



12843 Foothill Blvd. Suite C
Sylmar, California 91342
V: 818.898.3380
F: 818.898.3360
sales@dnfcontrols.com

Model 4000CL-SX (& 4000CL-SX-T)

250 Clip Fast Access System

SONY DP PROTOCOL

FOR SONY SX HYBRID RECORDERS

USER MANUAL

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1. REVISION HISTORY

110204 1.0 Original document.

2. SYSTEM DESCRIPTION

The 250 Clip Instant Access System consists of the ST300-SSM VTR Controller and Shotlist Software. The Video Server must support SONY DP Protocol.

Upon receipt of the Learn command, the ST300 saves the CLIP IDs of the currently loaded clips, the current time of each clip, the VTRs they are loaded on and the current GANG mode into the appropriate Cue Point.

When the Recall command is received, the ST300 loads the “Learned” clips onto the “Learned” VTRs, cues the Clips to the learned time and restores the learned GANG mode.

Learn & Recall may also be done directly from the ST300.

SHOTLIST provides instant access to existing video clips stored on SONY SX hybrid machines. The SHOTLIST contains up to 300 CLIP IDs, stored in non-volatile memory in the ST300.

The user can remotely view the CLIP IDs that exist in the DDR under control. Desired clips can be MARKed into the SHOTLIST at a single location or at multiple locations.

DEFINITIONS

- ❑ Throughout this document, the hard disk drive in the SX unit will be referred to as “Video Server.”
- ❑ The ST300-S/SM as the ST300.
- ❑ Words surrounded by brackets, for example, [ENTER], are keys on the ST300.
- ❑ [XXX] + [XXX] means hold the two keys down simultaneously.
- ❑ HDD refers to the hard disk drive video recorder in the SX device.
- ❑ “Softkeys” are the row of keys directly below the display that perform multiple functions in Menu and other modes.

Getting Started . . .

