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Model No. DMAT-EZX-O-40

INSTANT REPLAY SYSTEM

**ODETICS Control Protocol
4 Record/Playback Channels**

User Manual

Revision 1.0

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REVISION HISTORY

070609 1.0 Original Document

I. DEFINITIONS

- A. Throughout this document, DDR, VDR & Video Server will be referred to collectively as "Video Server."
- B. The DMAT-EZX-O will be referred to as ST400. Model variations will be defined in the sections where applicable.
- C. Words surrounded by brackets, for example, **[ENTER]**, are keys on the ST400. **[XXX] + [XXX]** means hold the two keys down simultaneously.
- D. Words surrounded by curly brackets, for example, **{GANG}**, are referred to as "Softkeys". The 6 keys directly below the display are the softkeys. Their function changes as indicated on the last line of the display.

II. SYSTEM DESCRIPTION

The DMAT-EZX provides simple, fast, and repeatable Instant Replay control, as well as highlight list playback. The DMAT-EZX controls 4 Record/Playback channels. Press RECORD to record the game action. Stop recording to perform an Instant Replay or to playback a Highlight List. (For video servers that support Simultaneous Record and Play, see the DMAT-EZ controller). The DMAT-EZX-O controls video servers controlled using Odetics control protocol.

All functions are performed from a single screen except for some basic configuration items which have their own screen. Mark IN and OUT points and save in CUEs for later replays. The IN and OUT points are editable to refine the CUE for optimal visual effect. CUEs can be added to a highlight list for later playback. More functions will be described in this manual.

III. INSTALLATION

The installation consists of connecting the control ports of the video server channels to the RS422 connectors on the back of the ST400 and connecting the power to all involved devices.

A. Grouping

Grouping assigns channels that share media.

Model 40: There are three selections available:

1. Channels 1, 2, 3, 4, are on the same server.
2. Channels 1, 2, and 3, 4 are on two different servers.

The channels of one server must be connected to the RS422 connectors 1 and 2. The channels of the other server must be connected to the RS422 connectors 3 and 4.

3. Channels 1, 2, 3, 4 are on different servers.

See connection diagram on page 6.

B. Connections

1. Using standard 9-conductor (pin to pin), RS422 serial cable, follow the connection diagram to connect the controller to the server. Identify your chassis by comparing the "C" number on the serial number tag to the illustration number.

Only connectors 1, 2, 3, and 8 are used on C1xx3xx chassis.

Only connectors 1, 3, 5, and 7 are used on C1xx4xx chassis.

2. Attach a video reference cable (from House Reference) to "Ref. Video In" on the rear of the ST400 to utilize the gang function.

Video Reference must be connected for frame accurate playout of ganged channels.

3. Connect the supplied Power Supply into the POWER connector on the rear of the ST400. Plug the Power Supply into a 90 - 240 VAC outlet.
4. Check SETUP MENU prior to using the ST400 to confirm proper Record Mode and other User Settable Modes.

Installation is complete.

