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ST100 SHUTTLE BOX VTR CONTROLLER

USER MANUAL

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1. REVISION HISTORY

031204	Rev. 2.2	Company header information revised. Added DNF Controls Limited Warranty Reformatted.
073004	Rev. 2.3	Revised GPI (KEYPAD) INTERFACE CONNECTOR
102506	Rev. 2.31	Added Timecode select function.

2. DESCRIPTION

a. STANDARD FUNCTIONS

RECORD
PLAY
STOP
REWIND
FAST FORWARD
JOG/SHUTTLE MODE SELECT

JOG & SHUTTLE WHEEL: Active ONLY from STOP/STILL or JOG/SHUTTLE modes.

b. TIME CODE DISPLAY

Display timecode or CTL Tape Timer per the mode selector switch on the front panel of the VTR. The Time Mode can be selected manually by pressing the [SHIFT] + [JOG] keys, each press will step to the next Time Mode: CTL Tape Time, Timecode, VITC.

c. REAL-TIME STATUS INDICATORS: ACTIVE ON

RECORD
PLAY
STOP/STILL
REWIND/REVERSE
FAST FORWARD/FORWARD
JOG MODE SELECTED

3. INSTALLATION

- a. Plug one end of a 9-conductor, RS422 serial cable into the 9-pin connector on the rear of the ST100. Plug the other end of the cable into the 9-pin REMOTE connector on the VTR.
- b. Plug the 9-pin D-female connector on the POWER SUPPLY into the male 9-pin connector on the rear of the ST100.

Plug the AC connector into a wall outlet, 90 VAC - 265 VAC, 50-60 Hz.
- c. Select REMOTE operation on the VTR's front panel.
- d. Set the RECORD SELECTOR SWITCHES, located on the rear panel of the ST100, to the desired record mode per the "RECORD SELECTOR CHART."
- e. Connect the second Controller to the 9-pin female connector labeled LOOP-THRU, on the back of the ST100, using a 9-pin cable wired as described below, "LOOP-THRU CONNECTOR."

Installation is completed.

NOTE: For AMPEX 1-inch and D2 VTRs, set VTR ID to 0001.

4. OPERATION

Select the desired transport function by pressing the appropriate switch on the front of the ST100.

The Real-Time Status Indicators will light to indicate the VTRs current tape transport mode.

For example: Pressing PLAY will put the VTR into the PLAY mode.
The PLAY Status Indicator will light when the VTR is in PLAY mode.

Loss of serial communication with the VTR is indicated by ALL status LEDs turned ON.
Selecting LOCAL control on the VTR's front panel will turn OFF all status LEDs.

a. SHUTTLE BOX OPERATION

The Shuttle Box automatically determines whether the ST100 or second controller gets control of the VTR using the following rules:

- 1) Normally, the LOOP-THRU is turned on, allowing the second controller to control the VTR.
- 2) When any function switch is pressed on the ST100 or the Wheel is moved, the LOOP-THRU is turned off, disabling the second controller. The ST100 now has control of the VTR. After the selected function is executed, and after a 2.5 second delay, the LOOP-THRU is again turned on, allowing the second controller to control the VTR.
- 3) When the LOOP-THRU is turned on, the ST100 monitors communications between the VTR and second controller. The VTR's status response is read by the ST100 and the status indicators are updated to reflect the current state of the VTR.

b. LOOP-THRU CONNECTOR RS422 Serial Interface 9-Pin D-Type, Female

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

c. RECORD MODE

Four (4) Record modes are available:
Crash Record (Full Record), Assemble Record, Insert Record and Record Lockout.

Press only the **[RECORD]** switch to activate the selected Record mode.
The Record Status Indicator will light when the VTR is in RECORD mode.