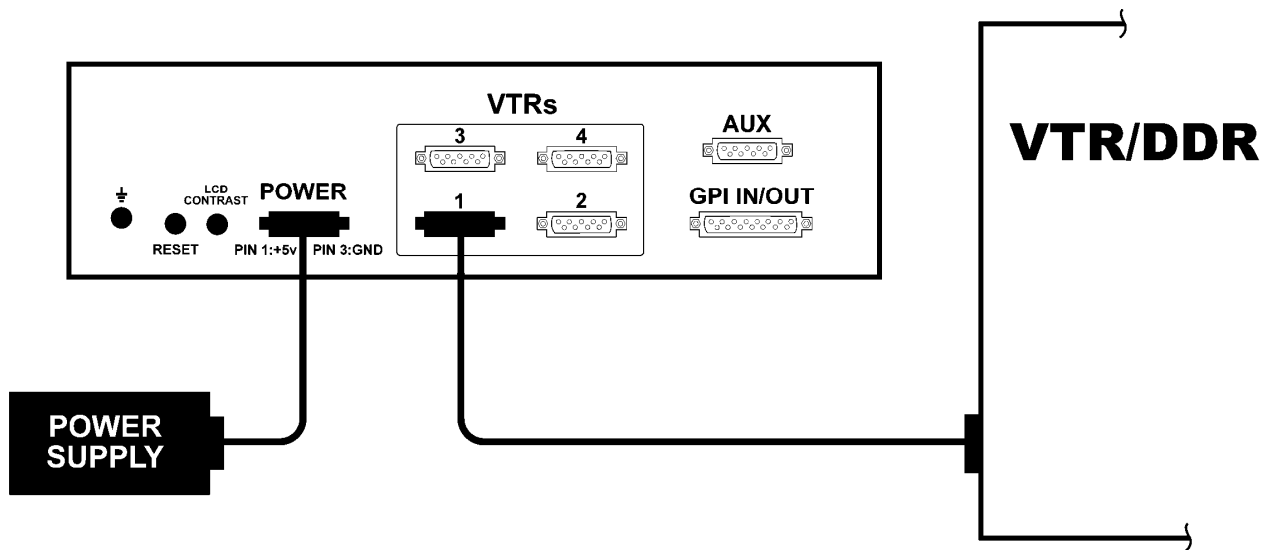
3. SYSTEM INSTALLATION

ST300-S/SM, VTR/DDR CONTROLLER

- a. Plug one end of a 9-conductor, RS422 serial cable into the 9-pin connector (VTR 1-4) on the rear of the ST300. Plug the other end of the cable into the 9-pin REMOTE connector on the SX Hybrid Machine.
- b. Connect the +5, +12, -12 VDC POWER SUPPLY into the POWER connector on the rear of the ST300. Plug the Power Supply into a wall outlet, 90 VAC - 240 VAC.
- c. Check SETUP MENU prior to using the ST300 to confirm proper Record mode and other User settable modes.

Installation is complete.

CONNECTION DIAGRAM



4. VIDEO SERVER SETUP

- a. When you switch to "Local" mode on the SX, the SX goes to the beginning of the first clip on the list.
- b. Clips loaded from the front panel of the SX will not be Learned or displayed on the ST300.
- c. The SONY DNW unit must have the following or higher software versions:
 - 1) SY1=3.22; SY2=3.22; SSX=3.20; SV1=3.20
 - 2) DNW extended menu item 210:DiskProtcl must be V1.0. (Load errors occur otherwise.)
- d. Assuming DNW PLAYER=TAPE, RECORDER=DISK MASTER:
 - 1) ST300/VTR 1 disk operation.

DNWPB/EE enabled: TC Reader display is from tape when VTR EE mode is active. During disk PB, TC reader display is from DISK MASTER. Refer to DNW extended menu item 108 AUTO EE SELECT.

DNW PB enabled: TC reader display is from DISK MASTER only.
 - 2) ST300/VTR2 tape operation: TC reader display is from tape regardless of DNW PB/EE selection.
- e. SETUP MENU/RECORD MODE. Crash and Lockout are the only modes supported. Hybrid cannot perform INSERT Edit to either TAPE or DISK MASTER.

5. OPERATION MODE SETUP

On the ST300 setup as follows:

- a. Press [**MENU**].
- b. Press the VTR [1], [2], [3] or [4] to select the VTR you control the DNW from.
- c. Turn the Wheel until "Player: REC:" is displayed.
- d. Press [**MENU**] to toggle between the following operation modes of the SX unit:

Player = Ext, REC = Tape	Player = Disk, REC = Tape
Player = Ext, REC = Disk	Player = Disk, REC = Tape
Player = Tape, REC = Disk	
- e. Repeat steps b-d to configure all SX units you want to configure.
- f. Press [**ESC**] at anytime to exit.

SWITCHING BETWEEN HD and TAPE

Switching between tape and HD, press [**TAPE**] to assign control to the Tape or the HD.

If the LED above [**TAPE**] is on you are controlling the tape drive. The time code on the ST300's display is the tape drives' time code and the video signal comes from Tape, (assuming SX operation mode is set to Player = Tape, Rec = Disk or Player = Disk, Rec = Tape).

If the LED above [**TAPE**] is off, you are controlling HD; Time Code and Video you are monitoring come from the HD. **NOTE:** The Clip List function is not available on the Tape drive.

When you LEARN on the HD, the CLIP ID, time and data are stored in the Cue Point. When you do a LEARN and the Tape is active, only current Timecode and Gang data are stored in the Cue Point.