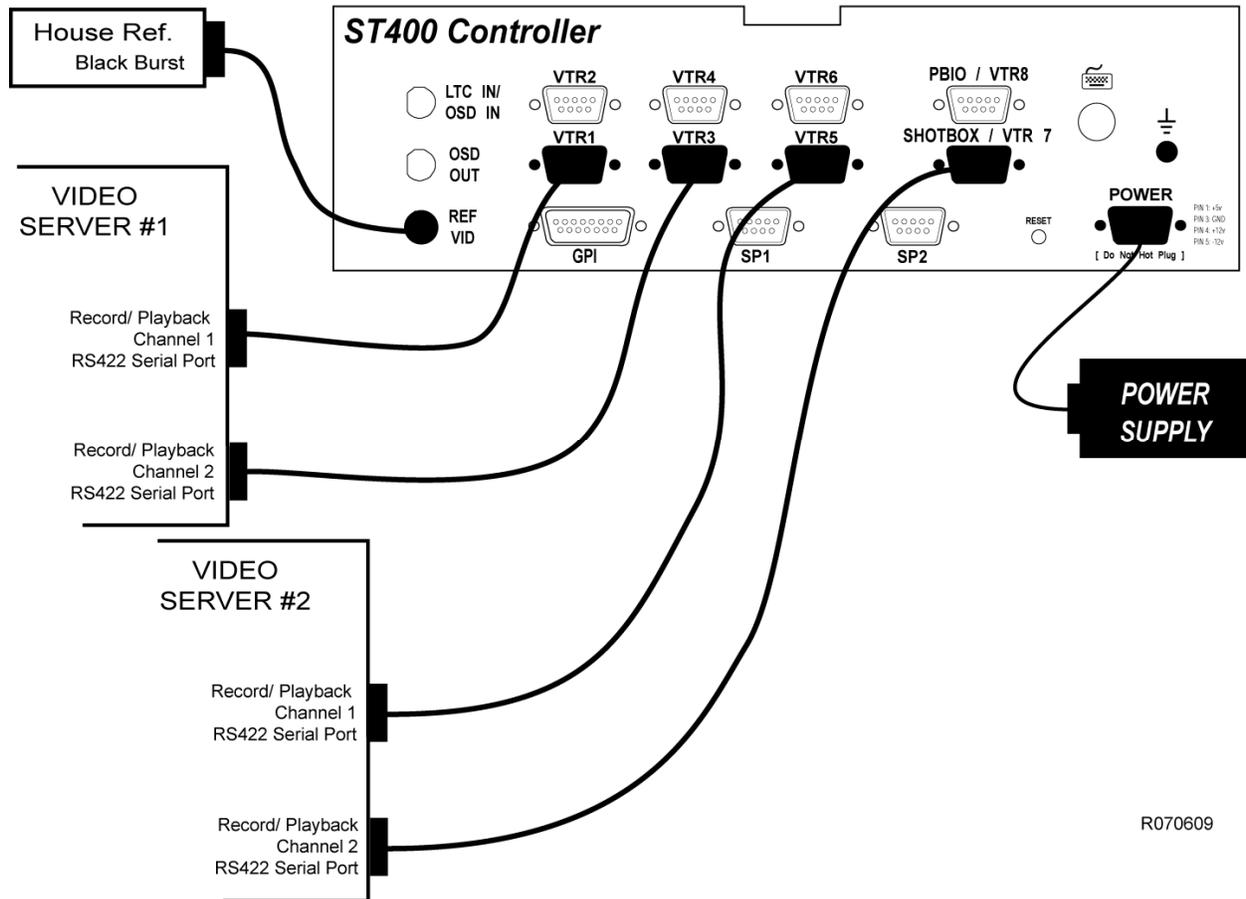
C. Video Server Setup

Follow the manufacture provided documentation to configure the video server channels to support Odetics control protocol.

D. Connection Diagram

NOTE: Check the serial number tag on the back of the unit to identify the connector numbering scheme

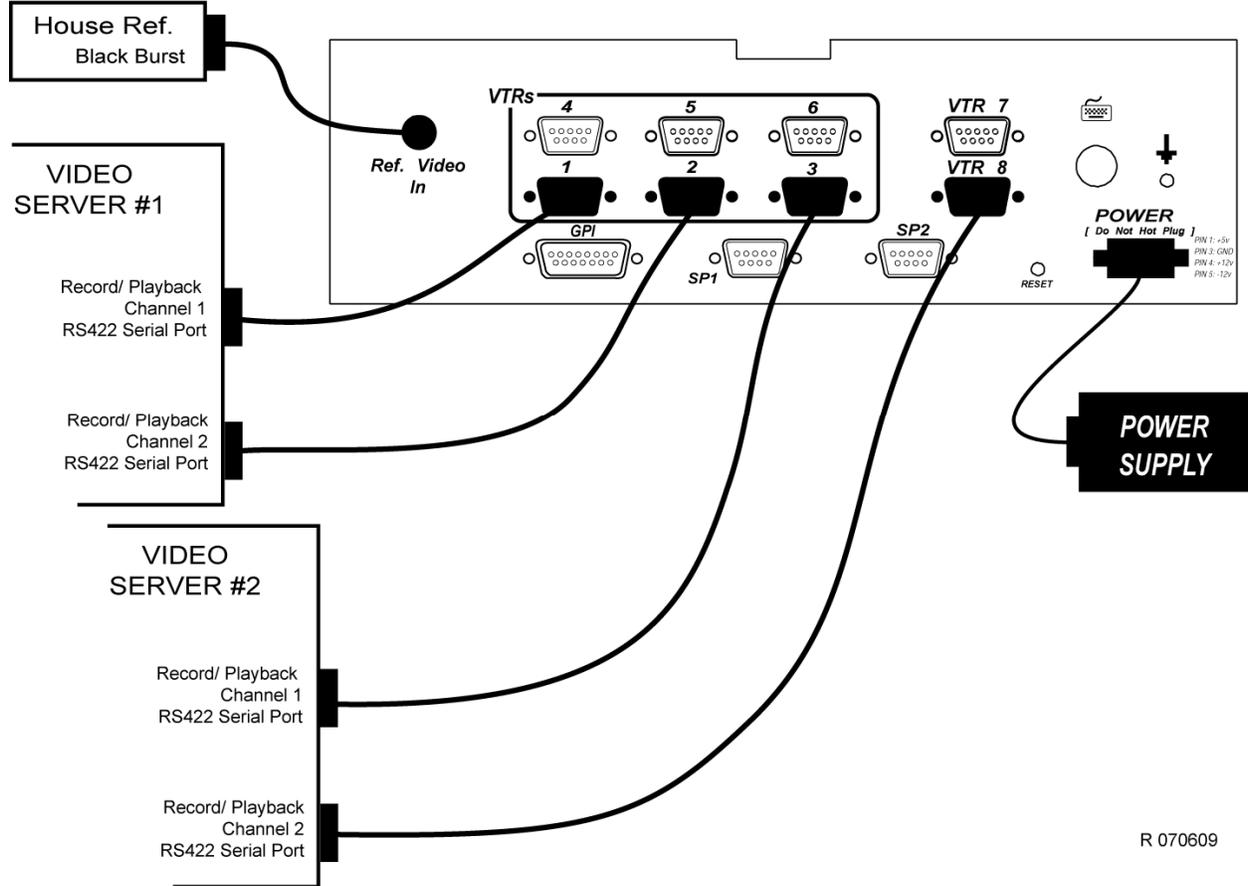
DMAT-EZX-O-40 Connection Diagram for #C1.xx4xx



