NV9000-SE Utilities:

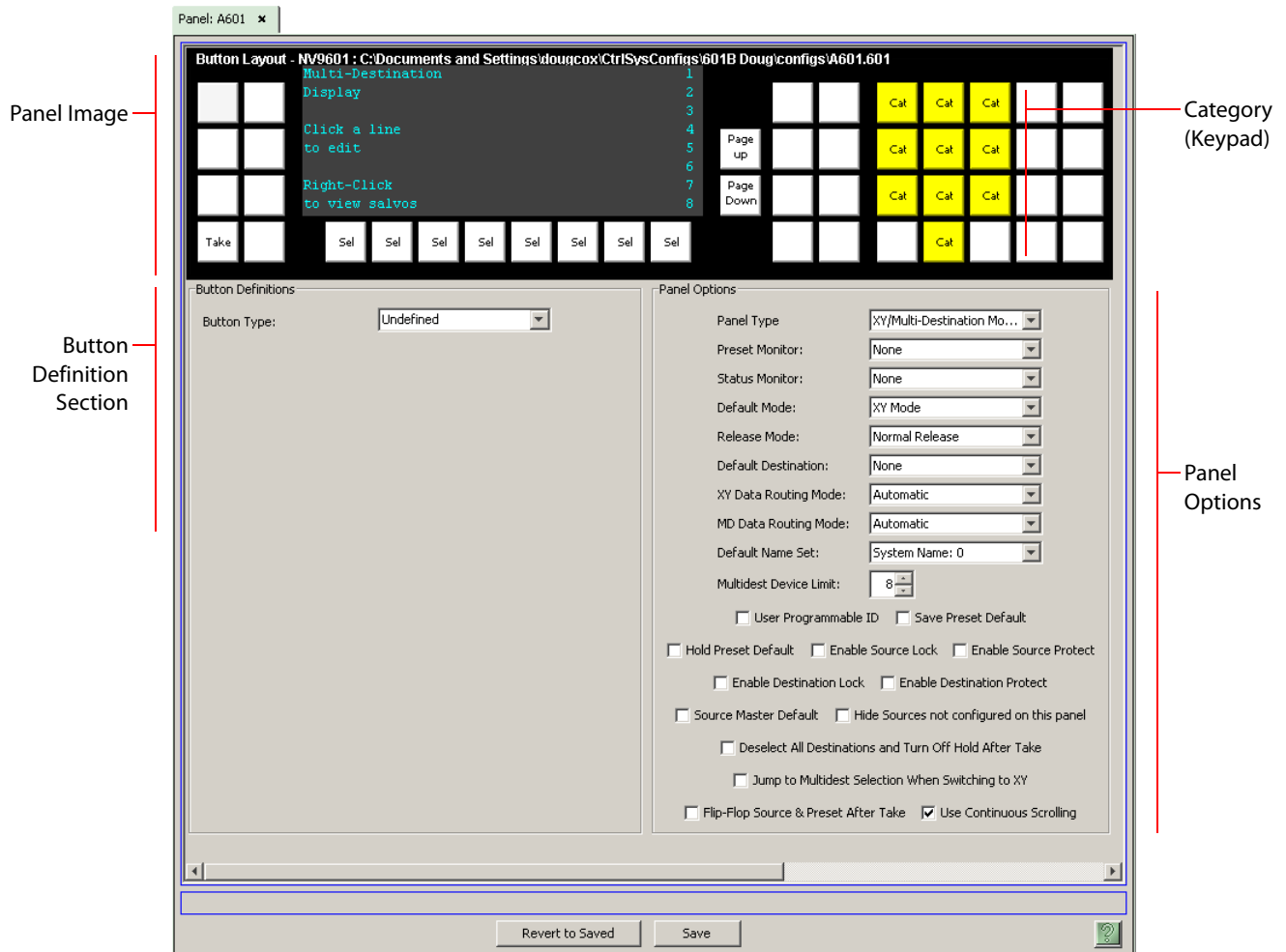


Fig. 4-1: NV9601 Configuration Page (Default)

After you have configured the panel's buttons, and the panel options, the page will have changed.

At the bottom of the page are two important configuration buttons: 'Revert to Saved' and 'Save'. The 'Save' button commits modifications you have just made. The 'Revert to Saved' button restores the last saved version of the panel configuration, canceling any changes you just made.

Regions of the Configuration Page

Above the 'Revert to Saved' and 'Save' buttons (always present) there are 3 main regions:

- A graphic representation of the NV9601 panel.

Click on any of the 36 button "proxies" to assign a function to that button. Specify the button characteristics in the button definition section of the page.

In the middle of the graphic is a representation of the panel's display. This representation supports the definition of multi-destination devices and salvos. Click the display representa-

tion to edit the multi-destination device list. Right-click the display to edit the panel's salvo list. Click the 'Page Up' or 'Page Down' button to scroll the display representation.

When you are editing the salvo list, right-click the display to return to the multi-destination device list. When you are editing the salvo list, you can add or remove (1) system salvos and (2) local salvos.

Click a line in the display to add or remove a system salvo. Control-click a line in the display to add, remove, or rename a local salvo. See [Salvo Configuration](#) on page 30 for more detail.

Among the function buttons at the far right of the graphic are 10 buttons colored yellow. These are category buttons. They can also be considered a keypad. (In fact, these buttons are used for the keypad under setup mode and menu mode.) They cannot be configured as other than category buttons. See [Category Selection](#) on page 38.

The selection buttons (under the display) cannot be configured.

▲ Buttons disabled during operation are dark on the control panel. Undefined buttons are also dark.

- Button definition section.

In this section, configurers make button assignments, using its pull-down menus and text fields.

See [Button Definitions](#), following.

- Panel options.

In this section, configurers may specify the behavioral characteristics of the panel.

Configuration Tasks

The person configuring an NV9601 panel will want to consider how best to utilize the fixed number of function buttons to support the devices and routers in the router control system at hand. The task is non-trivial.

In support of that effort, the configurer will do the following:

- Select panel options.
- Assign functions to buttons.

The panel operator, in most cases, needs a 'Take' button. In addition to their basic function, selection buttons provide feedback about the preset source device and level mapping. A 'Clear Preset' button is strongly recommended.

Commitment Buttons

Two buttons at the bottom of the configuration page are self-explanatory and present on most configuration pages:

- Revert to Saved. Press this button if you want to discard any recent changes you have made.
- Save. Press this button to commit all your recent changes.

Neither of these actions is reversible.

Panel Options

The panel options section, at the right of the configuration page, has two parts: drop-down menus and checkbox options. These are the drop-down menus:

The minimum number of destinations for multi-destination mode is 8. If you have the minimum, there is no need for scrolling during configuration. You may leave some (or all) MD destinations undefined. Scrolling is disabled unless you have chosen more than 8 destinations as the multi-destination device limit.

These are its drop-down menu options:

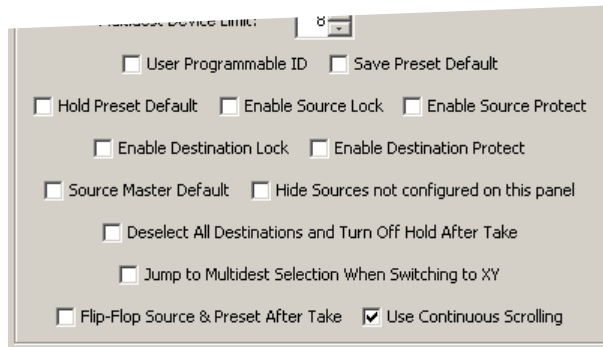
Panel Type	XY / Multidest Modes	Panel can be used in either XY or multidest modes. If this option is chosen, place an XY/MD button on the panel.
	Multidest Only	Locks the panel in multidest mode. XY mode cannot be accessed.
	XY Only	Locks panel in XY mode. Multidest mode cannot be accessed.
Preset Monitor	None	The preset source video is not sent to a monitor.
	<device>	The preset source video for the selected destination appears on the specified monitor (device).
Status Monitor	None	The current source video is not sent to a monitor.
	<device>	The current source video for the selected destination appears on the specified monitor (device).
Default Mode	X-Y Mode	Starts the panel in XY mode after a reset. See Defaults on page 60.
	Multi-Dest Mode	Starts the panel in multi-destination mode after a reset.
Release Mode	Normal Release	This panel can release “locks” and “protects” set by the designated user (at this panel or any other panel).
	Force Release	This panel can release locks and protects set by any user.
Default Destination	None	After a reset, the panel displays no destination device. (This is not recommended.)
	<device>	The Panel uses the specified device as the destination after a reset. (The ‘Default State’ button also returns the panel to this destination.)

XY Data Routing Mode	Automatic	If a machine control (i.e., data) level is involved in a route, the system makes the route on the control level even if the control port is in use on the source or destination device. It breaks the previous control connection and then makes a new control connection for the route in progress.
	Semi-automatic (recommended)	<p>If the control port is in use for the source or destination device, the system takes all (selected) levels except control and allows the operator to perform the control level route by pressing 'Take' a second time. The operator may cancel the control-level take by pressing a button other than 'Take.'</p> <p>If the control port is not in use, the control level take occurs normally.</p>
	Manual	<p>If the control port is in use for the source or destination device, the system takes all (selected) levels except control. It does not perform the control level route.</p> <p>If the control port is not in use, the control level take occurs normally.</p> <p>To carry out a take on a machine control port that is in use, the operator must first free the port by performing a "tristate" take on the port, that is, taking the device (as a source) to itself (as a destination) on the control level.</p> <p>A take can occur on the machine control level if, in the status column of the display, the source entry is "FREE."</p>
MD Data Routing Mode	Automatic	If a machine control (i.e., data) level is involved in a route, the system makes the route on the control level even if the control port is in use on the source or destination device. It breaks the previous control connection and then makes a new control connection for the route in progress.
	Manual	<p>If the control port is in use for the source or destination device, the system takes all (selected) levels except control. It does not perform the control level route.</p> <p>If the control port is not in use, the control level take occurs normally.</p> <p>To carry out a take on a machine control port that is in use, the operator must first free the port by performing a "tristate" take on the port, that is, taking the device (as a source) to itself (as a destination) on the control level.</p> <p>An operator can determine whether the control level is free by switching momentarily to X-Y mode and examining the destination's levels.</p>

Default Name Set	System Name	A list of “name sets” appears in the drop-down menu. The name sets can be defined under the System Management pane of NV9000-SE Utilities. Choose ‘System Name’ in this list if you do not want, or do not care about, device name aliases. Do not choose ‘System Name’ if you are configuring any ‘Name Set Toggle’ buttons.
Multidest Device Limit	(Selectable in multiples of 8)	The number of multi-destination entries you are defining. (Strictly speaking, this is not a limit, but a <i>count</i> .) The default, and lowest value, is 8. The maximum is 512. (If you have more entries than devices, you can leave some MD destinations unassigned.) (If the configuration has 8 MD destinations, MD scrolling is disabled.)

Checkbox Options

The checkbox options section is at the bottom of the panel options section:



A check in the box enables the option. Clearing the checkbox disables the option.

By default, all the check box options are clear except ‘Use Continuous Scrolling’. That particular option is enabled by default.

The following items are the checkbox options:

- User-Programmable ID.
Allows the Panel ID to be changed locally at the control panel (in menu mode).
- Save Preset Default.
Makes ‘Save Preset’ mode active when the panel reverts to its default state (after a Default State button is pressed, or when the panel is restarted).
 - ▲ A ‘Save Preset’ button is needed only when you want the operator to be able to view or change the mode.
- Hold Preset Default.
Makes “hold” mode active when the panel reverts to its default state (after a Default State button is pressed, or when the panel is restarted).
 - ▲ **Note:** a ‘Hold’ button is needed only when you want the operator to be able to view or change the mode.
- Enable Source Lock.
Check ‘Enable Source Lock’ to allow the panel operator to lock sources.

- Enable Source Protect.
Check 'Enable Source Protect' to allow the panel operator to protect sources.
- Enable Destination Lock.
Check 'Enable Destination Lock' to allow the panel operator to lock destinations.
- Enable Destination Protect.
Check 'Enable Destination Protect' to allow the panel operator to protect destinations.
- Source Master Default.
Makes a control-level source the *controlling* device (or master device) by default. Otherwise, the destination is the master by default. (The option is specifically for use with NVISION series machine control routers.)
"Source is master" is used for duplication, or broadcast routing, on a machine control level. "Destination is master" is for machine-to-machine editing. If you do not select the "source master default" option, you can place a 'Source is Master' button on the panel.
▲ **Note:** a 'Source is Master' button is a toggle that reverses the direction of data routing for devices used in data level (machine control) takes.
- Hide sources not configured on this panel.
Causes the names of source devices that are not presently configured for this particular panel to be effectively hidden. When another panel changes the source to one not configured for this panel, this panel displays asterisks instead.
- Deselect all destinations and turn off hold after take.
After selecting many MD destinations (with 'Hold' mode on), it can be time-consuming and error-prone to find them all (and no others) to deselect them after a take. When you enable this option, the NV9601 does exactly that (and turns off hold mode).
- Jump to multi-dest selection when switching to XY.
Makes the currently selected multi-destination device the current destination when you switch from MD mode to X-Y mode.
▲ The X-Y destination shown will be the default destination when the panel is in MD "hold" mode and multiple destinations are selected — if a default destination is specified in the configuration. Otherwise, no destination will be selected.
- Flip-flop source and preset after take.
Swaps the preset source and the currently routed source for this destination after a take.
- Use continuous scrolling.
If you check this box, the panel scrolls MD destinations continuously. That is, the MD destination pages wrap around at the beginning and at the end of the page list.
If you uncheck this box, the panel will stop scrolling when it reaches either the beginning or end of the MD device list.
This option does **not** affect scrolling of salvos when the panel is in salvo mode or levels when the panel is in X-Y mode.