6. LOAD A CLIP

- a. Press **[CLIP LIST]**. The LED above the key will turn on.
- b. Turn the wheel.
The top line of the display will show "CLIP ID."
The bottom line of the display will show "xxxxxxxxxxxxxxxxxxxx:"
Where "xxxxxxxxxxxxxxxxxxxx" is the 20-character CLIP ID.
The CLIP ID can contain up to 24 characters. The display of the ST300 is capable of displaying a maximum of 20 characters. If a CLIP ID is loaded with more than 19 characters, the last character is a "➔".
- c. Turn the wheel to scroll through the list of available CLIPs.
OR
Type in the desired clip name using the numeric keys on the ST300.
- d. Press **[ESC]** at any time to exit **[CLIP LIST]**.
- e. Press **[LOAD]** on the ST300 to load the desired clip.

7. LEARN ON THE ST300

- a. LOAD a clip as described above on the ST300.
- b. Locate the clip to the desired IN.
- c. Select the desired Cue Point by pressing **[NEXT CUE]**, **[LAST CUE]**.
OR
By manually entering the Cue Point using the numeric keypad.
The selected Cue Point number is shown on the bottom line of the display.
- d. Press **[SHIFT]** + **[MARK]** to initiate the LEARN.
The ST300 will save loaded CLIP ID and current IN time to the selected Cue Point. The display shows:

Select VTR:
Mark-Learn, ESC-Cancel
- e. Press **VTR[1]**, **VTR[2]**, **VTR[3]** or **VTR[4]** to select the VTRs.
- f. Press **[MARK]**. The ST300 will: LEARN (save) the current configuration, which consists of: Cue Point, CLIP IDs, IN Times and Ganged VTRs.

8. RECALL ON THE ST300

- a. Select the desired Cue Point by pressing **[NEXT CUE]**, **[LAST CUE]**.
OR

By manually entering the Cue Point using the numeric keypad.

The selected Cue Point number is shown on the bottom line of the display.

- b. Press **[LOAD]** on the ST300. The ST300 will automatically load the **LEARNED** clip on the selected VTR and cue the clip to the **LEARNED** time.

Advanced Features . . .

9. CREATE NEW CLIPS

- a. Press [**CLIP LIST**]. The CLIP LIST indicator will turn on.
The display will show “CREATE NEW CLIP?”

Press [**LOAD**] to create a new clip **OR** turn the Wheel for next option.
- b. Press [**LOAD**] to create a new clip.
The display will show: “Enter New Clip Name.”
- c. Enter a CLIP ID (up to 20 characters) using the numeric keypad.
- d. Press [**LOAD**] on the ST300 to create the selected CLIP ID.
- e. Press [**REC**] to record video into the newly created CLIP ID.
- f. Press [**STOP**] to end the recording.
- g. The clip ***MUST*** be reloaded to view the recorded material.

10. CAPTURE FUNCTION

The CAPTURE function allows source material from the tape drive of the Hybrid Machine, to be easily and quickly recorded into the HDD. A CLIP ID is created and the source material is transferred into the HDD.

Use the transport function keys to control the source Drive.

Select the Tape Drive and . . .

a. SET AN IN POINT

- 1) Press **[IN]** to set the IN Point. The IN key indicator on the ST300 will turn on. The display will show “IN xx:xx:xx:xx” indicating the saved time.
OR

Press **[SHIFT]** + **[IN]** to manually enter a new IN time.

- 2) Press **[ENTER]** to save the entered time or press **[ESC]** to exit without saving.

When the IN key indicator is on, pressing the IN key will only display the IN time.

While viewing the IN Point:

Press **[MARK]** to overwrite the saved time with a new time.

Press **[RECUE]** to search to the IN time.

b. SET AN OUT POINT

- 1) Press **[OUT]** to set the OUT Point. The OUT key indicator on the ST300 will turn on. The display will show “OUT xx:xx:xx:xx.”, which is the saved time.
OR

Press **[SHIFT]** + **[OUT]** to manually enter a new OUT time.

- 2) Press **[ENTER]** to save the entered time or press **[ESC]** to exit without saving.

When the OUT key indicator is on, pressing the **[OUT]** key will only display the OUT time.