R070609

NOTE: Check the serial number tag on the back of the unit to identify the connector numbering scheme

DMAT-EZX-O-40 Connection Diagram for C1.xx3xx chassis



V. OPERATION

A. Start Record

Press the **[REC]** key to start recording. The ST400 will automatically create a clip using its default naming convention and put the video server channel into record. To simultaneously start record on more than one channel, set up a GANG of the desired channels, and then press the **[REC]** key.

The default clip name "DNF-xyyy" is created, where x is the channel number and y is the 3 digit clip number. Each time recording is started on a channel, only that channel's 3 digit clip number is incremented by one. When the clip number reaches 999, it will wrap around to 000 and continue incrementing.

NOTE- Set REC CLIP NUM (in the Setup Menu) to 000 prior to the first record of the game or event.

If a clip with the same name already exists on the video server, the DMAT-EZX will display the error message "Clip exists on channel x. Enter another clip number or delete clip from server". 'x' is the channel number. Go to the Setup Menu parameter "REC CLIP NUM" to change the current 3 digit clip number. Each channel has its own REC CLIP NUM setting.

The default name can be changed to any four (4) characters using the Setup Menu item "Rec Clipname". Each channel has its own "Rec Clipname" setting.

B. Stop Record

Press the **[STOP]** key to STOP the record process.

To simultaneously stop record on more than one channel, set up a GANG of the desired channels, and then press the **[STOP]** key.

NOTE- Any transport function (Rewind, FFwd, Jog, Shuttle, etc.) will stop record.

C. CUEs

The working (loaded) CUE is displayed in the upper portion of the screen.

The saved CUEs are displayed in the lower portion of the screen.

There are 500 CUEs for each channel. The numbering starts with 1000 for channel 1, 2000 for channel 2, 3000 for channel 3, and 4000 for channel 4. If channels are grouped together, all CUE numbers are available in that group. There is no protection from marking a "wrong" CUE, i.e. if the user on channel 1 selects CUE 2000 and presses the **[IN]** key, the CUE will be saved and no warning will be displayed.

1. Mark CUEs

NOTE: Press **[REC]** key to put channel into EE before marking live shots. If gang is set, all ganged VTRs will have their IN or OUT points marked.

Press a VTR channel **[1]**, **[2]**, **[3]**, or **[4]**.

Press the **[NEXT]** or **[LAST]** key, or enter the CUE number on the numeric key pad to select the CUE into which you want to mark the IN or OUT points.

Pressing the **[IN]** or **[OUT]** key will record the time indicated on the display into the IN or OUT points accordingly. The LED above each key will light to indicate that the point has been entered.

If an IN point is entered, and the time is after the OUT point the OUT point is cleared.

Press the **[DEL]** + **[IN]** or **[DEL]** + **[OUT]** to clear the IN or OUT points.

Press the **[SHIFT]** + **[IN]** or **[SHIFT]** + **[OUT]** keys.

To cue to the selected point press the **{GOTO}** softkey.

OR

To modify the IN or OUT points, use the numeric keypad followed by pressing **[ENTER]**.

The Cue point can be given a text label to help in identifying the cue. Press the **[LABEL]** key then enter up to eight characters using the key pad or a PC type key board attached to the keyboard connector on the rear of the DMAT. Press **[ENTER]** on either the keypad or PC keyboard to complete the label function.

2. Save CUEs

Settings in the SETUP MENU will affect how the CUEs are saved.

The AUTO SAVE feature will add duration to the marked IN or OUT point. The duration is settable in the SETUP MENU (the default value is 10 seconds).

The CUE ADVANCE feature will increment the CUE number each time the **[IN]** or **[OUT]** key is pressed. The **[OUT]** key will not advance the CUE number when the AUTO SAVE is turned OFF.

Settings Available in the Setup Menu:

a) **AUTO SAVE = OFF and CUE = CURRENT:**

Select the CUE before marking the IN or OUT point by pressing the **[NEXT]** or **[LAST]** key.