Button Definitions

There are 2 classes of button functions:

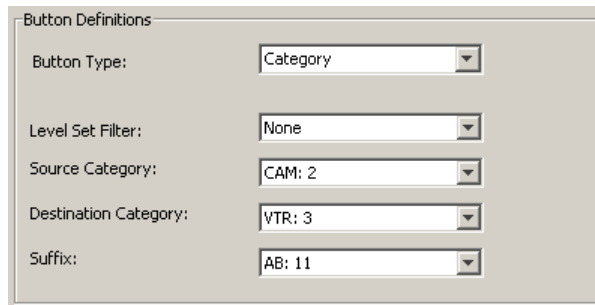
- Dedicated functions, such as 'Default State' or 'Chop'.
- Variable functions, such as 'Category' or 'Source'. With this type of button, additional selections are needed to complete the button configuration.

Note

Certain button fields contain a colon (:) and number after the data in the field. The number is the record ID of the object in the NV9000 configuration database. The record IDs can be ignored but might be of some use when the configurer is searching for items in the configuration database.

Button Specification

The button definitions section has several controls:



The screenshot shows a dialog box titled "Button Definitions". It contains five rows of controls, each with a label and a drop-down menu:

- Button Type: Category
- Level Set Filter: None
- Source Category: CAM: 2
- Destination Category: VTR: 3
- Suffix: AB: 11

When you choose a button type, additional drop-down menus can appear, depending on the button type, allowing you to further specify the button's behavior. Available options and selections vary from button type to button type. You will frequently see these options:

- | | |
|------------------|--|
| Button Type | A drop-down menu where you may select a button type. |
| Level Set Filter | A drop-down menu listing level sets. Choosing a level set here restricts the list of categories or devices to those belonging to that level set. |

Button Types

These are the button types available for NV9601 configurations:

Type	Description
Broadcast	<p>On the data (control) level, the button enables a broadcast take to an <i>additional</i> controlled device, after a broadcast route has been initiated with a "source is master" control-level take to the <i>first</i> controlled device.</p> <p>The button is useful in dubbing applications or when a backup (redundant) device is in use. See Broadcast Routes on page 49.</p> <p>See also the Source Master button, following.</p>
Category	<p>Displays a category's device list.</p> <p>When you assign a category button, 4 additional drop-down menus appear: 'Level Set Filter', 'Source Category', 'Destination Category', and 'Suffix'.</p> <p>The level set filter allows you to restrict the list of categories according to the level set to which the categories' devices belong. Choose one of the level set names in the drop-down list.</p> <p>Each category button can represent a source category, a destination category, and a suffix. When the panel is in source mode, the category button will select its source category. When the panel is in destination mode, the category button will select its destination category.</p> <p>After a category has been selected, the suffixes on the category buttons come into play. All of the panel's category buttons that provide suffixes activate when a category has been selected.</p> <p>To configure the button, choose a source category and a destination category. You can choose 'None' for either.</p> <p>Finally, and optionally, choose a suffix from the drop-down list for suffixes. Generally, suffixes are the numerals 0–9, but they can also be alphanumeric and up to 4 characters in length. (You can review the available suffixes in the 'Suffixes' table under 'Views' in NV9000-SE Utilities.)</p>
Chop	<p>When a chop function is supported by the router, the button is a toggle that enables and disables rapid switching of the selected destination device between the current source and the preset source. This chop function is used to test system timing.</p>
Clear Preset	<p>Erases preset entries, while leaving the panel in the same mode. We recommend you use this button because it is a "safety" feature.</p> <p>The clear preset button has the side effect of switching off 'Save Preset' mode.</p>
Default State	<p>Returns the panel to its most recent power-up state. That is called the <i>default state</i>.</p>
Destination	<p>Selects a destination.</p> <p>When you assign a destination button, a drop-down menu appears: 'Destination Device'. Choose a device from the list.</p> <p>The 'None' entry is merely a placeholder. Do not choose 'None'.</p>

Type	Description
Destination Lock	<p>Sets or removes a “lock” on the current destination device. The lock can be removed only by the user that originally set the lock, or by a panel that has “Force Release” enabled.</p> <p>In MD mode, an “L” appears next to the destination in the display when it is locked. In X-Y mode, an “L” appears next to selected levels in the display when they are locked.</p>
Destination Mode	<p>Places the panel in destination mode. In destination mode, category buttons that do not represent destinations become momentarily disabled (dark) and the remaining enabled category buttons select destinations.</p> <p>Note that the function of ‘Lock’ and ‘Protect’ buttons depend on whether the panel is in destination mode or source mode.</p>
Destination Protect	<p>Sets or removes a “protect” on the current destination device. The protect can be removed only by the user that originally set the protect, or by a panel that has “Force Release” enabled.</p> <p>Note: a protect prevents <i>others</i> from routing to a destination; a lock prevents <i>anyone</i> — even the user who issued the lock — from routing to the destination. In MD mode, a “P” appears next to the destination in the display when it is protected. In X-Y mode, a “P” appears next to selected levels in the display when they are protected.</p>
Free Source	<p>Defines a phantom device that can be used to release or “free” devices on the data (control) level. A free source is also used with tielines to free the tieline for others to use. The free source is configured in the <i>Level Set Details</i> page of NV9000-SE Utilities.</p>
Hold	<p>Toggles the panel in and out of “hold” mode. In multi-destination mode, hold mode retains destination selections after a take. In X-Y mode, hold mode retains breakaway levels after a take. (There are other effects. See Selection Buttons on page 27.)</p>
Information	<p>The information button displays auxiliary information about level mapping and perhaps other matters. The operator presses the information button once to see the information and again to hide the information.</p>
Level Map	<p>Cross-connects levels (in the same physical router). The function is typically used to shuffle audio channels, for example, to connect AES1/2 to AES3/4. The Level Map mode is cancelled when the next normal take is performed involving the selected destinations.</p>
Lock	<p>The button locks (or unlocks) a source when the panel is in source mode and locks (or unlocks) a destination when the panel is in destination mode.</p>
Menu	<p>This button puts the NV9601 panel in menu mode and displays a menu on the LCD buttons that provides access to a variety of panel options. The button is required if you want the user to have access to the menu.</p> <p>By pressing certain LCD buttons, the user makes menu selections and may enter data (such as panel ID) or change LCD brightness values. The LCD button text varies greatly with context in menu mode. See Menu Mode on page 52.</p>

Type	Description
Name Set Toggle	<p>The button toggles the panel between its default name set and the “system name” set. One or the other becomes the active name set.</p> <p>The button definition has no fields to configure.</p> <p>If the default name set is the system name set, the button would be a no-op. Therefore configurers should not create a ‘Name Set Toggle’ button if the default name set is ‘System Names’.</p> <p>The status, preset, or destination displays use the active name set — either the default name set or the system name set. However, that when the panel is displaying name sets, and a device does not have a name in the name set, the panel displays the system name.</p>
Panel Lock	<p>Prevents accidental changes to the panel settings, especially router crosspoints. When the panel is locked, the button array becomes blank except for the Panel Lock button which becomes amber. Pressing the ‘Panel Lock’ button again reverts the panel to its previous mode.</p>
Preset Release	<p>Removes locks and protects from preset source devices. This button is not needed if source locks and protects are not used in your system.</p>
Previous Source	<p>Presets the previously routed source to the currently selected destination. The operator must next press take to restore the previous source. This function is useful when a user makes a route in error.</p> <p>The button does not restore the previous destination. If the user changed the destination and presses ‘Previous Source’, the take will not restore the previous route.</p>
Protect	<p>The button protects (or unprotects) a source when the panel is in source mode and protects (or unprotects) a destination when the panel is in destination mode.</p>
Quick Source	<p>A quick source button selects a source and performs an immediate take. When you assign a quick source button, a drop-down menu appears in which you choose a source device.</p> <p>The ‘None’ entry is merely a placeholder. Do not choose ‘None’.</p>
Salvo	<p>The button puts the panel in salvo mode where the operator can choose a salvo (local or system) to execute, review the contents of any salvo, and execute a salvo (by pressing ‘Take’).</p>
Save Preset	<p>When this function is enabled (its button is high tally), whatever is on preset is retained (on preset) after a take. When the function is disabled (its button is low tally), preset is cleared after a take.</p>
Scroll	<p>A scroll button places the panel in scroll mode, where the operator can scroll (using the ‘Page Up’ and ‘Page Down’ buttons, through devices belonging to a category during category device selection.</p> <p>If the panel is in scroll mode, the operator cannot specify a category’s device by suffix. Note also that the button does not cause the display to scroll.</p>

Type	Description
Source	<p>A source button selects a source. (Note that a quick source button selects a source and also performs an immediate take.)</p> <p>When you assign a source button, a drop-down menu appears: 'Source Device'. Choose a device from the list.</p> <p>The 'None' entry is merely a placeholder. Do not choose 'None'.</p>
Source Master	<p>Means "source is the master" and makes the source device the master. Otherwise, the destination is the master.</p> <p>The button is a toggle: Press it once to make the source the master (it goes high-tally); press it again to make the destination the master (the button is low-tally). A panel option allows you to make "source is master" the default. In this case, the button still toggles between "source is master" and "destination is master," and the button, if present, is high-tally by default.</p> <p>The 'Source is Master' button is also used to initiate "broadcast" control routes. See Broadcast Routes on page 49.</p>
Source/ Mode	<p>Places the panel in source mode. In source mode, category buttons that do not represent source become momentarily disabled (dark) and the remaining enabled category buttons select source.</p> <p>Note that the function of 'Lock' and 'Protect' buttons depend on whether the panel is in destination mode or source mode.</p>
Src/Dst Mode	<p>Toggles the panel between source mode and destination mode.</p> <p>Note that the function of 'Lock' and 'Protect' buttons depend on whether the panel is in destination mode or source mode.</p>
Take	<p>In X-Y mode, a take button switches the preset source device to the selected destination device on selected levels.</p> <p>In MD mode, a take button switches the preset source device(s) to the selected destination device(s) on all levels.</p> <p>In most cases, configurers should provide the operator a 'Take' button.</p>
Undefined	<p>Makes the button undefined and inactive. On the actual panel, it will remain unlit (dark).</p>
Virtual Level Contract	<p>In X-Y mode, this button causes the alphanumeric display to show virtual levels at the <i>highest</i> level of grouping (with the least detail). The button affects only virtual levels that have been grouped. See Level Grouping on page 37.</p> <p>The button has no effect in multi-destination mode.</p> <p>This button has no configuration options.</p>
Virtual Level Expander	<p>In X-Y mode, this button causes the alphanumeric display to show virtual levels at the <i>lowest</i> level of grouping (with the most detail). The button affects only virtual levels that have been grouped. See Level Grouping on page 37.</p> <p>The button has no effect in multi-destination mode.</p> <p>This button has no configuration options.</p>
XY/MD Mode	<p>Switches the panel between X-Y mode and multi-destination mode.</p> <p>The button is always green for XY mode and amber for multi-destination mode.</p>

Selection Buttons

Selection buttons are dedicated buttons; they are not configurable. Each selects or deselects the item on the corresponding line of the display. Button 1 (left) selects what is on line 1 (the top) and so on.

Selection buttons support level selection in XY mode and device selection in multi-destination mode. Operators can scroll through multiple pages of levels in X-Y mode and through multiple pages of devices in MD mode. The operator makes selections from whatever appears on the display at any given time.

Selection buttons also allow operators to select menus when the panel is in menu mode (or in setup mode) and to select salvos when the panel is in salvo mode.

Selection (of either levels or MD devices) is affected by 'Hold' mode. (See the [Hold](#) button, page 24.) The operator may toggle hold mode at any time. Using the selection buttons follows hold mode or non-hold mode, whichever is in effect at the moment. Non-hold mode is the default — unless you specify otherwise in the [Panel Options](#).

Selection Button Behavior

XY Mode

When the panel is in XY mode, the selection buttons represent the virtual levels present in the display. If there are fewer than 8 levels in the level set of the current destination device, the rightmost selection buttons will be dark (disabled) and the bottom lines of the display will be empty.