While viewing the OUT Point:

Press **[MARK]** to overwrite the saved time with a new time.

Press **[RECUE]** to search to the OUT time.

c. VIEW THE IN POINT

- 1) When the **[IN]** key indicator is on, press the **[IN]** key to view the existing IN Point.

- 2) While viewing the IN Point:

Press **[MARK]** to overwrite the saved time with the current time.

Press **[SHIFT]** + **[IN]** to manually enter a new IN time.

Press **[RECUE]** to search to the IN point.

Press **[DEL]** + **[IN]** to clear the IN point. The IN key indicator will turn off.

d. VIEW THE OUT POINT

- 1) When the OUT key indicator is on, press the [OUT] key to view the existing OUT Point.
- 2) While viewing the OUT Point:
 - Press [MARK] to overwrite the saved time with the current time.
 - Press [SHIFT] + [OUT] to manually enter a new OUT time.
 - Press [RECUE] to search to the OUT point.
 - Press [DEL] + [OUT] to clear the OUT point.
 - (The OUT indicator will turn off.)

e. CLEAR THE IN POINT

- 1) Press and hold the [DEL] key.
- 2) Press and release the [IN] key. The IN key indicator will turn off.

f. CLEAR THE OUT POINT

- 1) Press and hold the [DEL] key.
- 2) Press and release the [OUT] key. The OUT key indicator will turn off.

g. ENTER PREROLL VALUE

- 1) Press the [MENU] key. The MENU key indicator will turn on.
- 2) Turn the wheel until "Enter PREROLL:" is shown on the display.
- 3) Enter the desired preroll value using the ST300's numeric keypad.
- 4) Press [ENTER] to save the entered value.
OR
Press [ESC] to exit without saving.

h. SET THE RECORD DELAY

See **SETUP MENU** section for details.

i. EXECUTE CAPTURE FUNCTION

- 1) Press **[SHIFT] + [RECORD]**.
The display will prompt you for a CLIP ID.
- 2) Enter the new CLIP ID using the numeric keypad on the ST300 or on the “qwerty” keypad on the ST420.
- 3) Press **[LOAD]** to start capturing.
OR
Press **[ENTER]** to start capturing.

The ST300 will create the new CLIP ID on the DDR.

The Source VTR will preroll to the IN Point, then play.

At the Source VTR’s IN point, the RECORDER will go into record.

At the Source VTR’s OUT point, the RECORDER will terminate record, post-roll for 2 seconds, then stop.

The Source VTR will search to the OUT point and stop.
The OUT point will be cleared.

The IN key indicator will stay on. The OUT key indicator will turn off.

11. TRANSFERRING CUELISTS

a. TRANSMIT CUE LIST FUNCTION

The TRANSMIT CUELIST function allows you to transmit your list of Cue Points to a PC, using the provided utility software on the PC, or to another ST300. Transfer to a PC requires OpSuite 3.0 software, which runs on a Windows-based computer. Contact DNF Controls for more information.

1) To Transmit Cue Points to the ST300

- a) Connect the VTR 4 connector on the rear of the ST300 to the VTR4 connector of the receiving ST300 using an RS422 9-pin cable with TX and RX lines crossed. (A “turnaround” cable)
- b) Press [MENU] and scroll the Wheel until “Transmit CUE List? YES=Enter, Exit=ESC” is displayed.
- c) Press [ENTER] to start transmitting.
The Display shows “Waiting to transmit” on the first line.
- d) When the Receiver is ready, transfer starts automatically.
The Display now shows “Transmitting cue list.”
- e) After the transfer is over, the display shows “Transfer is over” for one second and then shows “Waiting to transmit” again.
- f) Connect another ST300 to transmit the list again
OR press [ESC] twice to exit the MENU mode.