NOTE: The VTR will not go into Record mode if "Record Inhibit" is enabled on the VTR or tape cassette.

d. RECORD SELECTOR SWITCHES

<u>Mode</u>	<u>S1</u>	<u>S2</u>	<u>S3</u>	<u>S4</u>	<u>S5</u>	<u>S6</u>
Record Lockout	OFF	OFF	OFF	OFF	OFF	OFF
Assemble Record	ON	OFF	OFF	OFF	OFF	OFF
Crash Record	OFF	ON	OFF	OFF	OFF	OFF
Insert Record	ON	VID	AUD1	AUD2	AUD3	AUD4 Active On

NOTE: AUD3 & AUD4 should be ON ONLY for VTRs that support 4 channels of audio, i.e.: D1, D2 and D3 type VTRs.

e. TIME CODE DISPLAY

Display timecode or CTL Tape Timer per the mode selector switch on the front panel of the VTR. The Time Mode can be selected manually by pressing the **[SHIFT] + [JOG]** keys, each press will step to the next Time Mode: CTL Tape Time, Timecode, VITC.

5. SPECIFICATIONS

FRONT PANEL

6 Status LEDs	Record, Play, Stop, Rewind, FFwd, Jog
1 Power LED	
3 Direction LEDs	Indicates direction of Jog Shuttle
Switches	Record, Play, Stop, Rewind, Fast Forward, Jog, Shift, Reset
DIP Switches	RECORD MODE: Lockout, Crash, Insert, Assemble
Display	2-line LCD, back lit with adjustable contrast
Jog/Shuttle Wheel	With Mechanical Detents at 1X Play Speed
Size	19" x 5" x 1-3/4" (Rackmount) 7" x 5" x 1-1/2" (Table Top)
Weight	2 lbs.

REAR PANEL CONNECTORS

RS422 Serial Out	9-Pin D-type connector, female (DB9-F)
Power	5 volt D.C., 500 ma. 90-265 VAC, 0/60 Hz converter supplied (Rack Mount or table top)
GPI	15-pin D-type connector, female (DB15F) Switch Input: SPST contact closure, momentary Status Output: Open collector, sink 50mA.

RS422 SERIAL CONNECTOR

9-Pin D-Type, Female (DB9-F)

Pin # Function

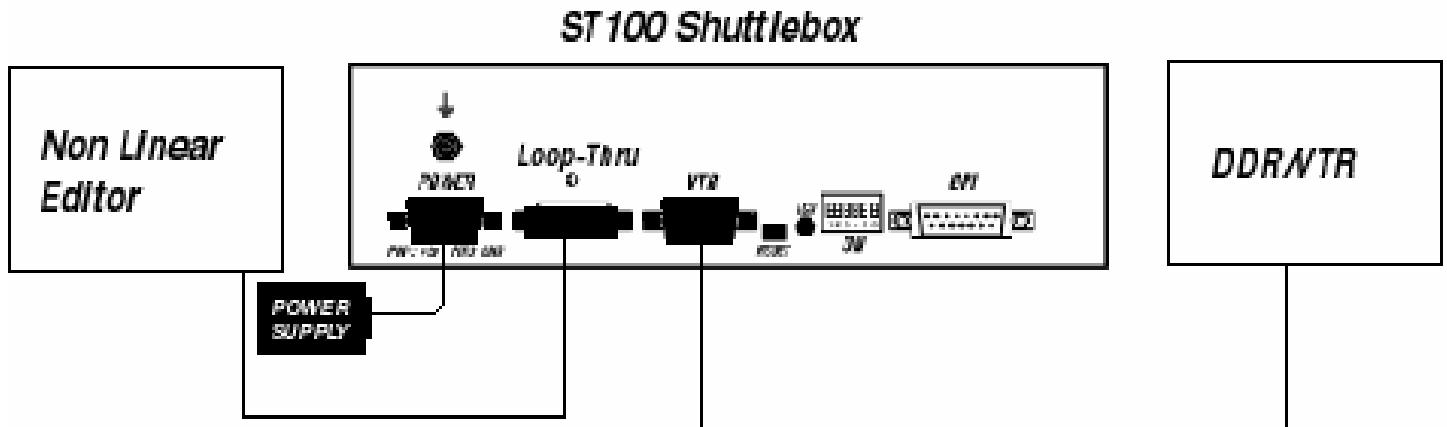
1	Frame Ground
2	Receive A ←
3	Transmit B →
4	Transmit Common
5	Spare
6	Receive Common
7	Receive B ←
8	Transmit A →
9	Frame Ground