Press the **[IN]** or **[OUT]** key to mark the point. The marked IN and OUT points are entered into the current CUE. With subsequent presses of the **[IN]** or **[OUT]** keys the point will be modified, and the original point will be lost. The CUE number remains the same.

b) **AUTO SAVE = ON and CUE = CURRENT:**

Select the CUE before marking the IN or OUT point by pressing the **[NEXT]** or **[LAST]** key.

Press the **[IN]** or **[OUT]** key to mark the point. The marked IN point is entered into the current CUE with duration equal to the time preset in the SETUP MENU. With subsequent presses of the **[IN]** key the points will be modified and the original points will be lost. The CUE number remains the same. If an OUT point is entered the in point will be calculated to create a duration equal to the time preset in the SETUP MENU. With subsequent presses of the **[OUT]** key the points will be modified and the original points will be lost. The CUE number remains the same.

c) **AUTO SAVE = OFF and CUE = ADVANCE:**

Press the **[IN]** key to mark the point. The marked IN point is entered into the next CUE. With every press of the **[IN]** key the IN point is entered into the next CUE. Entering an OUT point is optional but must be done after pressing the **[IN]** key.

d) **AUTO SAVE = ON and CUE = ADVANCE:**

Press the **[IN]** or **[OUT]** key to mark the point. The marked IN point is entered into the next CUE with a duration equal to the time preset in the SETUP MENU. With every press of the **[IN]** key, the IN point with duration is entered into the next CUE. IF the **[OUT]** key is pressed the out point is entered into the next CUE with duration equal to the time preset in the SETUP MENU. With every press of the **[OUT]** key, the OUT point with duration is entered into the next CUE.

The IN or OUT points can be modified later.

3. Recall CUEs

CUEs are displayed in the lower portion of the screen.

Press the **[NEXT]** or **[LAST]** key or enter the CUE number on the numeric keypad to select the CUE that you want to recall.

Then press the **[GOTO]** key. The CUE will be loaded on the server and cued to the IN point.

4. Edit CUEs

Press a VTR channel:

Press a VTR channel **[1]**, **[2]**, **[3]**, or **[4]**.

Press the **[NEXT]** or **[LAST]** key, or enter the CUE number on the numeric key pad to select the CUE that you want to edit.

Press the **[IN]** or **[OUT]** key to mark the time indicated on the display into the IN or OUT points accordingly.

If an IN point is entered, and the time is after the OUT point the OUT point is cleared.

Press the **[DEL] + [IN]** or **[DEL] + [OUT]** to clear the IN or OUT points.

To modify the IN or OUT points, press the **[SHIFT] + [IN]** or **[SHIFT] + [OUT]** keys. Then use the numeric keypad followed by pressing **[ENTER]**.

The Cue point can be given a text label to help in identifying the cue. Press the **[LABEL]** key then enter up to eight characters using the key pad or a PC type key board attached to the keyboard connector on the rear of the DMAT. Press **[ENTER]** on either the keypad or PC keyboard to complete the label function.

D. Live/Playback Mode Selection

Three modes of operation are supported:

- EE mode (Live/ Record mode)
- PB mode (Instant Replay mode)
- PL mode (Highlight List playout mode)

1. EE Mode

NOTE: Press the **[GANG]** key to apply the following functions to several VTRs (see Gang Setup in Function Table for details):

To put the channel into EE mode, press **[REC]** key. A new clip will be created, loaded on the video server channel, and put into record.

In EE mode, the user can mark IN and OUT points using record LTC timecode. The user can also perform non-transport functions (such as edit the playlist). Any transport function will terminate the EE mode.

2. PB Mode

NOTE: Press the **[GANG]** key to apply the following functions to several VTRs (see SECTION **Error! Reference source not found.** for details):

Press **[STOP]** or any transport key to exit record (EE mode) and enter PB mode. The CUES that were made in EE Mode can be GOTOed in PB mode.

NOTE: Pre-recorded clips can be loaded using the **[CLIPLIST]** button to access and load the clip from the server. In and out points can be set on these clips and entered as CUES. They will perform as any of the other CUES marked from the record clips.

If the **[GOTO]** key is pressed, the currently displayed IN point is cued to.

Press the **[PLAY]** key to play from the IN point to the OUT point and stop. If the channel is parked at or after the OUT point, the playout continues to play after the OUT point.

If IN and OUT points are marked, press the **[LOOP]** key to start play of same clip after the OUT point.

The user can mark IN and OUT points in PB mode. In that case the IN and OUT times are read from the Playback channel. The user can edit the playlist in PB mode. All transport functions are available in PB mode.

When the channel plays out from IN to OUT point, it will display the real-time countdown of the clip. (RT, the Real-Time Countdown is displayed only when both IN and OUT points exist and the CUE plays).

Press the **[RECUE]** key to cue the loaded clip back to the IN point.

3. PL Mode

The 6 keys directly below the display are the softkeys (**{SOFTKEYS}**). They are used to manipulate the playlist.

Press the **{LIST}** key to enable Playlist mode and cue the list to the top.