2) To Transmit Cue Points to the PC

- a) Connect the VTR4 connector on the back of the ST300 to one of the COM ports on the PC using a RS422 to RS232 adapter.
- b) Repeat steps b)-f) of the TRANSMIT CUE POINTS to the ST300 section.

b. RECEIVE CUE LIST FUNCTION

The RECEIVE CUELIST function allows you to receive your list of Cue Points from a PC or from another ST300. Transfer to a PC requires OpSuite 3.0 software, which runs on a Windows-based computer. Contact DNF Controls for more information.

1) To Receive Cue Points from the ST300

- a) Connect the VTR4 connector on the back of the ST300 from the VTR4 connector of the transmitting ST300 using RS422 9-pin cable with TX and RX lines crossed. (A “Turnaround” Cable)
- b) Press [MENU] and scroll the Wheel until “Receive CUE List? YES=Enter, Exit=ESC” is displayed.
- c) Press [ENTER] from start receiving.
The Display shows “Waiting to receive” on the first line.
- d) When the Transmitter is ready, transfer starts automatically.
The Display now shows “Receiving cuelist”.
- e) After the transfer is over the display shows “Done-Success! Press any key...”
- f) Press any key. The display shows “Receive cuelist?” message.
- g) Press [ESC] to exit the MENU mode.

2) To Receive Cue Points from the PC

- a) Connect the VTR4 connector on the back of the ST300 to one of the COM ports on the PC using RS422 to RS232 adapter
- b) Repeat steps b) - g) of the RECEIVE CUE POINTS from the ST300 section.

Reference . . .

12. SETUP MENU

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

Turn the Wheel to select item to change.

Press [MENU] **OR** use the Softkeys to change the desired mode for that option.

Turn the Wheel at anytime to select another item.

Press [ESC] at anytime to exit SETUP MENU. The MENU indicator will turn off.

<u>MENU MODES</u>	<u>(Turning Wheel clockwise)</u>				
RECORD	Press [MENU] to select the desired record mode: Lockout, Crash (Full)				
WIND MODE	Press Softkey to select: HOLD (fast wind is maintained only while key is depressed) OR LATCH (fast wind is initiated and maintained with momentary key press) Select fast wind speed (3.9 to 23.7) by pressing Softkey below SPD.				
SLOMO	<p>ST300 display shows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>SLOMO with:</td> <td>WHEEL</td> </tr> <tr> <td>TBAR</td> <td>Speed Prset</td> </tr> </table> <p>Press Softkey [TBAR] (or [WHEEL]) to toggle between them.</p> <p>The T-BAR has a speed range of 0 → +200 with a detent at +100% play speed OR a range of 0 → +100 (detent at +100% Play speed).</p> <p>For Wheel only: Press Softkey [SPEED] to select SLOMO speed ranges: Press Softkey to select: 0 → +200 OR -100 → +200.</p> <p>Press Softkey [BACK] to return to SLOMO MENU. Press [ESC] to exit OR turn the Wheel to select another item.</p> <p>For Wheel only: Press Softkey [PRSET] to select the SLOMO Preset Speed Mode</p> <p>Press Softkey [UPDATE]. When exiting SLOMO mode, the last used speed is saved in the Preset Speed register.</p> <p>Press Softkey [STATIC]. The Preset Speed register is NOT updated when exiting SLOMO mode. It is only changed by [SHIFT] + [SLOMO] (PRESET SLOMO).</p>	SLOMO with:	WHEEL	TBAR	Speed Prset
SLOMO with:	WHEEL				
TBAR	Speed Prset				