GPI (KEYPAD) INTERFACE CONNECTOR 15-Pin D-Type, Female (DB15-F)

Pin #	Function	Note
1	+9VDC=Table Top; +5VDC=Rack mount	Power for Status Indicators
2	Switch #7, Shift Mode Select	Active Low OC Output
3	Led #1 drive, Record Status Indicator	Active Low OC Output
4	Led #2 drive, Play Status Indicator	Active Low OC Output
5	Led #3 drive, Stop Status Indicator	Active Low OC Output
6	Led #4 drive, Rewind Status Indicator	Active Low OC Output
7	Led #5 drive, Fast Forward Status Indicator	Active Low OC Output
8	Led #6 drive, Jog Mode Indicator	Active Low OC Output
9	Command Common	
10	Switch #1, Record Command	Active Low (+5 Pull Up)
11	Switch #2, Play Command	Active Low (+5 Pull Up)
12	Switch #3, Stop Command	Active Low (+5 Pull Up)
13	Switch #4, Rewind Command	Active Low (+5 Pull Up)
14	Switch #5, Fast Forward Command	Active Low (+5 Pull Up)
15	Switch #6, Jog Mode Select	Active Low (+5 Pull Up)

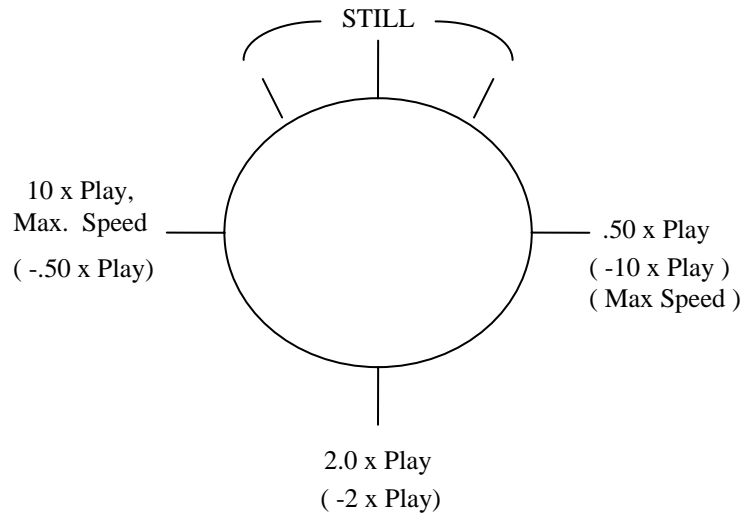
NOTE: There are no internal current limiting resistors for the open collector, status indicator drives. A 620 ohm resistor in series with the D.C. power supply is recommended for LEDs. Limit lamp current to 50 ma.

Connection Diagram



SHUTTLE WHEEL SPEEDS

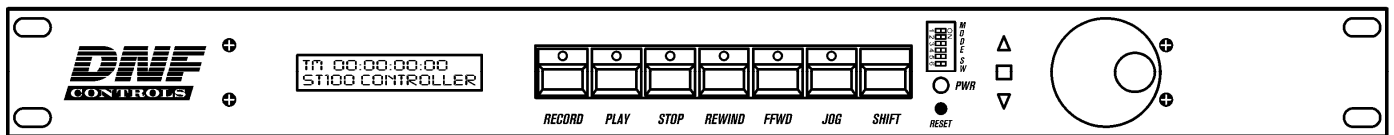
NOTE- () represents Shuttle Reverse speeds



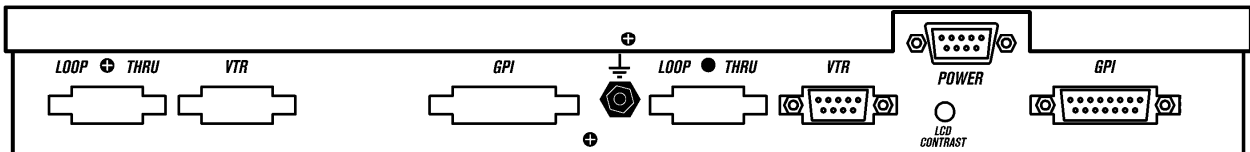
6. RACKMOUNT FRONT AND REAR VIEW

ST100-SRK (Single Rackmount with Keypad)

