DS-1224

Data Switcher

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1.   Introduction

The Videoquip Research Limited DS-1224 Data Switcher is a unique new state-of -the -art RS-422 routing system which combines a high degree of flexibility with ease of use.

Read this manual thoroughly before attempting to operate the DS-1224.

1.1   Operational Mode and Configuration Mode

The DS-1224 has two modes. Operational Mode controls the normal switcher functions, and is used most of the time. It allows the systems to change switcher crosspoints and to monitor the switcher status.

The Configuration Mode is used to change specific panel parameters and system information which is stored in the panel. This is required initially upon installation, and then only a change in the configuration of the system is required.

1.2   Parameter Memory

The DS-1224 uses EEPROM (Electrically Eraseable Programmable Read Only Memory) to store the system parameters, in order to facilitate dield programming. In this way the unit can be customized to a particular application after it is installed in the field. Parameters stored in the DS-1224 are retained even when power to the panel is removed.

The DS-1224 stores the following critical information: the size of the switcher, the X and Y connector assignments (Device or Preset), the panel number, and the Configuration mode access code. All of these parameters have default values which allow the panel to be operated before it has been configurated (when first received) or in the case os catastrophic failure of the internal memory.

In addition to the above parameters, the X and Y connector designations (names) are all programmable and stored in memory. These have no default values. If an X or Y name is not available, the X and Y numbers are used for reference.

1.3   LCD Display

A four line by forty character LCD display is used to convey information to the user. The display backlighting automatically turns itself off two minutes after the the last keyboard entry has been made. To restore the backlighting, press any key (th SHFT key is preferred, as by itself it has no effect).

1.4   Keys

The panel has a total of 19 keys, most of which are multipurpose. These are located in three groups on the panels. The first group of 12 keys includes the 10 numeric keys and the DEV (device) and PST (preset) keys. These are used to select the device and preset numbers for switcher takes, to select menu items (in conjunction with the shift key), and to enter various other numeric and alphanumeric information.

The next group of six keys consists of the DEV+, DEV-, PST+, PST-, DSEL and SHFT keys. The first four are primarily used to increment or decrement device or preset numbers, and to view lengthydisplay screens. The DSEL (deselect) key is used to deselect a device before a new connection is made to it. The SHFT (shift) key is similar to the shift key on a typewriter or computer keyboard. It selects an altrnate operation when used in conjunction with another key.

The TAKE key directly controls the switcher status while in Operational Mode. It is located alone to avoid accidental takes, and has no other functions while in thismode. In the configuration Mode, it i used for several configuration entries.

2.   Inspection and Installation

When received, the shipping carton should contain the following:
    1.   One DS-1224 Data Switcher Switcher
    2.   One power cord
    3.   System expension cables (for multi-frame expanded systems)
    4.   Manual and waranty card.

This unit is designed to be mounted in a standard 19-inch EIA equipment rack, and occupies 3-1/2 inches (2 RU) of space. The unit is 16 inches deep when connections have been made.

All connections are made to the rear panel. All RS-422 connections on the DS-1224 are wired as follows:

Pin	Function
1	Ground
2	Receive (-)
3	Transmit (+)
4	Ground
5	N.C. (not connected)
6	Ground
7	Receive (+)
8	Transmit (-)
9	Ground

For multi-frame systems, ribbon cable assemblies are used to intrconnect the frames. Join the X1, X2, Y and parallel Control connectors between frames as required. For systems employing RS-422 or RS-232 (optional) serial control, connections A and A are used.

Before operating the DS-1224, it must be configured. See section 3.3, Modify Panel Parameters.

3.   DS-1224 Modes and Functions

The DS-1224 employes two modes, Operational Mode and Configuration Moded. The routing function is controlled from the Operational Mode. Assignment or modification of system parameters is performed from the Configuration Mode. Any attempt to enter the Configuration Mode requires the user to enter the current access code. All system operations are carred out using the front panels switches.

Each mode allows the user to perform a variety of functions. When a specific function is selected, the user is presented with either the necessary information to perform that function, or with a list of options.

The following functions are currently available on the DS-1224. The 'KEY' column indicates which DS-1224 key(s) will activate the function. Note that except for DEV and PST, function selection requires the SHFT key to be held down while the corresponding key is pressed.

FUNCTION	KEY	IN OPERATIONAL MODE	IN CONFIGURATION MODE
1	SHFT 1	displays Operational Mode main menu	return to Operational Mode (display main menu)
2	SHFT 2	select Configuration Mode (acccess code required)	display Configuration Mode main menu
3	SHFT 3		modify panel parameters
4	SHFT 4		modify X designations
5	SHFT 5		modify Y designations
6	SHFT 6		modify access code
7	SHFT 7	--- not used ---	
8	SHFT 8	--- not used ---	
9	SHFT 9	display alternate switcher status	
10	SHFT 0	display switcher status	
11	SHFT DEV	display list of devices	
12	SHFT PST	dispaly list of presets	
13	DEV	data switcher control, selection of device and preset nembers	
14	PST		

3.1   Function 1   Operational Mode Main Menu

When this function is selected (or power is first applied) the DS-1224 enters the Operational Mode, and displays the Operational Mode main menu.