ST300 SETUP	<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">ST300 SETUP</p> <p style="text-align: center;">Clear Cues SetDefault</p> </div> <p>Press Softkey beneath ClearCues to clear all Cue Points to 00:00:00:00. Press Softkey [YES] when asked “Are You Sure?”</p> <p>Press Softkey beneath SetDefault to set ST300 to default settings. Press Softkey [YES] when asked “Are You Sure?”</p>
DISPLAY SOFTWARE VERSION	The version number for the currently installed software is displayed.
SET OPERATION MODE	Sets the operation mode of the DNW. See VIDEO SERVER SETUP Section for more details.
SYNC SELECT	For V3.0 only: Set to ON if planning to use Video Reference signal for gang roll. Set to OFF if no Video Reference is connected.
RECORD	Press Softkey to select single button or 2-button record. RECORD = [REC] Only OR [REC] + [PLAY].
PREROLL	Enter preroll value (Default =5sec).
RECORD DELAY	Enter up to 99 Frames. Default = 19 frames.
TRANSMIT CUELIST	Transmit cue list to another ST300 or to a PC.
RECEIVE CUELIST	Receive cue list from another ST300 or PC.

13. FUNCTION TABLE

Function	Key Press	Description
GOTO ENTERED TIME	[SHIFT] + [RECUE]	Search the VTR to the manually entered time OR use the ST300 numeric keypad, then press [ENTER] or [RECUE].
FFWD	[FFWD]	Press and HOLD to shuttle. Release key to stop. Set WIND Speed in MENU.
JOG	[JOG]	Select JOG mode and enable Wheel.
LAST CUE	[LAST CUE]	Step to the previous Cue Point Location.
NEXT CUE	[NEXT CUE]	Step to the next Cue Point Location.
RECORD	[REC]	Places VTR into the Record mode selected by RECORD MODE in the SETUP MENU. Press [RECORD] or [RECORD] + [PLAY]. (See SETUP MENU.)
REWIND	[RWD]	Press and HOLD to shuttle. Release key to stop. Set WIND Speed in MENU.
SHUTTLE	[SHUTTLE]	Select SHUTTLE mode and enable Wheel.
SLOMO	[SLOMO]	Press [SLOMO] to slo-mo 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 slo-mo 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.
TIME MODE SELECT	[TIME MODE]	Press to toggle between Timecode (TC), VITC (VT) or Tape Timer (TM) display modes.
GANG	[SHIFT] + [VTR1], [VTR2], [VTR3], [VTR4]	Press VTR keys to select/deselect VTRs fromk gang.
TIME PRESET	[SHIFT] + [TIME MODE]	Enter desired TM (or TC) preset. Press Enter to preset the TC Generator or a Control Track to the desired value.

14. SPECIFICATIONS

ST300

Power:	90 VAC to 265 VAC adapter supplied with IEC connector
Size:	(L" x W" x H") 12" x 6" x 1.5" (front) 3.0" (rear)
Weight:	4 lbs.
Rear Panel Connectors:	VTR1, VTR2, VTR3, VTR4.....All DB9F GPI..... DBF15F Power.....DB9M AuxDB9F
Display:	Easy to read 2-line, back-lit LCD display (User adjustable contrast)
Jog/Shuttle Wheel:	With mechanical detents.
Optional "T"-bar:	Slo-mo 0-200% of Play Speed