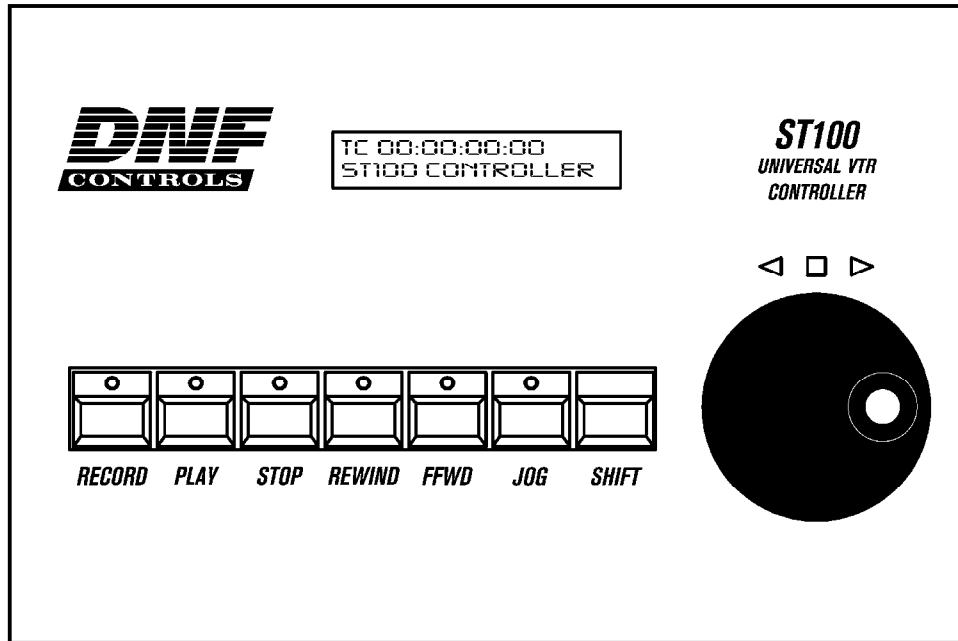
FRONT PANEL



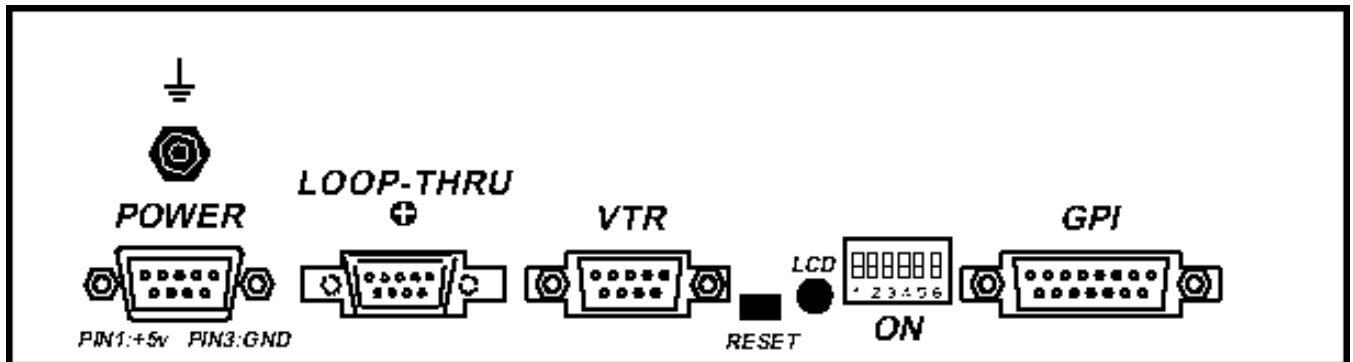
REAR VIEW



7. TABLE TOP, TOP VIEW



8. TABLE TOP, REAR VIEW



9. 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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