If a level is selected, the selection button is high-tally, and there is a rectangular marker at the right end of the line in the display that shows the level. If a level is not selected, the selection button is low-tally, and there is no marker for that level.

If the level does not exist for the currently selected destination, the matching selection button is dark.

If there are more levels than selection buttons, the 'Page Up' and 'Page Down' buttons activate and the operator can scroll through the levels.

- ▲ The levels displayed might be level groups: The operator can use 'Virtual Level Expand' or 'Virtual Level Contract' buttons to expand or collapse the displayed level groups.

MD Mode

When the panel is in MD mode, the selection buttons represent the currently displayed MD devices.

If an MD device was not defined, the line of the display is blank and the corresponding selection button is dark. If an MD device is selected, its selection button is high-tally, and there is a marker at the right end of the line showing the device. If an MD device is not selected, its selection button is low-tally, and there is no marker for that device.

(Configurers perform MD destination population by clicking on the image of the display and making entries in the MD device table that appears. See [Multi-Destination Configuration](#) on page 28.)

If there are more destinations than selection buttons, the operator can scroll through the destinations using 'Page Up' and 'Page Down' buttons.

- ▲ Note that the maximum number of MD destinations is configured in multiples of 8, from 8 to 512. Not all of those need be defined.

Selection

XY Mode — Normal

When the operator selects a destination, all selection buttons that have levels defined for the current destination turn on (high-tally). The operator may select or deselect any levels as required, by pressing selection buttons and perhaps scrolling the display.

- ▲ Note that if the operator selects a level when *all* levels are on, all the *other* levels become unselected (low-tally).

Selecting a new destination again turns on all selection buttons that have levels defined.

XY Mode — Hold Mode

In hold mode, when the operator selects a destination, previously selected levels (defined for the destination) remain selected for additional takes and previously unselected levels remain deselected. (Individual levels turn on or off as the user selects them.)

MD Mode — Normal

When the user selects an MD device, all selection buttons are mutually exclusive: when the operator presses one button, any others that were selected turn off. To perform MD takes, the operator alternately selects an MD device and then a source until all intended devices have been preset. Then the operator presses 'Take'.

MD Mode — Hold Mode

In hold mode, selection buttons are **not** mutually exclusive. To perform MD takes, the operator selects one or more MD devices. The operator then selects a source (which becomes preset for all the selected devices).

The operator can preset another source to another set of destinations by deselecting selected destinations, selecting other destinations, and selecting another source.

When all intended destinations are preset, the operator then presses 'Take'.

(In hold mode, selected MD devices remain selected after the take. In non-hold mode, any selected MD devices become unselected after the take.)

Multi-Destination Configuration

Multi-destination (MD) devices are a subset of all destination devices that the operator may use in the ways supported by MD mode. You can configure a panel to have from 8 to 512 MD destinations in increments of 8 destinations. Not all of those need be used. Those that are not used are considered "undefined."

- ▲ It is possible to have duplicate entries in the MD destination set. For example, it might be useful to have one or two MD destinations available at all times.

Multi-destination configuration uses the display portion of the panel graphic in the panel configuration page. It also uses 'Page Up' and 'Page Down' buttons — also in the panel graphic — to select a group of MD destinations that will appear in the display. The display scrolls by 8 lines when you click a scroll button.

The limit to the number of MD devices is controlled by a panel option. If the limit is 64, for example, the display can scroll through 8 pages of 8 rows, regardless of whether these rows have been assigned a destination device.

Initially the list of MD destinations is empty and all you will see in the display are numbered blank lines. After you assign MD destinations to the numbered lines, the destinations' mnemonics appears on those lines.

How to Configure MD Destinations

Follow these guidelines.

- 1 Click any line in the display portion of the panel graphic. (A single click is all that is required.) A dialog appears. This is the multi-destination entry editor:

On the left is a list of *all* destinations defined in the NV9000 system. On the right is a table of the MD destinations you are defining. The number of rows in this table is equal to the maximum number of MD destinations your configuration allows.

To define an MD destination, select a destination on the left and copy it, using either the 'Append' button, the 'Insert' button, or the 'Replace' button, to the right.

The 'Append' button *appends* the selected destination to the end of your set of MD destinations.

The 'Insert' button places the selected destination immediately *above* whatever MD destination you have highlighted on the right.

The 'Replace' button *replaces* whatever MD destination you have highlighted on the right with the selected destination from the left.

The 'Remove' button *removes* highlighted MD destinations from the right.

At the bottom left, there is a scroll box in which you can adjust the maximum number of MD destinations. (The page size is indicated as fixed at 8 entries. You cannot change the page size.)

At the bottom right, are 'Move Up' and 'Move Down' buttons. You can use these to adjust the position in the list of any MD destination.

After you have finished configuring MD destinations, click OK (or cancel, if you want to discard your entries). The MD destinations you have configured now appear in the display section of the panel graphic. They will subsequently appear in the display of the panel when it is operating in MD mode.

You can edit the set of MD destinations later, adding or removing entries as you wish.

MD Destination Options

On the right side of the multi-destination entry editor, each MD destination has two checkboxes. One is in the 'User Definable' column and the other is in the 'User Selectable' column.

User-Definable

When the MD destination is "user definable," the operator may choose a different destination using the panel buttons. "User definable" is the default for all MD destinations. Uncheck the 'User Definable' box if you want to prevent the operator from changing this MD destination.

You can check or uncheck all the entries in this column by right-clicking the column heading.

User-Selectable

When the MD destination is "user selectable," the operator may select it and take sources to it. That is also the default for all MD destinations. Uncheck the 'User Selectable' box if you want to prevent the operator from taking a source to this destination.

You can check or uncheck all the entries in this column by right-clicking the column heading.

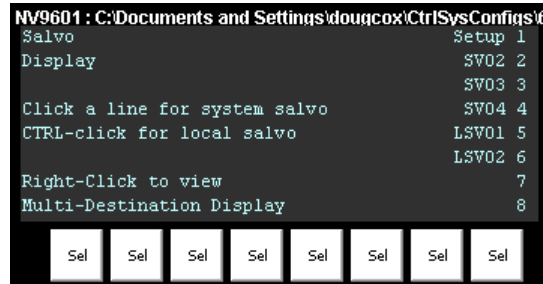
- ▲ You can also just to leave a destination out of the MD list if you do not want the operator to use it.

Salvo Configuration

Salvos are stored command lists. The NV9000 system supports system salvos. Some control panels, including the NV9601, also support local salvos. System salvos are defined in NV9000-SE Utilities. Local salvos are named during NV9601 panel configuration and defined (or redefined) by panel operators by recording actions performed at the panel. (Panel operators cannot change the names of salvos.)

To configure salvos, right-click the display region of the panel graphic in the NV9601 configuration page to switch it to salvo configuration. (If you have already switched, do not right-click the display.)

The salvo configuration image appears:



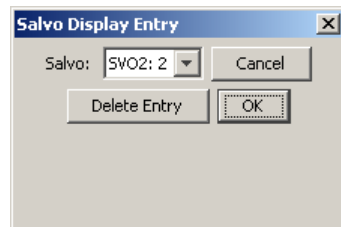
To add or remove system salvos, click either a blank line or an existing system salvo. You might need to scroll the display if there are many salvos defined.

To add, remove, or rename a local salvo, control-click either a blank line or an existing local salvo.

▲ Clicking a local salvo has no effect. Control-clicking a system salvo likewise has no effect.

System Salvos

When you click a system salvo, the following dialog appears:

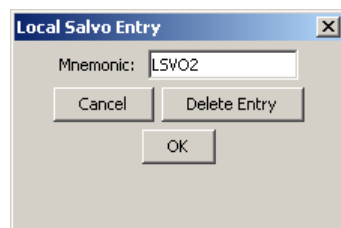


Select a system salvo from the drop-down menu. If the salvo was already in the salvo list, you can delete it from the list.

Click OK to confirm your entry or 'Cancel' to cancel it.

Local Salvos

When you click a system salvo, the following dialog appears:



To create a local salvo, enter or re-enter the name of a local salvo in the text box.

If the local salvo exists already, you can delete it from the NV9601's salvo list.

Click OK to confirm your entry or 'Cancel' to cancel it.

After you create a local salvo, it is empty. It contains no commands. It is the task of the panel operator to create or erase the contents of a local salvo by recording actions at the panel. See [Salvo](#) on page 54 for information. (Local salvo definition is a function available when the panel is in menu mode.)

Single-Destination Mode

Single-destination mode (a.k.a., “single-bus” or “button-per-source” mode) can be emulated in either X-Y mode or MD mode.

Single-destination mode is not a distinct mode. It can be blended with either of the other two modes. You can create many different forms of “single-destination” mode. This mode *need not have just one destination*.

The simplest form presents a group of “source” buttons. If you configure a default destination in the panel options, all the sources could be taken to a (single) default destination with no need for destination selection.

Other more complex forms of “single-destination” mode are conceivable.

5 Operation

Chapter 5 provides operating instructions for the NV9601 control panel.

Topics

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Operating Concepts	36
Salvo Mode	51
Menu Mode	52
Setup Mode	56

This chapter is intended specifically for the NV9601 panel **operator**.

Summary

As an NV9601 operator, you will be confronted initially with a relatively simple panel — 36 buttons and a scrollable alphanumeric display. The design of the user interface is entirely at the discretion of the configurer. You, the user, depend on the configurer having designed a useful panel.

The user interface of an NV9601 in one installation can be radically different from the user interface of an NV9601 in another installation. It is impossible to describe operations in great detail because there is no one interface. What we can do, however, is give you general advice and, of course, specific information on the behavior of the different button types and operational modes.

The panel's buttons can have arbitrary legends (because they are inserts under the clear plastic button caps). A button's legend might or might not indicate its function. Operators and configurers will have to communicate about the meaning of the buttons.

The alphanumeric display (8 lines of 42 characters) shows the status of takes (pending or complete) in X-Y mode or multi-destination mode under normal circumstances. The display presents information or menu items as isolated cases warrant. You can scroll the display as necessary.

Physically, you will find

- Function buttons (that, e.g., select a source or lock a destination).
- Selection buttons that select levels in X-Y mode and devices in MD mode.
- Status of preset and current sources and the selected destination(s).

At any particular time, some of the buttons are enabled or disabled. Some are high-tally; some are low-tally; and some might be undefined.

- ▲ Please refer to the *NV9000-SE Utilities User's Guide* (or the NV9000-SE Utilities help files) if you are unfamiliar with the concepts used in this chapter.

Modes of Operation

The panel operates primarily in either “X-Y mode” or a “multi-destination mode.” An XY/MD button can toggle between the modes. (The configurer can specify the default mode.)

The primary modes of operation are:

- X-Y mode— individual control of router *levels*. Choose a destination, optionally choose desired breakaway levels, choosing a source or sources, and press ‘Take’ to complete a desired route. Sources are taken only on selected levels.
- Multi-destination (MD) mode— lets you view and control multiple destinations. The button tree presents destination devices on selection buttons. You can scroll through the MD device list using ‘Page Up’ and ‘Page Down’ buttons. Select one or more MD devices, choose a source, and repeat for all desired routes. Then press ‘Take’. Takes are “all level,” and break-aways cannot be performed.

MD mode allows you to make multiple routes in a single take.

- Single-destination mode— A single destination is defined during configuration. You have only to choose a source and press ‘Take’.

Single-destination mode is not a distinct mode and actually need not involve only a single destination. It can be combined with X-Y mode or multi-destination mode.

Secondary modes are:

- Setup mode— where the NV9601 is freshly powered up, but *disconnected from the network*. In this mode, the configurer can preset the NV9601’s panel ID and perform a few diagnostic tasks.

Usually, only configurers need be concerned with setup mode.

See [Setup Mode](#) on page 56.

- Salvo mode— pressing a ‘Salvo’ button places the panel in salvo mode, where the salvos are listed on the display. You can select a salvo and then press ‘Take’ to execute the salvo. The duration of a salvo is indeterminate.
- Menu mode— pressing a ‘Menu’ button places the NV9601 in “menu” mode. In menu mode, the LCD button array becomes a menu button panel that changes as needed during menu operation. Some menu data are presented on the alphanumeric display.

There is nothing in the menu that concerns operators except LCD brightness. An operator may use the menu to set LCD brightness. Administrators and configurers may use the menu to view or change the panel ID, or to determine the software and firmware revisions.

See [Menu Mode](#) on page 52.

- Information mode— pressing an ‘Information’ button (when there is information to display) places the NV9601 in “information” mode. In information mode, the display reports information such as level mappings.

- ▲ Information is available when a plus sign appears next to a level in the display under X-Y mode.

Other modes are:

- Source mode— the panel is ready for you to select a source category or to lock or protect a source.
- Destination mode— the panel is ready for you to select a destination category or to lock or protect a destination.

