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Model No. 2000CL-L-PBIO (& 2000CL-L-T)

200 CLIP INSTANT ACCESS SYSTEM

Louth Protocol

With Peripheral Bus Interface Option

NOTE: Supports up to 3 Video Server Channels

USER MANUAL

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Document No.....2000CL-L-PBIO User Manual

1. REVISION HISTORY

082903	Rev. 1.0	Original document.
110303	Rev. 1.1	Added DNF Controls Limited Warranty Updated Receive Cue List & Transmit Cue List function description.
020504	Rev. 1.2	Added note to cover and System Description: Supports up to 3 Video Server Channels.

Getting Started . . .

2. SYSTEM DESCRIPTION

- ✓ NOW, production switchers can load & play video clips on Grass Valley Group PROFILE, Leitch VR and other DDRs & Video Servers.
- ✓ The ST300 controls up to 3 video channels individually or ganged.
- ✓ Use the EMEM or SNAPSHOT Learn & Recall functions of the production switcher to load and play a video clip from a Recall or timeline.
- ✓ Use the Run and Trigger functions of the production switcher to Play, Stop or Recue the video clip.
- ✓ Instantly load a video clip at the press of a button on Grass Valley Group PROFILE, Leitch VR and other video servers.
- ✓ Instantly load a FILL clip & KEY clip at the press of ONE button, then play out both channels in sync.
- ✓ Control up to 3 video channels individually or ganged.

FEATURES

The 2000CL-L, 200 Clip Instant Access System consists of the ST300-SSM with Clip software and the ST320 SHOTBOX. The ST300 and SHOTBOX share a common, non-volatile Cue Point memory in the ST300.

The 4 banks of 50 switches each, on the SHOTBOX, provide instant access to 200 Clips.

Quickly & Easily learn and re-learn Shotkey assignments on the SHOTBOX.

With this Option, the ST300 has 3 Peripheral Device Addresses, one for each VTR that it controls. This allows the production switcher to control the VTRs connected to the ST300.

Upon receipt of the LEARN command from the production switcher, 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 Clip to the Learned time, then restores the Learned GANG mode.

The Trigger function on the production switcher puts the selected VTRs in to Play, Stop, Recue or other available modes.

DEFINITIONS

- ❑ Throughout this document, VTR, DDR, VDR & Video Server will be referred to collectively as “Video Server.”
- ❑ The ST300-S/SM as the ST300.
- ❑ The ST320SHOTBOX is referred to as “SHOTBOX.”
SHOTKEY refers to the 1-50 switches on the SHOTBOX.
- ❑ Words surrounded by brackets, for example, [ENTER], are keys on the ST300 or the SHOTBOX. [XXX] + [XXX] means hold the two keys down simultaneously.

3. SYSTEM INSTALLATION

a. SHOTBOX

- 1) Plug one end of a standard 9-pin, RS422 serial cable, into the OUTPUT connector on the rear of the SHOTBOX. Plug the other end of the cable into the AUX connector on the rear of the ST300.
- 2) Connect the 5 VDC, 1Amp POWER SUPPLY into the POWER connector on the rear of the SHOTBOX. Plug the Power Supply into an outlet, 90 VAC - 240 VAC.