This menu displays the functions available while in the operational Mode, and may be selected from either mode. If the panel was previously in the Configuration Mode, it returns to the Operational Mode. Note that in this case the access code must be re-entered in order to return to the Confguration Mode.

The Operational Mode menu cantains too may items to display all at once. Once the menu has been selected, the DV+ (PST+) and DEV- (PST-) keys are used to move the menu forward or back by one line. The SHFT DEV+ (SHFT PST+) and SHFT DEV- (SHFT PST-) keys move the menu forward or back by one [age (four lines).

From thi menu, functions 1, 2, 9 and 10 (SHFT1, SHFT 2, SHFT 9 and SHFT 0) may be selected by pressing only 1, 2, 9 or 0, respectively. Note that SHFT DEV and SHFT PST have different meanings from DEV and PST, and can NOT be selected directly in the above manner. The EV and PSt keys enable the routing function, and prompt the user for selections. See section 3.10 for details.

KEY	USE
1, 2, 9 or 0	may be used to select functions 1, 2, 9 or 10
DEV+, PST+	scroll up one line on the menu
SHFT DEV+, SHFT PST+	scroll up one page (four lines) on the menu
DEV-, PST-	scroll down one line ont he menu
SHFT DEV-, SHFT PST-	scroll down one page (for lines) on the menu
DEV, PST	data switcher control (see section 3.10)

3.2   Function 2   Configuration Mode Main Menu

This function selects the Configuration Mode, and display the Configuration Mode main menu. The menu displays the functions available while in the Configuration Mode, and can be selected from either mode. If while in the Configuration Mode, and can be selected from either mode. If the panel was previously in the Operational Mode, the access code must be entered before entry to the Configuration Mode is permitted. This prevents non-qualified personnel from making system modifications using functions 3 to 3. The panel should be returned to the Operational Mode as soon as any required system modifications have been made using these functions.

The access code is entered using the numeric keys. The DSEL key is used to clear a partial entry or an incorrect access code. Once the correct code has been entered, the menu is displayed.

The Configuration Mode menu contains too many items to display all at once. Once the menu has been selected, the DEV+ (PST+) and DEV- (PST-) keys are used to move the menu forward andback by one line. The SHFT DEV+ (SHFT PST+) and SHFT DEV- (SHFT PST-) keys are used to move the menu forward or back by one page (four lines).

From this menu, functions 1 to 6 (SHFT 1 to SHFT 6) may be selected by pressing only 1 to 6, respectively.

KEY	USE
0 to 9	-use to enter the 6-digit access code -1 to 6 may be used to select the functions 1 to 6 (SHFT 1 to SHFT 6) directly
DEV+, PST+	scroll up one line on the menu
SHFT DEV+, SHFT PST+	scroll up one page (four lines) on the menu
DEV-, PST-	scroll down one line on the menu
SHFT DEV-, SHFT PST-	scroll down one page (four ines) on the menu

3.3   Function 3   Modify Panel Parameters

This function allows the DS-1224 to be configured for a particular installation. It can only be accessed from the Configuration Mode.

The number of X values and Y values determine the size of the switcher. Each X and Y cvalue entered must be a 2-digit numbr in the range from 01 to 48. The numbers entered should correspond to the actual size of the swittcher. The default value for both number of outputs and the number of inputs is 48.

Device is a 1-digit entry, either X or Y. Any even number entry (2, 4, 6, 8, 0) will select X. An odd numbered entry (1, 3, 5, 7, 9) will select Y. The default value is X. This parameter determines whether "Device" will refer to the rear panel X connectors, or the Y connectors. "Preset" will automaically assume the other connector set. Choose the configuration that best suits the installation.

The panel number is a 2-digit entry. Each panel in an expanded system must have a unique panel number in the range from 01 to 08. Two or more panels in the same system with identical panel numbers will cause conflicts to occur, and the system will not function correctly.   The default value is 01.

The normal entry sequence is to press two numeric keys to enter the number of X values, then two keys for the number of Y values, followed by ONE key for Device and finally two keys for the panel number. If and error is made during entry, or if only specific parameters need be changed, the DEV+, PST+, DEV- and PST- keys may be used to select individual items, as listed below.

A prompt for the item currently being entered is shown under the heading 'KEY' on the left hand side of the LCD display: X (numbere of X values), Y (number of Y values), DEV (Device assignment, X or Y) or PNL (panel number). Below this is displayed the keyboard entry.