- Hold mode — in hold mode, level selections (under X-Y mode) persist from one take to another and under MD mode, you can select multiple MD devices.
- Save preset mode — in “save preset” mode, whatever is on preset is retained (on preset) after a take.
- Scroll mode — in scroll mode, you can scroll through a list of devices for a category (during category device selection).

Button Legends

There are about 32 different button functions. Some might not be available on your panel. Typically, buttons have graphic or text legends that are plastic inserts placed under the clear button caps.

There are button templates available. Use these or your own to create button graphics. Print the graphics on clear plastic, cut the button graphics apart and insert these under the clear button caps.

Buttons are also color-coded to a limited degree. Green represents sources. Amber represents destinations. Those colors are used for other functions, however. High-tally (bright) buttons are those that are selected; low-tally (dim) buttons are those that are not selected. Dark buttons are those that are disabled. Dark buttons are unlit, and actually white or gray in color.

MD Devices

In multi-destination (MD) mode, MD devices appear in a list on the display and can be selected with the selection buttons below the display. It is often necessary to scroll the display to be able to select particular MD devices.

To perform an MD take, you assign sources to as many MD devices as you like and then press ‘Take’. The multiple takes occur (nearly) simultaneously.

To assign a source to an MD destination, select the destination using a selection button. You might have to scroll the display to find the MD destination of interest. Then either locate and press a source button or use the category buttons to perform category selection. (In hold mode, you can assign a source to several MD destinations at once.)

In this example, the displays shows that two sources, CAM--4 and CAM--5, were preset to 2 destinations, VTR--2 and VTR--3, respectively:

Preset		Status	Lev/Dest
MultiDest		CAM--1	VTR--1
CAM--4		CAM--2	VTR--2
CAM--5		CAM--3	VTR--3
		CAM--4	VTR--4
		CAM--5	VTR--5
		CAM--6	VTR--6
		CAM--7	VTR--7
		CAM--8	VTR--8
Page	1		

Lists

The NV9601 presents several items in lists: levels, MD devices, salvos, and category devices.

You can scroll through lists to view, and select, entries in the list.

Category device lists are different from other lists. The list *itself* does not appear on the display. However, the display does show the device in the list you have presently chosen.

To scroll through category devices, a 'Scroll' button is required on your panel. Press a category button, then press the 'Scroll' button to enable scrolling through devices, and then use the 'Page Up' and 'Page Down' buttons to advance to the previous or to the next device in the list.

The MD device list, the salvo list, and the level list *do* appear on the display. For MD devices, salvos, and levels, it is sufficient just to press the 'Page Up' and 'Page Down' buttons to scroll. The display scrolls in "pages" of 8 items at a time.

Operating Concepts

Status for most or all operations is presented on the alphanumeric display (and occasionally on certain buttons).

Levels

In NV9000-SE Utilities and in the NV9000 router control system, routes occur on *levels*. A level is typically SD, HD, analog video, AES, analog audio, or machine control. Various devices are defined as sending and receiving signals on certain levels. The set of levels handled by a device belong to what is called a *level set*.

A source can be routed to a destination if it has the same set of levels, i.e., it belongs to the same named level set. A source can be routed to a destination in a different level set if the NV9000 configuration has the appropriate inter-level set mapping.

The effect of this is that when you, the operator, choose a destination, the NV9000 software recognizes which source devices are allowed to be routed to the destination and limits your selection to those sources.

Breakaway

Routes can be all-level in which case they are taken on all levels defined for the destination. The acceptable sources for a route have the same levels as, or some configured mapping to, the levels of the destination.

A breakaway is where you take different sources to the same destination — on different levels.

It is not possible to take different sources to the destination on the same level. For instance, you cannot take SD from two different sources. The outcome would be noise even if you could do it. (That is because routers are not mixers.)

Level Mapping

If a level was level-mapped, the display shows a plus sign next to the level name.

See [Level Map](#) on page 43 for usage information.

Virtual Level Expand and Contract

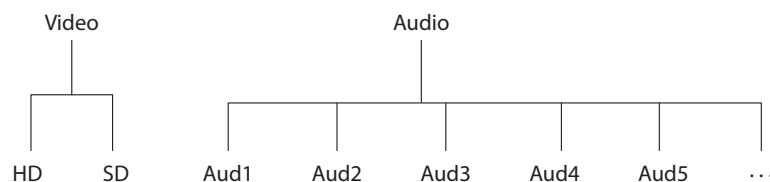
If the levels for a particular device belong to a virtual level group, you can collapse the display of levels to its minimal possible representation (just the group names) or expand the display of the levels so that all individual levels are displayed.

Use the 'Virtual Levels Contract' button to collapse the list of levels. Use the 'Virtual Levels Expand' button to expand the list of levels.

See [Level Grouping](#), following.

Level Grouping

Virtual levels can be grouped. This diagram illustrates grouping:



There are two types of virtual levels: basic and abstract. Basic virtual levels are those that correspond to actual physical levels. Abstract virtual levels do not correspond to physical levels. In the illustration, the 5 "Aud x" levels are grouped under 'Audio'. The two video levels are grouped under 'Video'.

The levels 'Video' and 'Audio' are abstract levels; the other levels are basic levels.

- ▲ The NV9601, at present, ignores the concept of level groups, and presents any configured level groups as completely expanded. That is, it always displays basic levels and never abstract levels.

Hold

Hold mode (and hold buttons) apply in both X-Y mode and multi-destination mode.

Breakaway

In X-Y mode, a hold button retains breakaway levels after a take.

Simply press the hold button at any time before the take.

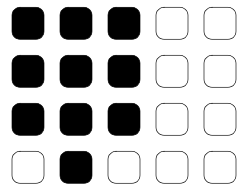
A hold button is a toggle. Press it once to put the panel in hold mode; press it again to remove hold mode.

Multi-Destination Mode

In multi-destination mode, hold mode allows you to select more than one MD destination at a time.

Category Selection

Your panel has 10 fixed category buttons and perhaps other optional category buttons. The fixed category buttons are arranged, like a telephone keypad, among the right-hand set of function buttons:



Every category button can represent up to three items: a source category, a destination category, and a suffix. By pressing category buttons in succession, you can construct a device name.

A category button selects a source category immediately after you place the panel in source mode by pressing a 'Source Mode' button (or a 'Src/Dst Mode' button).

A category button selects a destination category immediately after you place the panel in destination mode by pressing a 'Destination Mode' button (or a 'Src/Dst Mode' button).

After you select a category, the category name appears as the first part of a device name you are building. The category buttons you press subsequently select suffixes which are appended to the device name you have built so far. As you continue to append suffixes, the category buttons that no longer apply to the name you are building become disabled. In fact, at some point all the category buttons might become disabled.

Suffixes may be numeric or alphanumeric, and up to 4 characters in length. Any device may have up to 8 suffixes. However, device mnemonics are limited to 8 characters. Therefore, the usual — and default — suffixes are just the numerals 0–9.

Example: you want to select the source device CAM_12.

- 1 Press 'Source Mode' or 'Src/Dst' (if the panel is not already in source mode).
- 2 Press the category button that selects category CAM. The display shows CAM_____.
- 3 Press the category button for suffix 1. The display shows CAM__1 or a similar name.
- 4 Press the category button for suffix 2. The display now shows CAM_12.

At this point, you could press a 'Clear' button — as you would a backspace key — to erase the most recent entries in the name. If you press 'Clear' once, it would erase the "2" you just entered.

- 5 The desired source is selected.

Category Buttons for Rapid MD Device Selection

Category buttons (that are numeric suffix buttons) also allow you to enter a page number for multi-destination devices. This is a convenience, but it is available only in MD mode when no category device selection is in progress.

For example, if you have 512 MD devices, there would be 64 pages of MD devices. In MD mode, if you press category suffix buttons "3" and then "4" (if your panel has them), the display immediately jumps to page 34 of the MD devices. This shortcut saves you the trouble of pressing 'Page Up' or 'Page Down' to scroll through the device pages.

- ▲ Any category button becomes disabled when it would have no effect. If your panel had only 4 MD pages, the suffix buttons 5, 6, 7, 8, 9, and 0 (if you have them) would remain disabled.

Lock, Protect, and Release

In a multi-user system, routes made by one user can be made safe from being accidentally or maliciously change by another user.

Definitions

Owner	The user ID of a panel (especially, where a lock or protect was issued).
Source lock	No one can use the source.
Source protect	No one but the owner can use the source.
Destination lock	No one can route to the destination.
Destination protect	No one but the owner can route to the destination.
Release	To remove a lock or protect.

The NV9601 is the only panel that can lock sources as well as destinations.

A forced release is when the lock or protect is removed by someone other than the owner. A forced release can be performed at any panel configured with release mode set to "forced release."

The 'Destination Lock' and 'Destination Protect' buttons are toggles. Press the lock (or protect) button to lock (or protect) a destination. Press the button again to release the lock (or protect).

The 'Lock' and 'Protect' buttons are toggles. Press the lock (or protect) button to lock (or protect) a source (in source mode) or a destination (in destination mode). Press the button again to release the lock (or protect).

A *lock* overrides and removes a *protect* for a particular source or destination.

The display shows an "L" next to a source, a destination, or a destination level when it is locked.

The display shows a "P" next to a source, a destination, or a destination level when it is protected.

Buttons

The NV9601 has 2 classes of button functions:

- Dedicated functions, such as 'Default State', 'Chop' or 'Panel Lock'.
- Variable functions, such as 'Category', 'Source', or 'Destination'. A category button identifies a specific category. A source button identifies a specific source. A destination button identifies a specific destination.

At present, there are 33 button types:

Broadcast	Destination Protect	Preset Release	Source Mode
Category	Free Source	Previous Source	Src/Dst Mode
Chop	Hold	Protect	Take
Clear	Information	Quick Source	Virtual Level Expander
Clear Preset	Level Map	Salvo	Virtual Levels Contract
Default State	Lock	Save Preset	XY/MD Mode
Destination	Menu	Scroll	

[Destination Lock](#) [Name Set Toggle](#) [Source](#)
[Destination Mode](#) [Panel Lock](#) [Source is Master](#)

Broadcast

A broadcast button applies to a data (or machine control) level only. The button assigns one controlling device (the master) to multiple controlled devices (the slaves). The function is useful in dubbing applications. See [Broadcast Routes](#) on page 49 for more information.

▲ Pressing the 'Broadcast' button turns off the 'Source is Master' button and vice versa.

Category

A category button selects either a category mnemonic or a category suffix. Category buttons exist for the purpose of selecting (i.e., naming) either a source or a destination device.

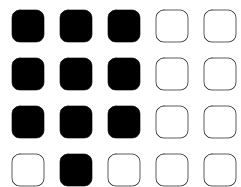
When you have not started a device selection, pressing a category button (1) chooses a category mnemonic as the beginning of a device name and (2) starts the device selection.

Thereafter, pressing a category button appends the suffix represented by the button to the device name. When you have constructed the device name of choice, you simply stop pressing suffix buttons.

A category button operates in source mode or destination mode. In source mode, it selects a source category or a suffix for the source category. In destination mode, it selects a destination category or a suffix for the destination category.

When the panel is in source mode, category buttons that are not configured with a source category become disabled. When the panel is in destination mode, category buttons that are not configured with a destination category become disabled. Category buttons configured with both source and destination categories are not disabled in either mode. Category buttons that have only a suffix configured are disabled until a category becomes selected.

There are *fixed* and *optional* category buttons. The fixed category buttons form a keypad within the array of function buttons at the right:



The keypad is also used under menu mode and under setup mode.

▲ You cannot perform a name set change using a 'Nameset Toggle' button while a category selection is in progress.

▲ See also [Category Buttons for Rapid MD Device Selection](#) on page 38.

Chop

When a "chop" function is supported by a router, the button is a toggle that enables and disables "chop." Chop is a rapid switching of the selected destination device between the current source and the preset source.

The chop function is used to test system timing and would **not** be used during normal operation.

Select a preset source and press 'Chop' to start the chop function. Press 'Chop' again to stop the chop function.

Clear

The 'Clear' button reverts the panel to the most recent preset. (It does not cause any changes to the routers, control system, or its signals.)

You may think of this as a "backspace" or "cancel" key. During category/suffix device selection, it erases the suffixes you entered in reverse order.

Clear Preset

The 'Clear Preset' button removes all preset entries (while leaving the panel in the same mode).

The clear preset button has the side effect of switching off 'Save Preset' mode.

(If you are in salvo mode, pressing a 'Clear Preset' brings you back to normal operating mode.)

Default State

This button returns the NV9601 to its most recent power-up state. You may consider this button an emergency button or a "soft reset" button.

▲ This button does **not** affect any previous routes. Only the panel itself is reset.

Destination

This button selects a destination.

Destination Lock

This button is a toggle that sets or clears a *lock* on the current destination. The lock can be removed at the panel that originally set the lock, at a panel that has the same user ID, or by a forced release at any panel.

MD Mode

In MD mode, a locked destination has an "L" next to it when it appears in the display. When you select a locked MD destination with a button, the 'Destination Lock' button goes high-tally.