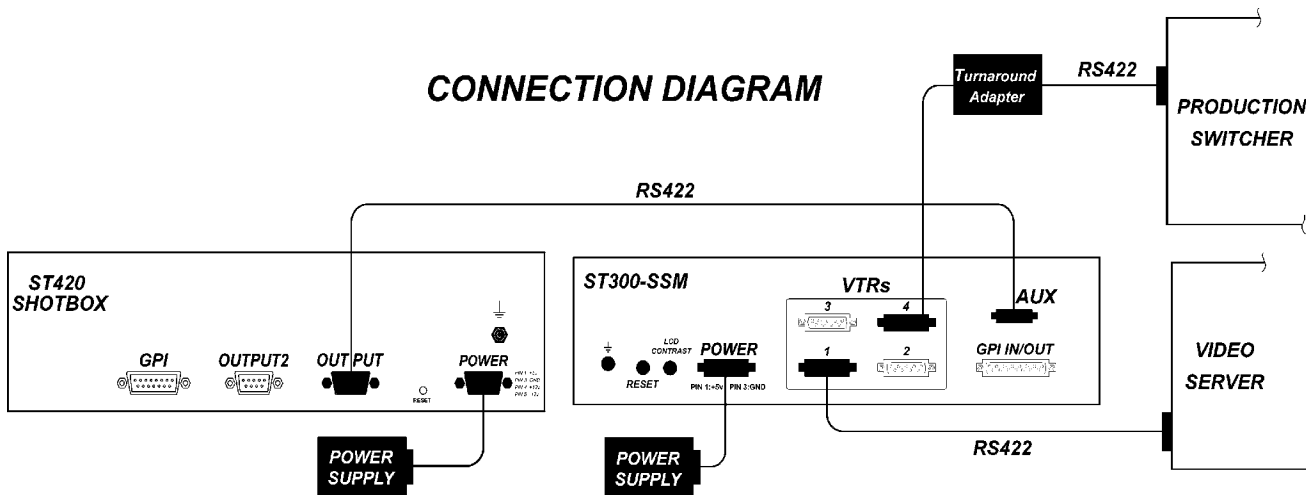
b. ST300-S/SM, VTR/DDR CONTROLLER

- 1) Plug one end of a 9-conductor, RS422 serial cable into the VTR 1 (2, 3 or 4) connector on the rear of the ST300. Plug the other end of the cable into the 9-pin REMOTE connector on the Video Server.
- 2) Connect the +5, +12, -12 VDC POWER SUPPLY into the POWER connector on the rear of the ST300. Plug the Power Supply into an outlet, 90 VAC - 240 VAC.
- 3) Assign logical Louth ports to ST300's VTR connectors.
 - a) Press **[MENU]** and turn the Wheel until VTR Louth Address is displayed.
 - b) Press VTR[1], VTR[2], VTR[3] or VTR[4] to select VTR.
 - c) Assign a Louth Port address for that VTR 0-9. (0 turns that channel **OFF**.)
 - d) The second line of the display will show "Input=Enter, Out=ESC"
 - e) Press **[ENTER]** to select an Input Port.
(A "-" will appear in front of the selected number.)
OR
Press **[ESC]** to select an Out Port.
 - f) Repeat steps c-f above to assign Louth Address to ALL VTRs you want to use.
 - g) Press **[ESC]** to leave the MENU mode.
- 4) Check the other options in the SETUP MENU prior to using the ST300 to confirm proper Record mode and other User settable modes.

c. PRODUCTION SWITCHER

- 1) Connect a standard cable (RS422, 9-pin serial cable) to the supplied turnaround adapter. Plug the turnaround adapter into the “VTR4” connector on the rear of the ST300. Connect the other end of the cable to the Peripheral Bus Connector on the production switcher. (Communication Format- 38.4K, N, 8,1)
- 2) Set up Production Switcher Address for all controlled VTRs, setup Switcher Parity and Type. See Setup Menu section for instructions.

Installation is complete.



4. VIDEO SERVER SETUP

- a. Select LOUTH (VDCP) communications protocol on the VIDEO SERVER to be controlled.
- b. If required, assign a serial port on the VIDEO SERVER through which the ST300 will control it.

NOTE: In LOUTH mode, the VIDEO SERVER **ONLY** allows Full Record. (INSERT and ASSEMBLE record modes are disabled.)

Setup is complete.

5. LOADING A CLIP

- a. Press **[CLIP LIST]** to view the list of CLIP IDs that are resident on the Video Server. The display will show “CREATE NEW CLIP.” The CLIP LIST indicator will turn on.
- b. Press **[LOAD]** to create a new clip.
OR
Turn the Wheel to view CLIP IDs.