Press the **[SHIFT] + {NEXT}** to toggle the Playlist number (x0-x9, x=channel number). Use the VTR keys to select the channel number.

Press the **[PLAY]** key to play the list. Press the **[SLOMO]** key or move the Tbar to play the list in slow motion at the set speed.

Press the **[STOP]** key to stop the list.

See section E.4 to create and edit the playlist.

E. Playlist

The 6 keys directly below the display are the softkeys (**{SOFTKEYS}**). These are used to manipulate the playlist.

Press the **{LIST}** softkey to enable Playlist mode and cue the list to the top.

Key	Standalone function	[Shift] + {key function}
{LIST}	Cue to the top of the list (the highlight also moves to the first element)	None
{ADD}	Append an element to the end of list	None
{INS}	Insert element before the highlighted element	None
{PREV}	Move the highlight to the previous element.	Change current playlist number to the previous number. Do not cue the playlist
{NEXT}	Move the highlight to the next element.	Change current playlist number to the next number. Do not cue the playlist.
{DEL}	Delete the highlighted element	Clear the selected list (Are you sure? prompt is displayed first)

Each playlist can contain 20 elements. Each channel may have up to 10 playlists. The numbering of the playlists is similar to the numbering of the CUEs. Channel 1 has playlists numbered from 10 to 19, channel 2: 20 – 29, channel 3: 30- 39, and channel 4: 40 – 49.

If channels 1 and 2 are grouped, any playlist from 10 to 29 may be loaded on that channel. If channels 1 and 2 are grouped, any CUE between 1000 and 2999 may be added to any playlist.

The playlist is displayed as two columns of 10 elements each as in the following example:

```

1. >1013<      11. 1156
2. 1032          12. 1257
...              ...
10. 1009         20. 1003
  
```

The arrows next to the clip number indicate that the element is cued.

When the **{NEXT}** key is pressed, the highlight moves down the column. When **{PREV}** key is pressed, the highlight moves up the column.

1. Create Playlist

(Press **{LIST}** soft key to enter PLAY LIST MODE if not in PL MODE.)

To add a clip to the playlist, select a CUE using **[NEXT CUE]** and **[LAST CUE]** keys (or enter a CUE number using a numeric keypad), and press **{ADD}**.

To insert an element into the list, select a CUE to insert using **[NEXT CUE]** and **[LAST CUE]** keys (or enter a CUE number using a numeric keypad), then using the **{PREV}** or **{NEXT}** key, find the place in the playlist above which to insert an element and press the **{INS}** key.

To be part of the playlist, the CUE has to have both IN and OUT point. If the user adds the CUE to the playlist and then deletes the IN or OUT point, this element becomes invalid and gets skipped when the list is played out. If the user deletes the whole CUE that is in the playlist, the corresponding element becomes invalid and gets skipped when the list is played out.

NOTE: Pre-recorded clips can be loaded using the **[CLIPLIST]** button to access and load the clip from the server. In and out points can be set on these clips and entered as CUES. They will perform as any of the other clips marked from the record clips.

2. Play Playlist

(Press **{LIST}** soft key to enter PLAY LIST MODE if not in PL MODE.)

Press the **[PLAY]** key to play the list. Press the **[STOP]** key to stop the list play. Press SLOMO or move the Tbar to play the list in slow motion.

Press the **[RECUE]** key to cue the currently highlighted element to the beginning.

When the list is playing, press the **{NEXT}** key to skip the next element (the current element will play to the end but the element + 2 will play next, element +1 is skipped).

When the list is playing, press the **[FFWD]** key to CUT to the next element (the current element immediately transitions to the element + 1).

When Playlist is playing, the RT (real-time countdown) is displayed.

3. Loop Playlist

(Press **{LIST}** soft key to enter PLAY LIST MODE if not in PL MODE.)

When the **[LOOP]** key is pressed, the playlist plays out in loop mode (after the last element plays, the list immediately starts to play from the first element until the **[STOP]** key is pressed).

4. Edit Playlist

(Press **{LIST}** soft key to enter PLAY LIST MODE if not in PL MODE.)

To delete an element in the list, use the **{PREV}** or **{NEXT}** key to select the element to delete and then press the **{DEL}** key.

There is no Editing of the IN or OUT points of the elements in the playlist. Use the EDIT CUE function.

There is no Editing of the playlist as it plays out.

The Speed is not saved as part of the element.

There is no Ganged playout of playlists.

VI. REFERENCE

A. Setup Menu

Press **[MENU]**. The MENU indicator will turn on.

The display will show the following parameters with their current settings.

Turn the wheel to select a menu option.

Press the **{CHANGE}** softkey to modify the current setting.

Press the **{EXIT}** softkey to exit the Setup Menu. The current setting will be in affect.