To lock or unlock MD destinations, select the destinations and press a 'Destination Lock' button.

X-Y Mode

In X-Y mode, you may lock or unlock the current destination on each of its levels. Select the level(s) and press the 'Destination Lock' button to perform the lock. Select locked levels and press the 'Destination Lock' button to unlock them. A locked level has an "L" next to it when it appears in the display.

See [Lock, Protect, and Release](#) on page 39.

Destination Mode

The button places the panel in destination mode. Category selections in destination mode select destination devices. Category buttons that are not configured with destination categories become disabled.

Categories that include both source and destinations appear in both source mode and destination mode.

Destination Protect

This button is a toggle that sets or clears a *protect* on the current destination device. The protect can be removed at the panel that originally set the protect, at any panel that has the same user ID, or by a forced release at any panel.

- ▲ **Note:** a protect prevents *others* from routing to a destination; a lock prevents *anyone*—even the user who issued the lock—from routing to the destination.
- ▲ You may lock a protected destination, but you cannot change a locked destination to a protected destination directly. You must first unlock it.

MD Mode

In MD mode, a protected destination has a “P” next to it when it appears in the display. When you select a protected MD destination with a button, the ‘Destination Protect’ button goes high-tally.

To protect or unprotect MD destinations, select the destinations and press a ‘Destination Protect’ button.

X-Y Mode

In X-Y mode, you may protect or unprotect the current destination on each of its levels. Select the level(s) and press the ‘Destination Protect’ button to perform the protect. Select protected levels and press the ‘Destination Protect’ button to unprotect them. A protected level has a “P” next to it when it appears in the display.

See [Lock, Protect, and Release](#) on page 39.

Free Source

This button selects a phantom device that can be used to release or “free” devices on the data (control) level. A free source can also be used with tielines to free the tieline for others to use.

Use it as if it were a source.

(The actual free source is configured in the *Level Set Details* page of NV9000-SE Utilities.)

Hold

The ‘Hold’ button is a toggle. Press it once to activate “hold” mode, press it again to deactivate “hold.” The button is high-tally when hold mode is active and low-tally when it is not.

You can activate or deactivate hold mode at any time during an MD selection or a breakaway selection in X-Y mode. Your selection remains intact and the panel subsequently operates in hold mode or non-hold mode according to the hold button state.

MD Mode

In MD mode, turning hold mode on allows you to select more than one destination button at a time. When you select a source, the source applies to all selected (high-tally) destinations. If hold is still on when you press ‘Take’, the selected destinations remain selected and the display reflects the selected destinations. The buttons for the selected destinations remain high-tally.

Without hold enabled, the panel has no destinations selected after an MD take and the buttons for the selected destinations go low-tally.

When hold is active, all selected MD destinations get the source you selected most recently (in case you change your mind and selected another source).

X-Y Mode

In X-Y mode, the hold button causes breakaway levels to be retained after a take. The levels you selected (and deselected) remain selected (or unselected) as they were before the take.

Information

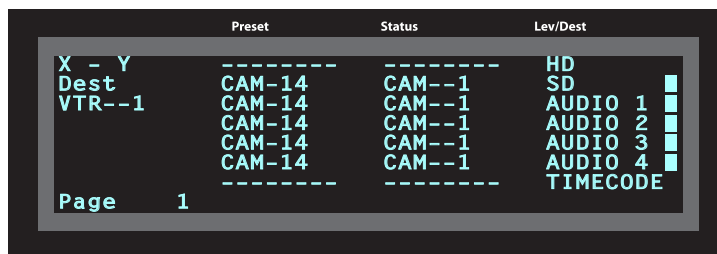
The 'Information' button causes the panel to present auxiliary information on the alphanumeric display. Such information might be level-mapped sources.

Level Map

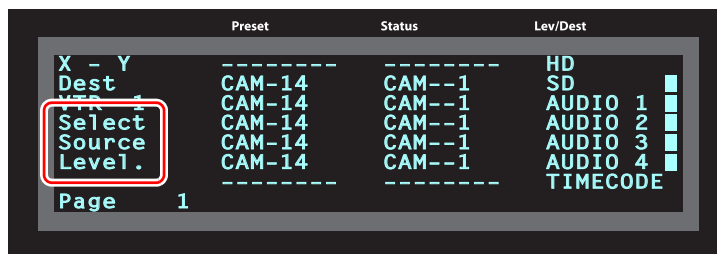
The 'Level Map' button cross-connects levels (typically in the same physical router). The function is typically used to shuffle audio channels, for example, to connect AES 1/2 to AES 3/4.

Follow these steps to create a level mapping:

- 1 Select a source. Here, the source is CAM-14:

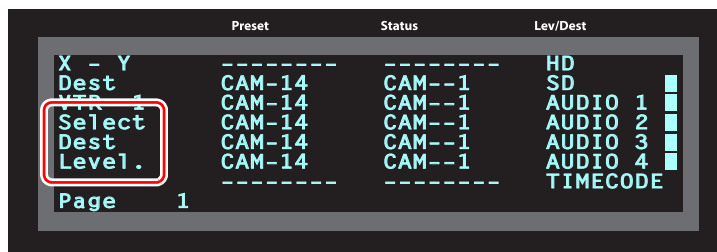


- 2 Press 'Level Map'. The button goes bright and the display tells you to "Select Source Level."



Press a selection button to select a level.

- 3 The display now says "Select Dest Level."



Press another selection button to select a destination level.

- 4 At this point, the level mapping is complete. The display shows a plus sign next to the level indicating that you can view details about the level using an 'Information' button:

	Preset	Status	Lev/Dest	
X - Y	-----	-----	HD	
Dest	CAM-14	CAM--1	SD	■
VTR--1	CAM-14	CAM--1	AUDIO 1	■
	CAM-14	CAM--1	AUDIO 2	■
	+CAM-14	CAM--1	AUDIO 3	■
	CAM-14	CAM--1	AUDIO 4	■
	-----	-----	TIMECODE	
Page	1			

X-Y Display

Mapping marked →

Preset	Status	Lev/Dest
AUDIO 1 on CAM-14 is preset to AUDIO 3 on VTR--1.		

Information Display

After you view the information, press the 'Information' button again to return to the X-Y display.

- 5 Finally, press 'Take'. After the take, the plus sign(s) migrate from the preset column to the status column with the rest of the source data. You can view the level mapping after the take.

You can create multiple level mappings. Level mappings are typically used for AES levels.

The level map mode is cancelled when the next normal take is performed involving the selected devices.

Lock

This button is a toggle that sets or clears a *lock* on the current source when the panel is in source mode or on the current destination when the panel is in destination mode.

The lock can be removed at the panel that originally set the lock, at a panel that has the same user ID, or by a forced release at any panel.

MD Mode

In MD mode, a locked device has an "L" next to it when it appears in the display.

To lock or unlock an MD device, select the device and press a 'Lock' button.

X-Y Mode

In X-Y mode, you can lock or unlock the current destination on each of its levels or you can lock a source on all levels. For destinations, select the level(s) and press the 'Lock' button to perform the lock. For sources, just press the 'Lock' button. Select locked levels and press the 'Lock' button to unlock them. A locked level has an "L" next to it when it appears in the display.

See [Lock, Protect, and Release](#) on page 39.

Menu

The button puts the NV9601 panel in menu mode and places a small menu on the LCD buttons, that provides access to a variety of panel options.

By pressing any of the menu buttons, you may enter data (such as panel ID) or change LCD brightness values or you can view panel data. The LCD button text varies with context in menu mode.

See [Menu Mode](#) on page 52 for more detail.

Name Set Toggle

A 'Name Set Toggle' button toggles the panel between its default name set and the "system name" set. Whichever name set you select becomes the "active" name set.

- ▲ 'Name Set Toggle' buttons are disabled while a category selection is in progress.
- ▲ The panel requires that category/suffix device selection be performed using the names in the system name set. However, it displays the device you selected using the active name set. We recommend that you switch to the system name set prior to category/suffix device selection and return to your preferred name set afterward.

Panel Lock

A panel lock button prevents changes to the panel settings, especially router crosspoints. When the panel is locked, the button array becomes blank except for the 'Panel Lock' button which becomes high-tally red.

The button is a toggle: press the 'Panel Lock' button to lock the panel. Press it again to unlock the panel.

Preset Release

This button removes locks and protects from preset source devices. (If source locks and protects are not used in your system, this button is not needed.)

If you select a source and someone else has locked or protected the source, you can release it if your panel has "forced release" enabled.

Previous Source

This button presets the previously selected source for the current destination. This function is useful when you make a route in error.

To recover the previous source, press 'Previous Source'. When you do, the 'Take' button goes high-tally. Then press 'Take' to recover the source.

Protect

This button is a toggle that sets or clears a *protect* on the current source when the panel is in source mode or on the current destination when the panel is in destination mode.

The protect can be removed at the panel that originally set the protect, at any panel that has the same user ID, or by a forced release at any panel.

- ▲ **Note:** a protect prevents *others* from routing to a destination; a lock prevents *anyone*—even the user who issued the lock—from routing to the destination.

- ▲ You may lock a protected source, but you cannot change a locked source to a protected source directly. You must first unlock it.

MD Mode

In MD mode, a protected device has a “P” next to it when it appears in the display.

To protect or unprotect an MD device, select the device and press a ‘Protect’ button.

X-Y Mode

In X-Y mode, you can protect the current destination on each of its levels or you can protect a source on all levels. For destinations, select the level(s) and press the ‘Protect’ button to perform the lock. For sources, just press the ‘Protect’ button.

Select protected levels and press the ‘Protect’ button to unprotect them. A protected level has a “P” next to it when it appears in the display.

See [Lock, Protect, and Release](#) on page 39.

Quick Source

A quick source button selects a source and performs an immediate take.

When you assign a quick source button, a drop-down menu appears in which you choose a source device.

The ‘None’ entry is merely a placeholder. Do not choose ‘None’.

Salvo

This button causes the panel to enter salvo mode. In salvo mode, the display shows a list of both system salvos and local salvos:

Preset	Status	Lev/Dest
Salvo		Setup 1
Execute		SV02 2
		SV03 3
		SV04 4
		LSV01 5
		LSV02 6

To execute a salvo, first choose one using the selection buttons. You might need to scroll the display to see the salvo you want.

Selected Salvo	→	<table><tr><th>Preset</th><th>Status</th><th>Lev/Dest</th></tr><tr><td>Salvo</td><td></td><td>Setup 1</td></tr><tr><td>Execute</td><td></td><td>SV02 2</td></tr><tr><td>SV02</td><td></td><td>SV03 3</td></tr><tr><td></td><td></td><td>SV04 4</td></tr><tr><td>Press</td><td></td><td>LSV01 5</td></tr><tr><td>Take</td><td></td><td>LSV02 6</td></tr></table>	Preset	Status	Lev/Dest	Salvo		Setup 1	Execute		SV02 2	SV02		SV03 3			SV04 4	Press		LSV01 5	Take		LSV02 6
Preset	Status	Lev/Dest																					
Salvo		Setup 1																					
Execute		SV02 2																					
SV02		SV03 3																					
		SV04 4																					
Press		LSV01 5																					
Take		LSV02 6																					

The salvo you selected becomes highlighted and its name is displayed at the left. If you choose the wrong one, you can either choose another or press ‘Clear Preset’ (if you have a ‘Clear Preset’ button.)

A salvo is a pre-defined sequence of NV9000 commands. If you want to view the commands, press the 'Info' button if you have one. Press 'Info' again to return to salvo mode.

To execute the salvo, press 'Take'.

At any time, you can press the 'Salvo' button again to return to normal operating mode.

- ▲ In salvo mode, many button functions become disabled. 'Take', 'Clear Preset', 'Info', and 'Default State' are among the exceptions.

System salvos are defined in NV9000-SE Utilities. You can review the defined salvos in NV9000-SE Utilities or communicate with the panel's configurer regarding the function of any salvos in your panel configuration.

Save Preset

This button is a toggle: it enables or disables "save preset" mode. When this function is enabled (and the button is high tally), whatever is on preset is retained on preset after a take. When the function is disabled (its button is low tally), whatever is on preset is discarded after a take.

Scroll

This button is a toggle: it enables or disables "scroll" mode. In scroll mode, you can use the 'Page Up' and 'Page Down' buttons to scroll through devices within a category.

Note that you can either enter a category suffix by pressing category (suffix) buttons or you can scroll through the list of devices in the category in scroll mode. The two methods are mutually exclusive.

Source

A source button selects a source.

See [Preset Release](#) on page 45 and [Destination](#) on page 41.

Source is Master

During data level (i.e., machine control) takes, this button makes the source device the master. Otherwise, the destination is the master.

The button is a toggle that reverses the direction of data routing. For example, if the destination is the master and the source is the slave, pressing a 'Source is Master' button reverses their roles. Pressing the button again reverts the roles.