Turn the Wheel clockwise to scroll forward, or counter-clockwise to scroll backward, through the list of available CLIP IDs in the Video Server.
- c. Press **[LOAD]** to immediately load the current CLIP ID (shown on the top line of the display). After loading the selected clip, the CLIP LIST function will terminate. The CLIP LIST indicator will turn off.
- d. CLIP IDs can be manually entered from the ST300 numeric keypad **OR** the SHOTBOX “qwerty” keyboard.
- e. Enter a clip name, then press **[ENTER]**.
- f. Press **[LOAD]** to load the entered CLIP ID and NOT save it in the SHOTLIST.

6. LEARN

- a. Select a VTR by pressing VTR[1], VTR[2], VTR[3] or VTR[4].
- b. LOAD the desired clip using the CLIP LIST function.
- c. Repeat steps a-b until clips are loaded into the desired VTRs.
- d. Set the GANG mode, if required. (Refer to the Function Table for Details.)

7. LEARN ON THE SHOTBOX

- a. Press **[LEARN]**. The LEARN indicator will turn on.
- b. The display will show:

Select Bank & Switch
STOP - Abort
- c. Select the desired BANK and ShotKey.
- d. The SHOTBOX will: LEARN (save) the loaded clip(s), current time and gang configuration of the active VTR(s).
- e. Press **[STOP]** to exit at anytime.

8. LEARN 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 **[SHIFT] + [MARK]** to initiate the LEARN.
- c. The display will show:

Select VTR:
MARK-Lrn ESC-Cancel
- d. Press the VTR key desired, **[1]**, **[2]** or **[3]**.
- e. Press **[MARK]** and the ST300 will: LEARN (save) the VTR Number (1,2,3), loaded CLIP ID and current IN time to the selected Cue Point.

9. LEARN ON THE PRODUCTION SWITCHER

- a. Select and enable the Peripheral Device Addresses for the ST300.
- b. Do a LEARN to the desired REGISTER.

The ST300 will: LEARN (save) the VTR#,1 loaded CLIP ID and current IN time into the REGISTER number on the ST300.

10. RECALL ON THE SHOTBOX

Select the desired Cue Point by pressing the bank and the switch key.

11. 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 clips on the Learned VTRs, cue the clips to the Learned time, then set the Learned GANG mode.

12. RECALL ON THE PRODUCTION SWITCHER

RECALL the desired REGISTER NUMBER.

The ST300 will automatically load the Learned clips on the Learned VTRs, cue the clips to the Learned time, then set the Learned GANG mode.

13. TRIGGER

The operator fires a trigger using either the Timeline or Run function on the production switcher. The ST300 puts the Video Server into these modes based on the trigger value:

GRASS VALLEY GROUP

<u>Trigger Value</u>	<u>Mode</u>
0	Play
1	Recue to beginning of clip
2	Slo-mo using ST300 Preset Speed
3	Reverse Play
4	Still Frame
5	Play
6	Record
7 or greater	Play

SONY

<u>Trigger Value</u>	<u>Mode</u>
0	Recue to beginning of clipPlay
1	Play
2	Slo-mo using ST300 Preset Speed
3	Reverse Play
4	Still Frame
5	Play
6	Record
7 or greater	Play

To control more than one VTR, enable the Peripheral Device Address for the required VTRs. The Trigger will be sent to the enabled devices.

OR

GANG the required VTRs on the ST300. See the Menu Table for GANG instructions. Enable the Peripheral Device Address for one of the GANGed VTRs. The Trigger will be sent to the enabled VTR. The other VTRs in the GANG will perform the same action.

14. SHOTBOX DISPLAY

- a. If current active VTR on the ST300 is VTR1 or VTR2, the SHOTBOX display shows:

V:1 L: xxxxxxxx
V:2 L: yyyyyyyy

Where xxxxxxxx- clip, loaded on VTR1

Where yyyyyyyy- clip, loaded on VTR2

- b. If current VTR is VTR3 or VTR4, the display shows clips loaded on VTR3 and 4.