PARAMETER	DESCRIPTION
REC CLIPNAME	"DNF-" is the default name. To change the default name use the Keypad or an attached PC type keyboard to enter up to 4 characters (the suffix of channel number and id will be appended to the default name). Press the [ENTER] key to complete the function.
REC CLIP NUM	Used in conjunction with REC CLIPNAME (above) to name new clips when the [REC] key is pressed. Enter a number from 000 to 999. This number will be automatically incremented each time [REC] is pressed. NOTE- set this number to 000 prior to the first record of the game or event.
STANDARD	Press Softkey to select the Timecode standard for time calculations: {NTSC}, {DF}, {PAL}
WIND MODE	Press Softkey to select: {HOLD} (Fast wind is maintained only while key is depressed.) OR {LATCH} (Fast wind is maintained after key is released.) Set the fast wind speed (x3.9 to x23.7) by pressing the {SPEED} softkey.

PARAMETER	DESCRIPTION
<p>SLOMO</p>	<p>Press the {TBAR} (or {WHEEL}) softkey to select the T-bar or wheel for slomo.</p> <p>For T-bar:</p> <p>The T-BAR has a speed range of 0 → 2x with a detent at 1x play speed</p> <p>OR a range of 0 → 1x (detent at 1x Play speed).</p> <p>Press {SPD-RNG} softkey to toggle between SLOMO speed ranges:</p> <p>0 → 1x OR 0 → 2x.</p> <p>Press {BACK} softkey to return to SLOMO MENU.</p> <p>Press [ESC] to exit OR turn the Wheel to select another item.</p> <p>For Wheel:</p> <p>Press the {PRSET} sofkey to toggle between UPDATE and STATIC.</p> <p>UPDATE: When exiting SLOMO mode, the last used speed is saved in the Preset Speed register.</p> <p>STATIC: The Preset Speed register is NOT updated when exiting SLOMO mode. It is only changed by [SHIFT] + [SLOMO] (PRESET SLOMO).</p> <p>Press {SPD-RNG} softkey to toggle between SLOMO speed ranges: 0 → 1x OR 0 → 2x.</p>
<p>GANG MODE</p>	<p>{PERM} Permanent Gang:</p> <p>The GANG can be created and undone only with the [GANG] key.</p> <p>{TEMP} Temporary Gang:</p> <p>Quickly create a GANG by pressing and holding a VTR key, then pressing other VTR keys.</p> <p>Quickly undo the GANG by pressing any VTR key.</p> <p>Video Reference must be connected for frame accurate playout of ganged Channels.</p>
<p>REF. VIDEO</p>	<p>Select the appropriate softkey to enable or disable the reference video</p> <p>{ON} If reference video is attached.</p> <p>{OFF} If reference video is not attached. (this will affect the accuracy of ganged events)</p>
<p>CUE POINT</p>	<p>Select the appropriate softkey to enable or disable the ADVANCE function.</p> <p>{ADVANCE} The CUE number will increment each time the [IN] or [OUT] key is pressed. If the AUTO SAVE function is not on, the [OUT] key will not advance the CUE number (this will allow IN and OUT points to be marked).</p> <p>{CURRENT} The CUE number will remain the same after the [IN] or [OUT] key is pressed.</p>

PARAMETER	DESCRIPTION
AUTO-SAVE	<p>Select the appropriate softkey to enable or disable the AUTO-SAVE function</p> <p>{ON} Pressing the [IN] key will enter the IN point and the OUT point will automatically be marked with the In Time + DEFAULT DURATION.</p> <p>Pressing the [OUT] key will enter the OUT point and the IN point will automatically be marked with the out time – (minus) the DEFAULT DURATION.</p> <p>{OFF} No duration will be set.</p>
DEFAULT DUR	Use Key Pad to enter the Auto-save duration.
GROUP	<p>Select the appropriate softkey</p> <p>{NONE} No channel grouping.</p> <p>{TWO} Group channels 1-2 and 3-4.</p> <p>{ALL} Group all channels 1-2-3-4.</p>
{SERVICE} SOFTKEY	<p>Select the appropriate softkey</p> <p>{DEFAULTS} Set DMAT to factory defaults</p> <p>{CLEANUP} Deletes all CUEs on all channels.</p> <p>Press [ENTER] to continue or press [ESC] to exit without changing settings.</p>
GANG OFFSET	<p>Select GANG mark (IN and OUT) operation:</p> <p>{ZERO}- Mark all GANGED channels with time from currently selected channel (recommended setting)</p> <p>{ACTUAL}- Mark all GANGED channels with computed time:</p> <p style="padding-left: 40px;">Time from currently selected channel + Channel time difference when GANG was setup</p>