The 'Source is Master' button is used to initiate "broadcast" control routes. See [Broadcast Routes](#) on page 49.

- ▲ Pressing the 'Source is Master' button turns off the 'Broadcast' button and vice versa.

Source Mode

The button places the panel in source mode. Category selections in source mode select source devices. Category buttons that are not source categories become disabled in source mode.

Categories that include both source and destinations appear in both source mode and destination mode.

Src/Dst Mode

The button toggles between source and destination modes. Category selections in source mode select source devices. Category selections in destination mode select destination devices.

Take

In X-Y mode, a take button routes the preset source device(s) on selected levels to the selected destination device.

In MD mode, a take button switches the preset source device(s) to the selected destination device(s) on all levels.

Undefined

An undefined button cannot be used and appears dark (unlit) on the panel. The term “undefined button” has meaning primarily to the configurer and not the operator.

Virtual Level Expander

In X-Y mode, this button causes the alphanumeric display to show virtual levels at the *lowest* level of grouping (with the most detail). The button affects only virtual levels that have been grouped. See [Level Grouping](#) on page 37.

The button has no effect in multi-destination mode.

Virtual Levels Contract

In X-Y mode, this button causes the alphanumeric display to show virtual levels at the *highest* level of grouping (with the least detail). The button affects only virtual levels that have been grouped. See [Level Grouping](#) on page 37.

The button has no effect in multi-destination mode.

XY/MD Mode

This button switches the panel between X-Y and multi-destination modes.

The button is green for X-Y mode and amber for multi-destination mode.

Takes

Following are brief instructions on how to perform a take in 3 scenarios.

XY Mode

- 1 If required, enter X-Y mode. (Use the XY/MD button.)
- 2 If required, select a destination.
- 3 Optionally choose levels.
- 4 Select a source and press 'Take'.

Single-Destination Panel

(This scenario assumes that a destination was pre-defined during configuration.)

- 1 Select a source.
- 2 Press 'Take'.

MD Mode

- 1 If required, enter MD mode. (Use the XY/MD button.)
- 2 Scroll to a destination and select it.
- 3 Select a source.
- 4 Repeat steps 2 and 3 for all destinations you intend to use.
- 5 Press 'Take'.

When 'Hold' is enabled in MD mode, you can select many MD destinations at once. Subsequently selecting a source assigns the source to all selected MD destinations. You can turn 'Hold' on and off as you require during an MD take.

Name Sets

NV9000-SE Utilities allows configurers to define multiple *name sets*. Each name set contains alternate device names for any and all devices in the NV9000 system. The alternate device names can appear in the displays of your panel.

Further, your panel can have a 'Name Set Toggle' buttons that allows you to switch between the "default" name set and the "system name" set. Whichever name set you are currently using is the *active* name set.

There is always a 'System Name' set. That name set includes the device names defined within the NV9000 configuration. Any other name sets are optional.

Device selection using categories and suffixes requires that you enter device names using the *system name set*. However, the display shows the device name as it is represented in the *active name set*.

For example, suppose the system name for a destination is "VTR_42" and its alternate name is "Prod_A." Follow these steps to select the device using category selection:

- 1 Switch to destination mode if necessary.
- 2 Press a VTR category button. (Suffix buttons become enabled.)
- 3 Press 4, then 2. The device is selected, but the name appearing in the destination display is "PROD_A."

In this example, you could press the 'Name Set Toggle' button a number of times to see that PROD_A and VTR_45 are, in fact, the same device.

If you are using name sets, you might want to switch to the system name set during device selection and switch back to your preferred name set afterward.

Note that when the panel is displaying names of a name set, and a device does not have an name in the name set, the panel displays the system name.

Broadcast Routes

It is easy and normal to route a source to multiple destinations for audio and video routers. In contrast, machine control routes are typically point-to-point. Therefore, to control multiple machines requires that you perform a "broadcast" operation using a 'Broadcast' button.

During broadcast, the source device controls one or more destination devices.

Making Broadcast Routes

Follow these steps to broadcast control signals:

- 1 Ensure that the panel is in “source is master” mode. It is either in “source is master” mode by default or you must press a ‘Source is Master’ button to activate the mode. The mode is active when the ‘Source is Master’ button is high-tally.
 - 2 Select a destination and preset a source. Then press ‘Take’.
 - 3 Press the ‘Broadcast’ button.
 - 4 Select a destination and preset a source. Then press ‘Take’.
 - 5 Repeat steps 3 and 4 to add other machines to the set of controlled devices.
- ▲ In MD mode, with hold mode active, you can select multiple broadcast destinations with a single take.

Implicit in the ‘Broadcast’ button is the “source is master” mode. It is not necessary to press ‘Source is Master’ repeatedly. The reason you must press ‘Source is Master’ the first time is that “broadcast mode” is not yet active.

Removing Broadcast Routes

To cancel a route, route the source to another destination normally.

To remove a destination from the set of broadcast destinations, route another source (e.g., the free source) to the destination.

Data Routing

There are 3 data routing options that affect sources and destinations that have a machine control level (i.e., a data level). These options govern what happens when a source or destination device is to be used.

Automatic Data Routing

A take involving a machine control level occurs naturally on all selected levels, including the machine control level, regardless of whether an affected machine control port is in use. The system breaks any existing control connections involved with the source and destination and makes a new control connection for the source and destination.

This data routing option applies in both operating modes.

Manual Data Routing

If a control port for the source or destination is “in use,” a take involving a machine control level occurs on all levels *except* the machine control level. You must break either the source’s control connection, the destination’s control connection, or both of those existing connections before you can take the source to the destination on the machine control level. To break a connection, route a device (as a source) to itself (as a destination) on the machine control level. When the connection is broken, the status column of the display reads “FREE” for the machine control level (in X-Y mode). If your panel is in multi-destination mode, you might switch to X-Y mode momentarily to see this.

When a take involving a machine control level is blocked on the control level, the display displays the message "Control In Use."

If neither of the control ports for the source or destination are in use, the take occurs naturally without any further action required. Note that the ports will become "in use" after the take you are performing.

This data routing option applies in both operating modes.

Semi-Automatic Data Routing

This data routing option applies only in X-Y mode.

If a control port for the source or destination is "in use," a take involving a machine control level occurs on all levels *except* the machine control level. Nevertheless, you are given the opportunity to complete the take on the machine control level by pressing the 'Take' button a second time.

If neither of the control ports for the source or destination are in use, the take occurs naturally without any further action required. Note that the ports will become "in use" after the take you are performing.

Follow these steps to take the data level as a breakaway:

- 1 Select a destination.
- 2 Select a source.
- 3 Examine the display and the take button.
- 4 If the display shows "Control in Use" and the Take button is still high-tally, press the 'Take' button again to complete the take.

You can cancel the control-level take by pressing a button other than 'Take'.

Chop

The chop function is a diagnostic function for routers that support chop. It allows you to switch rapidly between two sources at a particular destination. The chop interval is defined in the NV9000 configuration. The default chop interval is 6 *fields*.

Follow these steps to use chop:

- 1 Select a destination.
- 2 Select a source. This is the first source.
- 3 Press the chop button.
- 4 Select another source. This is the second source. The chop is immediately activated on the routers (of the default destination) that support chop.

To terminate the chop, (1) press the chop button again to turn it off, (2) select the destination you had chosen for the chop, then (3) select any source.

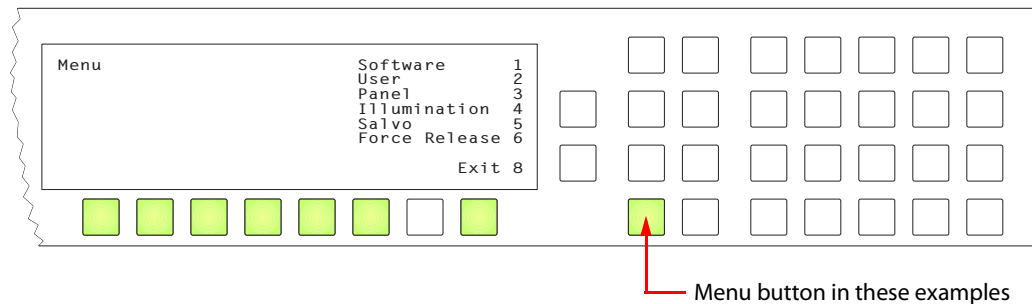
Salvo Mode

The NV9601 enters "salvo mode"¹ when you press a salvo button. Salvo mode is a temporary mode, usually brief, where you are given an opportunity to select and consider the salvo you are about to execute. The NV9601's display gives you a list of all salvos, system and local. To execute a salvo, select the salvo and press 'Take'.

To exit salvo mode, press the 'Salvo' button once again.
See the [Salvo](#) button definition on page 46.

Menu Mode

The NV9601 enters menu mode when you press a menu button.
The menu has 6 menu choices and an exit function:

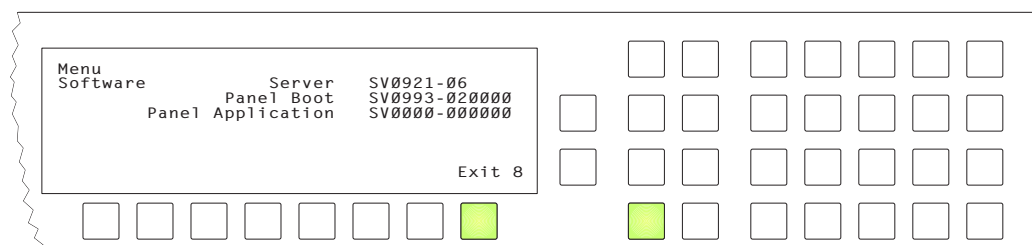


Press the selection button corresponding to 'Exit' when you want to leave the menu and return to normal operating mode. Otherwise, press any of the selection buttons to access the corresponding submenu.

You can also press the 'Menu' button again to leave the menu and return to normal operating mode.

Software Versions

Press selection button 1 (corresponding to 'Software') to view the software and firmware versions:

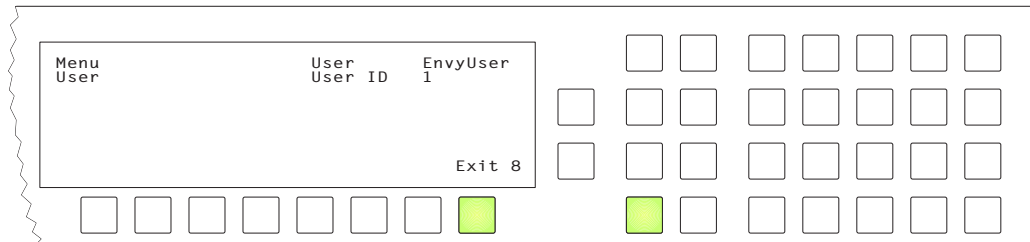


Press selection button 8, corresponding to 'Exit', to return to the main menu.

1. Other panels have different forms of "salvo mode."

User

From the main menu, press selection button 2, corresponding to 'User' to view user data:



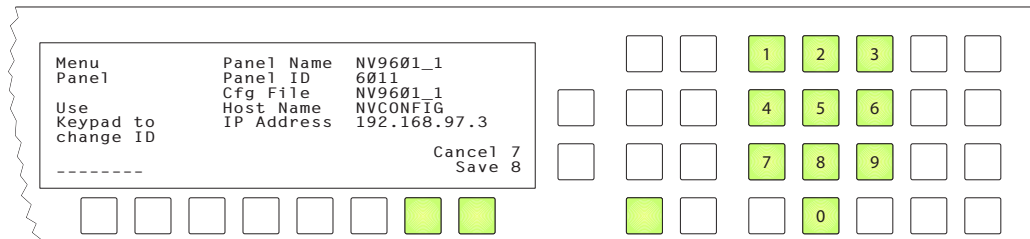
These are **not** the Windows user name or ID.

- ▲ User names are important in lock, protect, and release situations. The user who “owns” a lock or protect is identified by a user name.

Press selection button 8, corresponding to 'Exit', to return to the main menu.

Panel

From the main menu, press selection button 3, corresponding to 'Panel' to view panel data or change the panel ID:



When this sub-menu appears, the numeric keypad becomes enabled (and illuminated). The keypad represents the numbers shown here, although the numbers do not appear on the actual buttons of the panel. The panel's button legends will probably be related to device categories. Use the keypad to enter a new panel ID. The new entry appears in place of the dashes in the display.

Press selection button 7 to cancel your entry and return to the main menu.

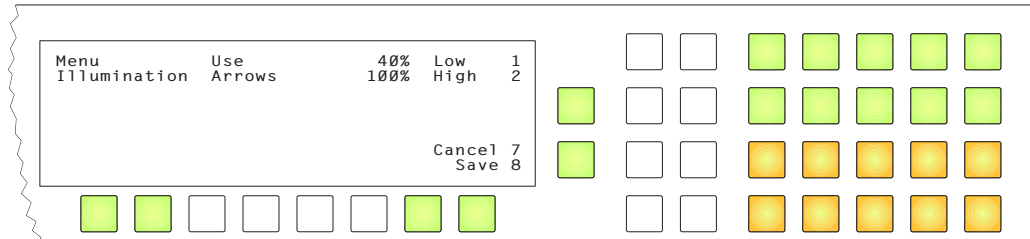
Press selection button 8 to save the new panel ID and leave menu mode, returning to normal operating mode.