15. SHOTBOX SHOTKEY MAPPING TO SHOTLIST LOCATIONS AND EMEM REGISTERS

The SWITCHES on the SHOTBOX access the SHOTLIST locations as follows:

BANK 1, SWITCHES 1 → 50 access SHOTLIST locations 101 → 150 and Emem Registers 1-50.

BANK 2, SWITCHES 1 → 50 access SHOTLIST locations 201 → 250 and Emem Registers 51-100.

BANK 3, SWITCHES 1 → 50 access SHOTLIST locations 301 → 350.

BANK 4, SWITCHES 1 → 50 access SHOTLIST locations 401 → 450.

16. SHOTBOX CONTROL SWITCHES

- a. Pressing [PLAY] puts the VTR into PLAY mode.
- b. Pressing [STOP] puts the VTR into STOP mode.
- c. Pressing [RECUE] stops the VTR and rewinds back to the start of the clip.

The CONTROL Switch indicators show the real-time status of the VTR.

17. VIEW CONTENTS OF CUE POINTS ON THE SHOTBOX

- a. Press and hold [VIEW].
- b. Select a Cue Point by pressing desired bank and switch keys.

The display will show:

VT1 xxxxxxxx
VT2 yyyyyyyy

Where

xxxxxxx- is the CLIP ID assigned to the selected Cue Point on VTR1

yyyyyyy- is the CLIP ID assigned to the selected Cue Point on VTR2

- c. Press the selected switch again to see which clips are assigned to this Cue Point on VTR3.

Advanced Features . . .

18. CREATING A CLIP

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

b. Press **[LOAD]** to accept the default CLIP ID.
OR

Use **[NEXT CUE]**, **[LAST CUE]** and Wheel to edit the CLIP ID.

Use the **[NEXT CUE]** and **[LAST CUE]** keys to position the cursor.
Turn the Wheel to select the desired letter.

OR

Enter a name with a maximum of 8 characters on the SHOTBOX keyboard.

NOTE: For numbers on the SHOTBOX keyboard, use ShotKeys 1-10, with 10 being “0”.

c. Press **[LOAD]** to create the selected CLIP ID.

d. If the selected CLIP ID already exists, a warning message will be displayed. To load the existing clip, press **[ENTER]**. Press **[ESC]** to exit without loading the existing clip.

e. Press **[REC]** (or **[REC]** + **[PLAY]**; see MENU) to start recording the clip.

f. Press **[STOP]** to stop recording the clip.

g. The new clip has been created.
To view the clip, press **[REWIND]** or **[RECUE]**, then, press **[PLAY]**.

NOTE: You can ONLY create new clips if the INPUT Port is selected.
You must first create a clip to record on.

19. RECUE THE CURRENTLY LOADED CLIP

a. Press **[RECUE]** to reload the currently loaded clip to the IN point.

b. Press **[SHIFT]** + **[RECUE]**.
The display will show: “xx:xx:xx:xx”
(Where xx:xx:xx:xx = Last entered RECUE time.)
“Enter RECUE time”

Enter the desired time to search to using the ST300’s numeric keypad.

Press **[ENTER]** to reload the currently loaded clip at the entered time.

OR

Press **[ESC]** to exit without searching

20. VIEW THE CLIP ID OF THE CURRENTLY LOADED CLIP

Press and hold [**SHIFT**], then press and release [**LOAD**].

The bottom line will show: "Loaded Clip: xxxxxxxx" where xxxxxxxx is the CLIP ID.

21. ENTER PREROLL VALUE

- a. Press [**MENU**]. The MENU indicator will turn on.
- b. Turn the Wheel until "Enter PREROLL:" is shown on the display.
- c. Enter the desired preroll value using the ST300's numeric keypad.
- d. Press [**ENTER**] to save the entered value.

OR

Press [**ESC**] to exit without saving.