KEY	USE
0 to 9	make a parameter entry
DEV+	select 'number of X values' as the next entry item
DEV-	select 'nember of Y values' as the next entry item
PST+	select 'Device = ' as the next entry item
PST-	select 'panel number' as the next entry item

3.4   Funtion 4   Change X Designations (Names)

This function allows the user to enter or change the names for each of the X connections, and assign each of them a custom mnemonic using upper and lower case letters, numbers, and punctuation. The X connectios and their current names are displayed one at a time. The new names are entered using the 10 numeric keys plus the O/P and I/P keys. As this permits only 12 fdifferent characters to be used, other keysselect various character sets. The DEV+ (A1) key selects the first 12 letters of the alphabet. The PST+ (A2) key selects the next 12 letters. The last two letters along with the 10 numeric characters (0-9) are selected by pushing the DEV- (NU) key. The PST- (SP) key selects the special character set which includes punctuation and a space (blank character). The DSEL (CS) key alternates between upper and lower case letters for the alphabetic character selection. The characters corresponding to each key and the character set selection keys are all indicated on the LCD display.

The cursor on the LCD display indicates which character is currently being entered. As each character is entered, the cursor advances one position. When the fourth character is entered, the cursor returns to the first character position. When the name is completed, press the TAKE key to advance to the next X designation.

The SHFT DEV+ and SHFT DEV- keys move the cursor to the right or left, respectively. The SHFt PST+ and SHFT PST- keys increment or decrement the X number, in order to move quickly through the list of X designations.

KEY	USE
0 - 9, DEV, PST	enter next character of X designation
DEV+	select first 12 letters (A to L) of the alphabet
PST+	select second 12 letters (M to X) of the alphabet
DEV-	select numbers (0 to 9) and last two letters (y and Z)
PST-	select special characters (/=#*.,;:"-+ and space)
DSEL	alternate between upper and lower case letters
TAKE	advance to the next X number
SHFT DEV+	move cursor 1 character to the right
SHFT DEV-	move cursor 1 character to the left
SHFT PST+	advance to the next X number (same as TAKE key)
SHFT PST-	go back to previous X number

3.5   Function 5   Change Y Designations (Names)

This function allows the user to enter or change the names for each of the Y connections, assign each of them a custom mnemonic using upper and lower case letters, numbers, and punctuation. The Y connections and their current names are displayed one at a time. The new names are entered using the 10 numeric keys plus the DEV and PST keys. As this permits only 12 different characters to be used, other keys select various character sets. The DEV+ (A1) key sselects the first 12 letters of the alphabet. The PST+ (A2) key selects the next 12 letters. The last two letters along with the 10 numeric characters (0 - 9) are selected by pushing the DEV- (NU) key. The PST- (SP) key selects the special character set which includes punctuation and a space (blank character). The DSEL (CS) key alternates between upper and lower case letters for the alphabetic character selection. The characters corresponding to each key and the character selection keys are all indicated on the LCD display.

The cursor on the LCD display indicates which charcter is currently being entered. As each charcter is entered, the cursor advances one position. When the fourth character is entered, the cursor returns to the first character position. When the name is completed, press the TAKE key to advance to the next designation.

The SHFT DEV+ and PST DEV- keys move the cursor to the right or left respectively. The SHFT PST+ and SHFT PST- keys increment or decrement the Y number, in order to move quickly through the list of Y designations.

KEY	USE
0 - 9, DEV, PST	enetr next character of Y designation
DEV+	select first 12 letters (A to L) of the alphabet
PST+	select second 12 letters (M to X) of the alphabet
DEV-	select numbers (0 to 9) and last two letters (Y and Z)
PST-	select special characters (/=#*.,;:"-+ and space)
DSEL	alternatebetween upper and lower case letters
TAKE	advance to the next Y number
SHFT DEV+	move cursor 1 character to the right
SHFT DEV-	move cursor 1 character to the left
SHFT PST+	advance to the next Y number (same as TAKE key)
SHFT PST-	go back to previous Y number

3.6   Function 6   Modify Access Code

This function allows the user to change current Configuration Mode access code. The new 6-digit code is entered using the numeric keys. If an entry error is made, pressing the DSEL key clears a partial entry, allowing the user to re-enter the correct code. Once the six digits have been enetered, the display prompts the user to push the TAKE key to store the access code in memory. IT IS VERY IMPORTANT TO VERIFY THAT THE CODE WAS ENTERED CORRECTLY. After pressing the TAKE key, the code shown on the display is what is actually stored in memory as the new current code. If an entry error was made, re-enter the desired code BEFORE LEAVING THE CONFIGURATION MODE. It is therefore critical to ensure that the correct access code has been entered and stored and that THE NEW ACCESS CODE IS NOT FORGOTTEN.

The access code of the DS-1224 is initially set to 111111.

KEY	USE
0 to 9	enter the 6-digit access code
DSEL	clear partial or incrrect entry and start over
TAKE	store new access code in memory after all six digita have been entered