The panel submenu also shows the panel's IP address.

- ▲ The panel acquires its IP address through DHCP on the system controller's panel/router network unless someone in your administration has used the Static Panel Configuration Utility to force the panel to have a static IP address.

Illumination

Press selection button 4, corresponding to 'Illumination' to view and change button brightness. The illumination submenu appears:



Press selection button 1 to enable changes to the low-tally illumination level.

Press selection button 2 to enable changes to the high-tally illumination level.

Press the 'Page Up' or 'Page Down' buttons to change the illumination values in increments of 10%. The right-hand array of 20 buttons shows the illumination level for green and for amber.

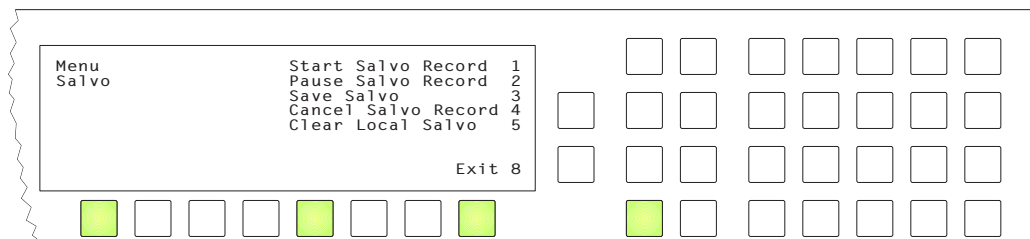
The illumination levels are constrained so that high-tally is always brighter than low-tally. The defaults are 40% for low-tally and 100% brightness for high-tally.

Press selection button 7 to cancel your entry and return to the main menu.

Press selection button 8 to save the new levels and return to the main menu.

Salvo

From the main menu, press selection button 5, corresponding to 'Salvo' to view the salvo submenu:



The salvo submenu lets you create and delete **local salvos**. A local salvo is one that you create by recording actions that you perform at your panel. After recording the salvo, you must name and store the salvo.

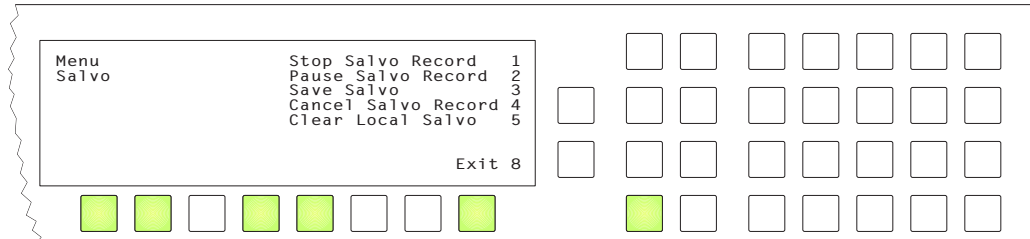
- ▲ Configurers and operators note: local salvos cannot be stored in an NV915 permanently. If the NV915 is ever restarted, you will not be able to retrieve locally defined salvos. The names of the local salvos persist, however, but the salvos are "empty." The NV920 and NV960 do not have this limitation.

There are 5 commands in the salvo menu:

- Start Salvo Record.
- Pause Salvo Record.
- Save Salvo.
- Cancel Salvo Record.
- Clear Local Salvo.

Some of the selection buttons corresponding to the commands will become enabled and the others will become disabled as you progress.

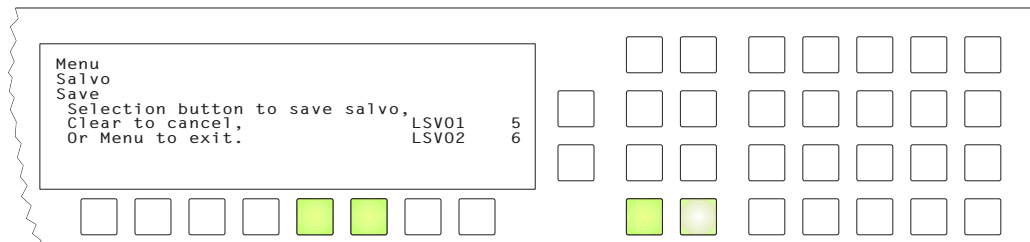
For instance, you cannot pause a salvo recording until you have started recording. That is why the selection button for 'Start' is initially enabled and the selection button for 'Pause' is disabled. Once you have started recording, the 'Start' button becomes a 'Stop' button.



To record a salvo:

- 1 Press selection button 1 to start recording.
- 2 Press the menu button to return to normal operating mode.
- 3 Carry out the tasks that you want to be included in the salvo, in the order you want the tasks to occur.
- 4 Press the menu button and then press selection button 5 to return to the salvo menu.
- 5 To finish recording the salvo, press selection button 1 (Stop Salvo Record).
- 6 To save the salvo, press selection button 3.

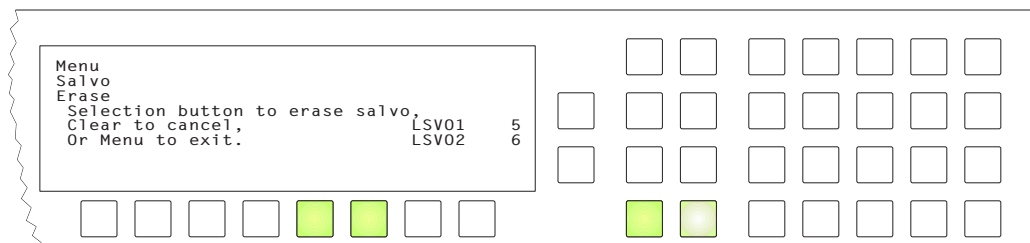
Choose a locally defined salvo name from the list:



You might need to scroll to see the salvo name in which to store the recorded commands.

(The local salvo names were defined during panel configuration and can only be changed or removed by reconfiguring the panel.)

To erase a salvo, press selection button 5 (Clear Local salvo) and choose a salvo. You might need to scroll to see the salvo you want to erase.

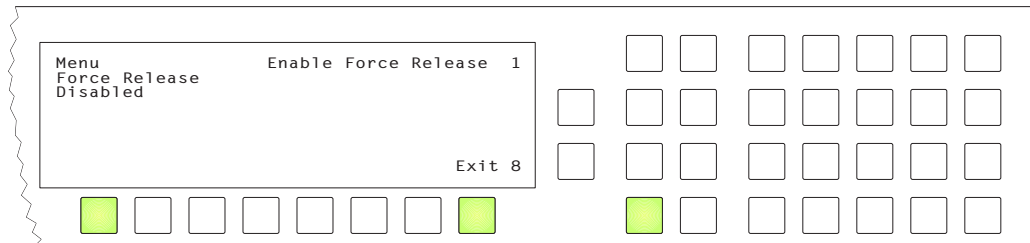


This will erase the commands in the salvo, but it will not remove the local salvo name from the list of local salvos.

(The local salvo names were defined during panel configuration and can only be changed or removed by reconfiguring the panel.)

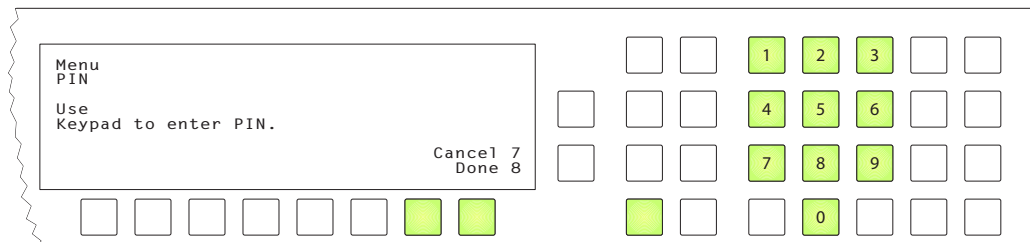
Force Release

Press selection button 6, corresponding to 'Force Release' to view and change the force release state for your panel:



Press selection button 1 to enable or disable force release.

A submenu requesting a PIN appears:



Enter your PIN using the keypad. Your PIN is always 3689. It is not possible to change the PIN.

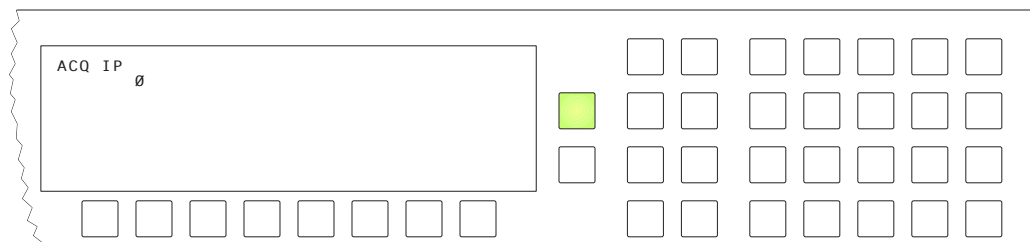
Press selection button 7 to cancel your entry and return to the 'Force Release' submenu.

Press selection button 8 to confirm your PIN and return to the 'Force Release' submenu. If you enter an incorrect PIN, the panel displays a "bad PIN" message.

Setup Mode

Setup mode occurs when the NV9601 is disconnected from its network and is freshly powered up. In setup mode, you can set or change the panel ID, determine software versions, and perform a test of the panel's buttons. It is in setup mode that you must initially set the panel ID.

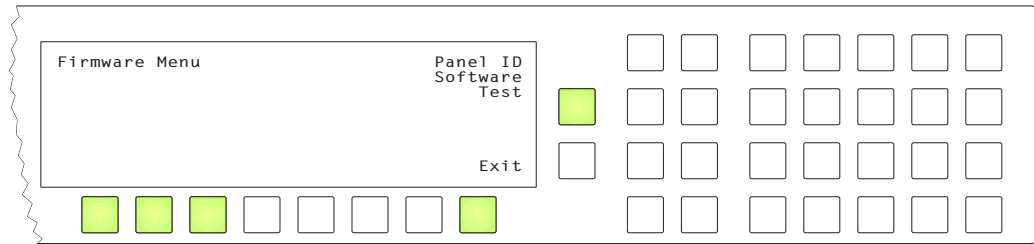
The panel powers up with 1 button illuminated in green:



▲ It can take 30 seconds for the button to illuminate.

The "ACQ IP" status message remains until you connect the panel to its network.

Press the green button (normally the 'Page Up' button) to view the setup menu:



In this menu, you have 3 options:

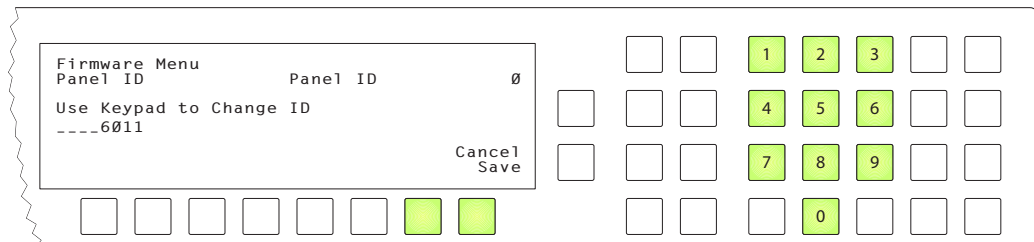
- Set the panel ID.
- View the software versions.
- Perform a panel test.

To select an option, press the corresponding selection button.

To leave the setup menu, press selection button 8.

Panel ID Entry

In the firmware menu, press selection button 1, corresponding to 'Panel ID', to set the panel ID. The panel ID submenu appears:

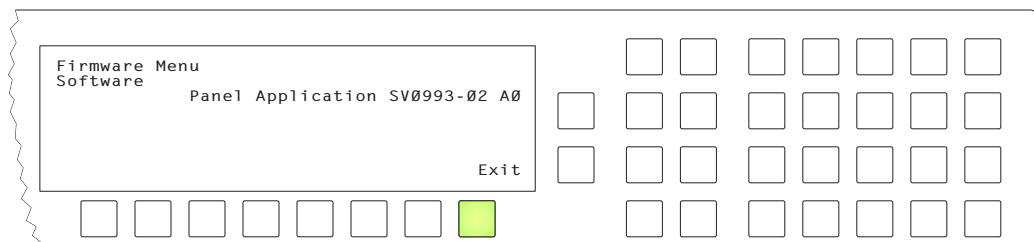


Use the keypad at the right to enter a panel ID.

To make the ID permanent, press selection button 8 ('Save'). To cancel your entry, press selection button 7 ('Cancel'). In either case, you will be returned to the setup menu.