22. TRANSFERRING CUELIST

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 VTR4 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 to “Transmit CUE List?
YES=Enter, Exit=ESC”
- c) Press [ENTER] to start transmitting. The Display shows “Waiting to transmit.”
- d) When the Receiver is ready, transfer starts automatically.
The Display now shows “Transmitting cuelist.”
- e) After the transfer is over, the display shows “Transfer is over” for one second, then shows “Waiting to transmit” again.
- f) Connect another ST300 to transmit the list again.
OR

Press [ESC] twice to exit.

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 an 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 to “Receive CUE List? YES=Enter, Exit=ESC.”
- c) Press [ENTER] to start receiving. The Display shows “Waiting to receive.”
- 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 . . .

23. 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>										
SET LOUTH PORT	Allows user to select Louth Port for each VTR.										
RECORD	Press [MENU] to select the desired record mode: Crash (Full) or Lockout.										
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 (Non T-Bar version):</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>SLOMO with:</td> <td>WHEEL</td> </tr> <tr> <td>Speed</td> <td>Preset</td> </tr> </table> <p>Press Softkey [SPEED] to select SLOMO speed ranges: Press Softkey to select: 0 → +200% OR -100% → +200%. Press Softkey [BACK] to return to SLOMO MENU.</p> <p>Press [ESC] to exit OR turn the Wheel to select another item.</p> <p>ST300 display shows (T-Bar version):</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>SLOMO with:</td> <td>TBAR</td> </tr> <tr> <td>Wheel</td> <td>SpdRange</td> </tr> <tr> <td></td> <td>Preset</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% speed OR a range of 0 → +100% with a detent at +100% play speed. NOTE: 100% is normal speed.</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].</p>	SLOMO with:	WHEEL	Speed	Preset	SLOMO with:	TBAR	Wheel	SpdRange		Preset
SLOMO with:	WHEEL										
Speed	Preset										
SLOMO with:	TBAR										
Wheel	SpdRange										
	Preset										

ST300 SETUP	<div data-bbox="571 138 1031 237" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <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.
RECORD	Press Softkey to select single-button or 2-button record. RECORD = [REC] Only OR RECORD = [REC] + [PLAY].
PBIO ADDRESS	Press VTR key to assign PBIO address.
SWITCHER TYPE	Select your switcher type. GVG = Grass Valley Group (default) or Sony. For Philips DD35 with Pbus, use GVG.
PARITY	Select Parity type Switcher is putting out on the Pbus: ODD, EVEN or NONE
PREROLL	Enter Preroll value.
TRANSMIT CUELIST	Transmits Cuelist to another ST300 or to a PC.
RECEIVE CUELIST	Receives Cuelist from another ST300 or a PC.

24. FUNCTION TABLE

Function	Key Press	Description
GOTO ENTERED TIME	[SHIFT] + [RECUE]	Search the VTR to the manually entered time. Use the ST300 numeric keypad. Press [ENTER] or [RECUE]. NOTE: Use 00:00:00:00 to recue a clip to ET=0 if start time is not ET=0.
GANG	[SHIFT] + [VTR#1] OR [SHIFT] + [VTR#2] OR [SHIFT] + [VTR#3]	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 [ESC] to exit. The VTR LEDs that are on show the gang. The flashing LED shows which VTR is currently selected.
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.
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 ET (Elapsed Time) and RT (Running Time) display modes.

25. SPECIFICATIONS

a. 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 Aux DB9F
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		

b. ST320 (SHOTBOX)

Power: 90 VAC to 265 VAC adapter supplied with IEC connector
Size: (L" x W" x H") 10.5" x 7.25" x 1.75" (front) 3.0" (rear)
Weight: 4 lbs.
Rear Panel Connectors: Power..... DB9M
OUTPUT DB9F
Display: Easy to read 2-line, back-lit LCD display
(User adjustable contrast)