VII. FUNCTION TABLE

Function	Key Press	Description
CLIPLIST	[CLIPLIST]	Press the [CLIPLIST] key to select a clip to be loaded into the selected play channel. This clip can be the record clip or any other clip on the server.
RECORD (EE Mode)	[REC]	Press [REC] to cue the play channel to the record time minus the record delay and place the channel in EE mode.
FAST FORWARD	[FFWD]	Press and HOLD to shuttle forward. Release key to stop. Set WIND Speed in MENU.
GANG SETUP	{GANG}	Individually press the VTR keys to be included in the gang. The LED above the key will turn on. Press the VTR key again to remove from gang. The LED above the key will turn off. Press [GANG] to exit. Upon exiting, all members of the gang will have their VTR LEDs turned on. The flashing LED shows which VTR is currently selected.
GOTO	[GOTO]	Press the [GOTO] button to load the selected CUE on the selected VTR channel. The clip will be cued to the in point.
GOTO ENTERED TIME	[SHIFT] + [RECUE]	Search the VTR to the manually entered time. Use the ST400 numeric keypad. Press [ENTER] or [RECUE] .
JOG	[JOG]	Select JOG mode and enable Wheel.
LABEL CUE	[LABEL]	Press the [LABEL] key to label the CUE using the attached PC Keyboard. 8 characters max.
LAST CUE	[LAST CUE]	Step to the previous CUE Location.
LOOP	[LOOP ENABLE]	Plays the currently loaded clip or Playlist in a continuous loop.
NEXT CUE	[NEXT CUE]	Step to the next CUE Location.
PLAY	[PLAY]	If an OUT point is marked, play to the OUT point and stop. If no OUT point is marked, play normally. If the CLIP ID ends with an '*' or '#', do loop play.

Function	Key Press	Description
PLAYLIST NEXT NUMBER	[SHIFT] + {NEXT}	Select next playlist number
PLAYLIST PREVIOUS NUMBER	[SHIFT] + {PRV}	Select previous playlist number
RECORD	[SHIFT] + [RECORD].	Creates Master Clip and places VTR into the Record mode
RECUE	[RECUE]	If the IN point is marked, cue to the IN point.
REVERSE SLO-MO	[REV]	While in SLO-MO mode press and hold the [REV] key to play in reverse direction.
REWIND	[RWD]	Press and HOLD to shuttle backward. Release key to stop. Set WIND Speed in MENU.
SHUTTLE	[SHUTTLE]	Select SHUTTLE mode and enable Wheel.
SLOMO	[SLOMO]	Press [SLOMO] to slomo the VTR. Turn the Wheel. (Or move the T-Bar, if available) to change the play speed. Press [SLOMO] to STILL frame. OR press any transport key to exit SLOMO.
SLO-MO SPEED PRESET	[SHIFT] + [SLOMO]	For WHEEL ONLY: Press [SHIFT] + [SLOMO] to preset the slomo speed. Turn the Wheel to select desired speed. Press [ESC] or any transport key to exit.
STOP	[STOP]	Press once to STILL frame VTR. Press again to put VTR into STOP mode.

VIII. SPECIFICATIONS

Power:	90 VAC to 265 VAC adapter supplied with IEC connector +5v @ 4A, +12v @ 1.0A, -12V @ 0.6A	
Size:	(H" x W" x D") 1 3/4" (front), 3 5/8" (rear) x 12 3/4" x 8" (8 5/8" height to the top of display)	
Weight:	10 lbs.	
Rear Panel Connectors:	VTR1 - 8 GPI Power Keyboard Ref. Video In Ground	(All D9F) (D26HDF) (D9M) (6-pin mini DIN) (BNC) Threaded stud.
Display:	Easy to read, back-lit LCD display	
Jog/Shuttle Wheel:	With mechanical detents	
T-Bar:	With mechanical detents	

RS422 SERIAL CONNECTOR

9-Pin D-Type, Female (D9F)

Pin #	1	Frame Ground	6	Receive Common
	2	Receive A ←	7	Receive B ←
	3	Transmit B →	8	Transmit A →
	4	Transmit Common	9	Frame Ground
	5	Spare		

POWER CONNECTOR

9-Pin D-Type, Female (D9M)