Software Versions

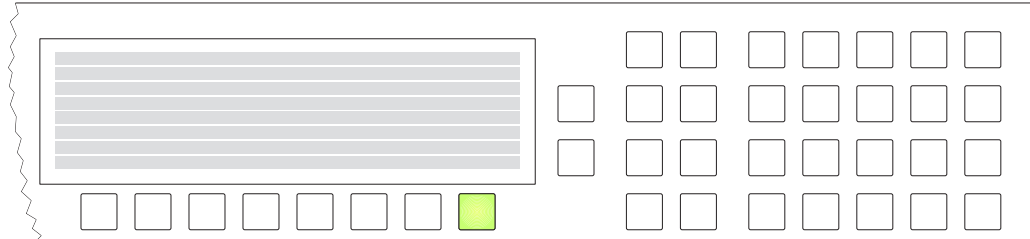
In the firmware menu, press selection button 2, corresponding to 'Software'. The software submenu appears:



To return to the firmware menu, press selection button 8.

Test

In the firmware menu, press selection button 3, corresponding to 'Test'. The first of several test patterns appears:



The first test pattern illuminates rows of pixels in the display.

Selection button 8 is illuminated. Press that button to proceed through the other test patterns. These are the remaining test patterns, in order:

- All buttons are illuminated in low-tally amber.
- All buttons are illuminated in high-tally amber.
- All buttons are illuminated in low-tally green.
- All buttons are illuminated in high-tally green.
- Button test.

In this test, you may press any button. It will blink rapidly for a few moments. When you are satisfied that the buttons work, press selection button 8 to return to the firmware menu.

When you are finished using the setup menu, press 'Exit' to return to the firmware menu.

Press 'Exit' again to leave the firmware menu.

6 Technical Details

Chapter 6 provides electrical and mechanical specifications for the NV9601.

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Power Specifications

NV9601 Power Specifications

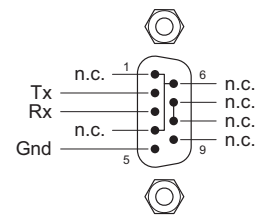
Specification	Detail
AC power	90–250 VAC, 50–60 Hz, auto-sensing. Inrush current < 50 A at 230 VAC, cold start, at 25 °C, Input current < 2.0 A rms at 115 VAC; < 1.0 A at 230 VAC.
Power consumption	≤ 20 W
Regulatory	UL listed and CE compliant.

NV9601 Specifications

NV9601 Physical Specifications

Specification	Detail
Dimensions	Height: 3.47 in (88.1 mm), fits EIA 2 RU (3.5 in or 88.9 mm), Width: 19.0 in (482.6 mm).
Depth	8.61 ± 0.01 in (218.7 mm), enclosure. 9.17 in (232.9 mm) overall.
Weight	9.8 lb (4.45 kg).
Connectors	Power: AC. Ethernet: 1 connector, 10baseT, RJ-45 jack. RS-232: 1 connector, 9-pin D type, for diagnostics and upgrades.
Grounding terminal	None.

The RS-232 connector has this pinout:



Pins 1, 4, and 6 are tied together and pins 7 and 8 are tied together. None of those pins are connected to any circuitry.

Environmental Specifications

NV9601 Environmental Specifications

Specification	Detail
Operating temperature	0–40 °C, ambient.
Relative humidity	0 to 90%, non-condensing.
Cooling	No fan required.

Defaults

Initial Panel State

Multi-destination mode or X-Y mode, selectable.

Destination: the configured default.

Buttons: high-tally is maximum brightness; low-tally is low brightness.

Configuration Page

The default panel options are:

Panel type:	XY/multi-destination mode.
Preset Monitor:	None
Status Monitor:	None
Default mode:	Normal.
Release mode:	Normal.
Default destination:	None.
XY Data Routing:	Automatic.
MD Data Routing:	Automatic.
Default name set:	System names
Multidest Device Limit:	8. (This is the lowest value. The upper limit is 512.)
Use continuous scrolling	Enabled (checkbox checked).
All other options:	Disabled (check boxes clear).

DHCP

The panel is set up to respond to DHCP from the factory. It is possible to assign the panel a fixed IP address using the Panel IP Configuration Utility.

Drawings

The drawings on the following pages identify features and provide overall and critical dimensions.

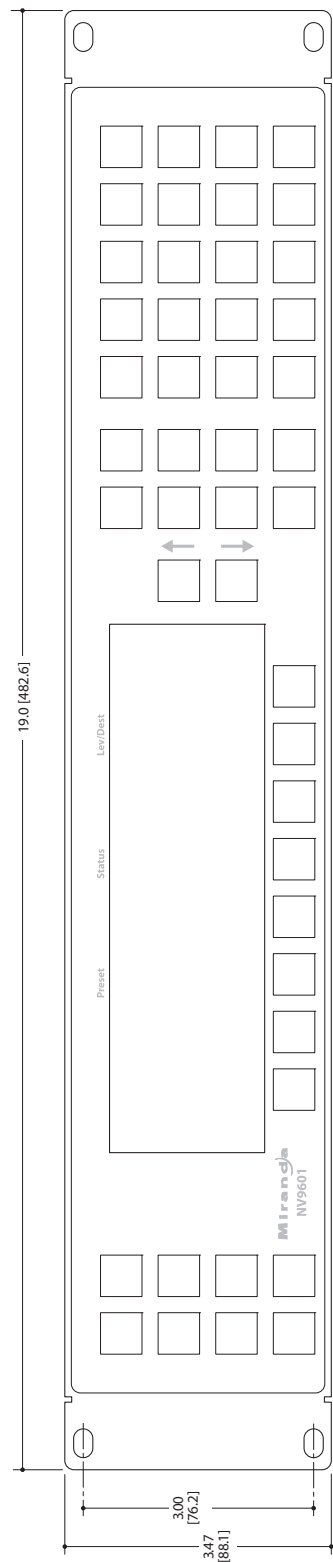


Fig. 6-1: Front View of the NV9601

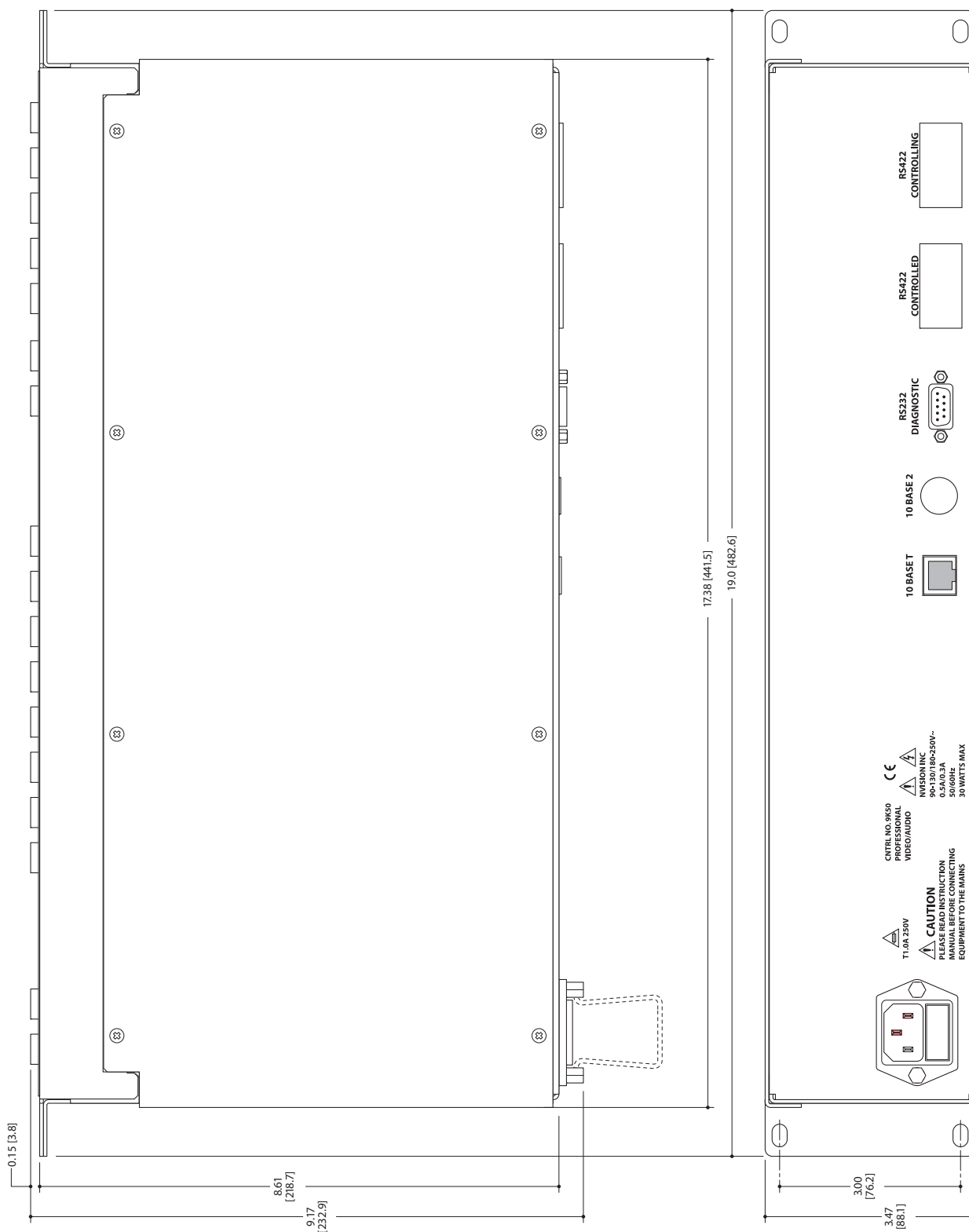


Fig. 6-2: Rear and Top Views of the NV9601

G

Glossary

AES/EBU	(Audio Engineering Society/European Broadcasting Union). AES and EBU are standards organizations.
Breakaway	A condition where a destination has multiple sources on different levels.
Category	<p>A category represents a set of devices. (The concept of categories exists to make it easier to select devices at a control panel.) A category can contain sources, destinations, or devices that are both sources and destinations. Each device in the category has a unique selection index within that category. Each category has a mnemonic ID associated with it.</p> <p>The NV9601 does not support categories or category selection.</p>
Data routing	Data routing (a.k.a., machine control routing) is a bidirectional form of routing. Routes are characterized by a controlling device and controlled device(s). The NV9601 provides certain data routing options including a 'Broadcast' button.
Device	A "device" is a grouping of input and output ports that define a logical entity. (The logical entity often represents a real device, but it does not have to be a real entity.) For example, a system might have 3 levels: video, AES, and time code. A hypothetical device in this system is Camera 1, which consists of video on input port 1 of the video router, AES on input port 5 of the AES router, and time code on input port 8 of the time code router.
GPIO	General Purpose Input and Output. A generic term for the NV9601's tally interface. The tally interface is called the "GPI Interface" at the rear of the NV9601.
Level set	A level set is a group of virtual levels that are commonly used together when switching devices. A level set also defines the mapping of each virtual level within the level set to a single physical level. All levels in a level set have a unique display index within that level set.
Multi-Destination (Mode)	A mode on an NV9000 control panel that presents many destinations at once, in contrast to X-Y mode. An operator may route sources to multiple destinations in a single take. Multi-destination mode does not permit the selection of breakaway levels.
Operator	The term operator (a.k.a. user) usually refers to users other than the system administrator or configurer. An operator is responsible for making the routes.
Physical level	Multiple routers provide different "physical levels" on which to switch the signals of devices. Any particular device might send or receive HD, SD, AES, time-code, or machine-code signals.
PIN	The system administrator may create a single "super user" personal identification number (PIN) that functions as a passcode. A PIN is 4–6 digits in length. The PIN allows certain operators to perform functions such as (1) forced release on a control panel that is configured for normal release or (2) changing the ID of a control panel.
Port	A port is the physical connection on a router. A port can only be an input port or an output port.
Salvo	A salvo is a stored group of commands that can be recalled and executed at an NV9000 control panel.
Source/ Destination	The term "source device" is used interchangeably with "source" and the term "destination device" is used interchangeably with "destination." A source is a device that is connected to one

	or more input ports. A destination is a device that is connected to one or more output ports. An example of such a device would be a monitor.
	A device can be both a source and destination. An example of such a device is a VTR.
System administrator	The system administrator is the person responsible for installing, configuring, and maintaining a router control system.
Tally	(1) High or low button illumination. (2) Tally interface <i>to be defined</i> .
Virtual level	Virtual levels allow the system administrator to define a single physical router level as multiple levels. Within a physical level, any port can be mapped to any virtual level. For example, an AES matrix could be divided into AES 1/2 and AES 3/4 <i>virtual</i> levels.
X-Y (mode)	A mode on an NV9000 control panel that switches one destination at a time, in contrast to multi-destination mode. In X-Y mode, some panels can display the virtual levels for the selected destination. Operators using those panels can perform breakaway level selection and level mapping.

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