RS422 SERIAL CONNECTOR

9-Pin D-Type, Female

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, Male

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

AUX PORT RS422 SERIAL CONNECTOR

9-Pin D-Type, Female

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

GPI CONNECTOR

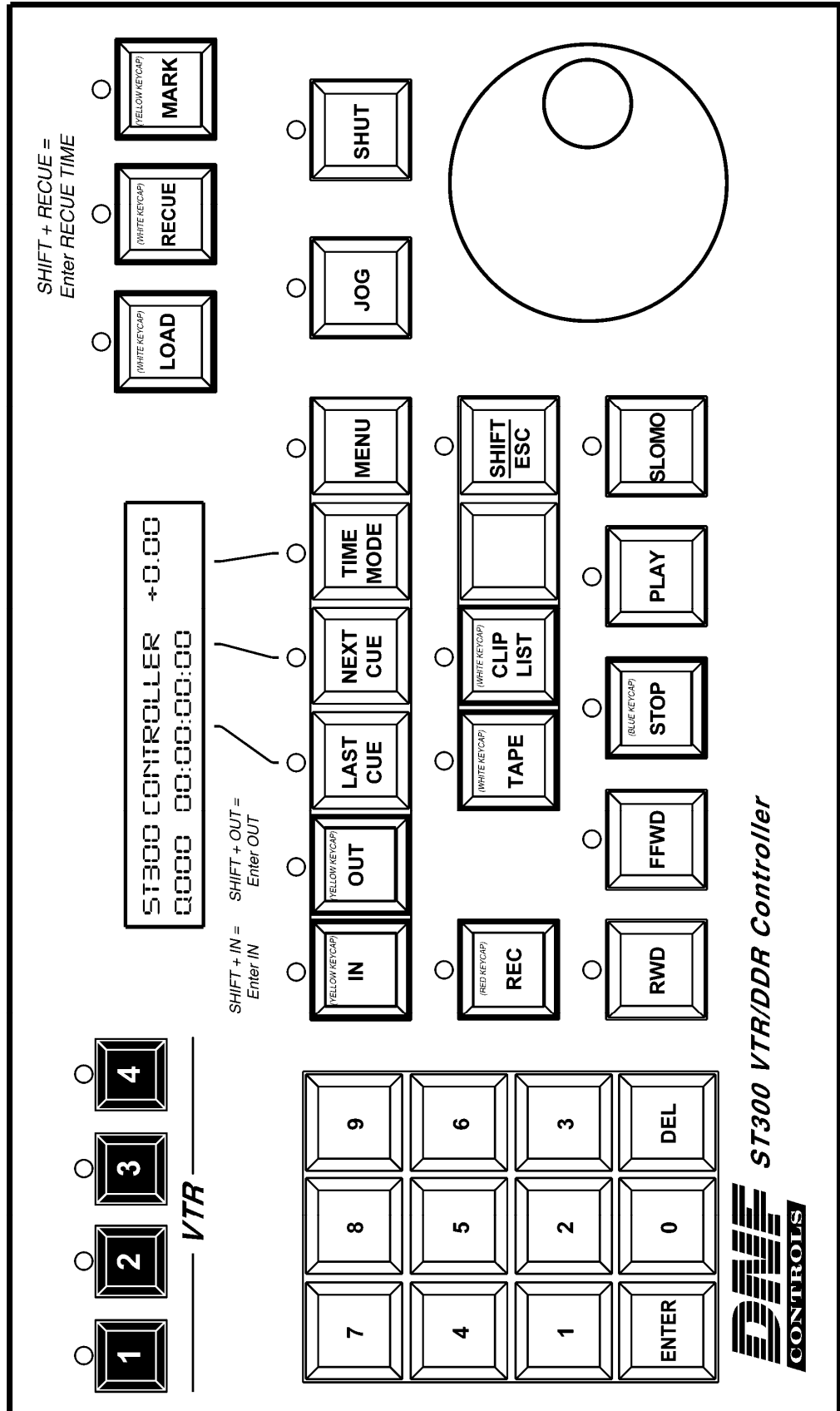
15-Pin D-Type, Female DB15F

Pin #	Description	Pin #	Description
1	GPI 1 Out	8	Ground
2	GPI 2 Out	9	GPI 1 In - PLAY
3	GPI 3 Out	10	GPI 2 In - STOP
4	GPI 4 Out	11	GPI 3 In - RECUE
5	GPI 5 Out	12	GPI 4 In - NEXT - CUE
6	GPI 6 Out	13	GPI 5 In - LAST - CUE
7	GPI 7 Out	14	GPI 6 In - RECALL
		15	GPI 7 In

NOTE: The GPI connector is not programmed in this model.

15. ST300 KEY LAYOUT

ST300 KEY LAYOUT 2034CL-SX (-T & -PBIO)



16. 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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