RS422 SERIAL CONNECTOR

9-Pin D-Type, Female

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

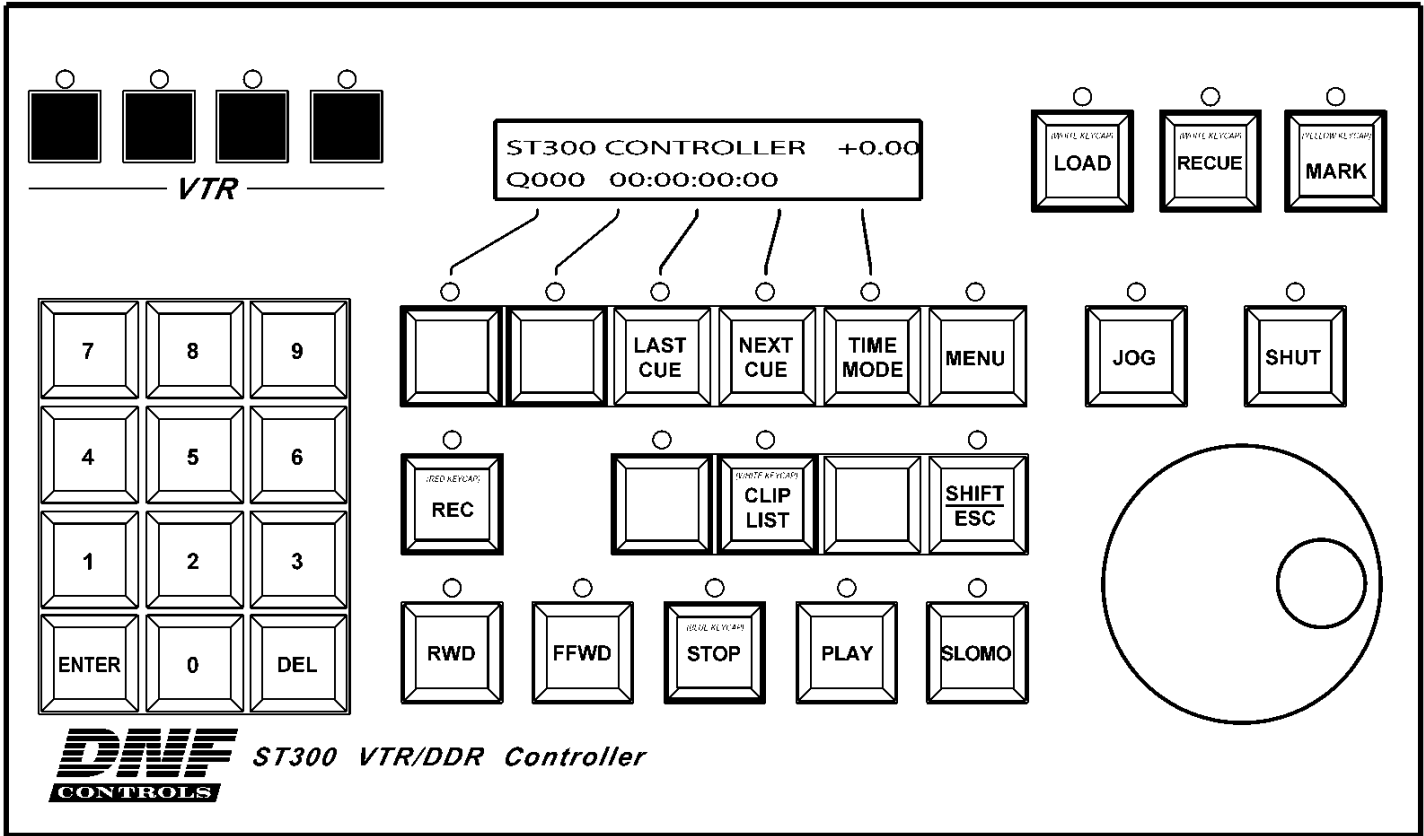
POWER CONNECTOR

9-Pin D-Type, Male

Pin #	1	+5v DC	6	No Connection
	2	+5v DC	7	Ground
	3	Ground	8	Ground
	4	No Connection	9	Ground
	5	No Connection		

26. KEY LAYOUT

ST300 KEY LAYOUT 2000CL-L-PBIO (-T)



27. 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 D
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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