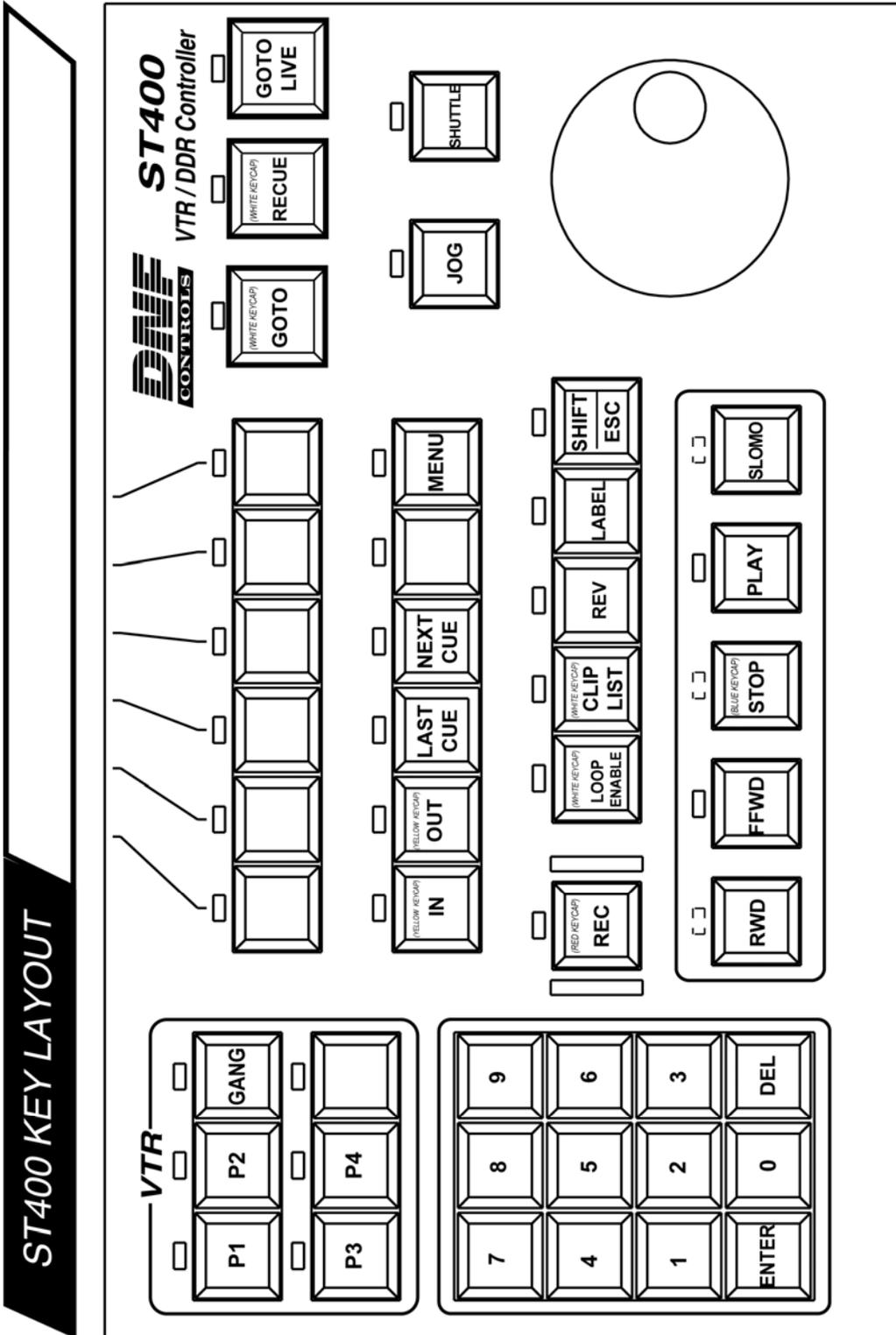
Pin #	1	+5v DC	6	+5 VDC
	2	+5v DC	7	Ground
	3	Ground	8	Ground
	4	+12 VDC	9	Ground
	5	-12 VDC		

GPI IN/OUT CONNECTOR

26-Pin D-Type, Female (D26HDF)

Connector Has No Function

IX. KEY LAYOUT



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X. DNF CONTROLS LIMITED WARRANTY

DNF Controls warrants its product to be free from defects in material and workmanship for a period of one (1) year from the date of sale to the original purchaser from DNF Controls.

In order to enforce the rights under this warranty, the customer must first contact DNF's Customer Support Department to afford the opportunity of identifying and fixing the problem without sending the unit in for repair. If DNF's Customer Support Department cannot fix the problem, the customer will be issued a Returned Merchandise Authorization number (RMA). The customer will then ship the defective product prepaid to DNF Controls with the RMA number clearly indicated on the customer's shipping document. The merchandise is to be shipped to:

DNF Controls

12843 Foothill Blvd., Suite C

Sylmar, CA 91342

USA

Failure to obtain a proper RMA number prior to returning the product may result in the return not being accepted, or in a charge for the required repair.

DNF Controls, at its option, will repair or replace the defective unit. DNF Controls will return the unit prepaid to the customer. The method of shipment is at the discretion of DNF Controls, principally UPS Ground for shipments within the United States of America. Shipments to international customers will be sent via air. Should a customer require the product to be returned in a more expeditious manner, the return shipment will be billed to their freight account.

This warranty will be considered null and void if accident, misuse, abuse, improper line voltage, fire, water, lightning, or other acts of God damaged the product. All repair parts are to be supplied by DNF Controls, either directly or through its authorized dealer network. Similarly, any repair work not performed by either DNF Controls or its authorized dealer may void the warranty.

After the warranty period has expired, DNF Controls offers repair services at prices listed in the DNF Controls Price List. DNF Controls reserves the right to refuse repair of any unit outside the warranty period that is deemed non-repairable.

DNF Controls shall not be liable for direct, indirect, incidental, consequential or other types of damage resulting from the use of the product.

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