

Euphonix TT007

Machine Control Hub for System 5
and CS Series Consoles

Operation Manual

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Chapter 1: Overview

1.1 Introduction

The TT007 is an optional rack-mount device that provides machine control for all Euphonix consoles. The TT007 allows the console to become the single, centralized machine control hub within any studio. Virtually every machine, in or out of the control room, can be remotely controlled from the console at the press of a button. The flexibility gained from the addition of the TT007 is unprecedented. These are a few of the many features that can be seamlessly implemented with the TT007:

- Entire machine networks can be configured and set into motion directly from the console.
- user nameable, instantly accessible locate points
- automatic transport cycling
- jogging and variable shuttle
- control tape decks, DAWs, and other synchronizers

All timecode formats and frame rates are supported, including MIDI Time Code (MTC) and external video sync. MIDI Machine Control (MMC), the TimeLine Lynx™ network, and Sony 9-pin (P2) protocols work right “out of the box” to insure that starting to work with the TT007 is quick and easy. Three MIDI and three serial machine ports are available. The TT007 also has a built-in timecode generator and LTC reader.

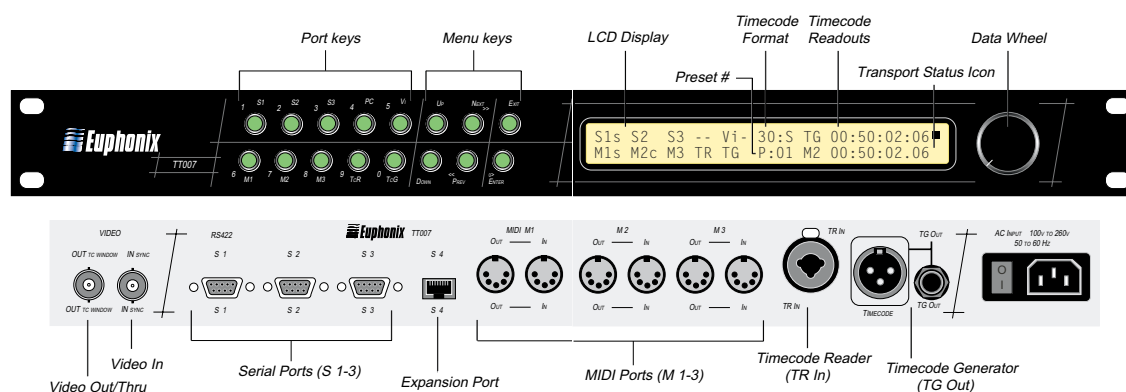


Figure 1-1 TT007 front and rear panels

The TT007’s front panel is very easy to master. Dedicated Port buttons instantly access individual assignments for each machine control Port. Any Port can be defined as a master, controller, or slave. A single master acts as the synchronization source for all machines in the network.

The transport controls of the master machine can drive the network but the TT007 is unique in its ability to accept transport commands from additional control surfaces and relay those commands to the master machine. Any controller device in the studio (System 5, CS3000/CS2000, DAW, Sequencer, etc.) defined as a controller (and on-line) has direct access to the master machine. This gives the engineer new freedom to issue commands from the most convenient place in the studio at any given moment: Hit Play on the sequencer, turn around and press Stop on the workstation to make an edit, then pull forward and hit Play on the console to continue the mix!

The built-in SMPTE/EBU generator can supply the master timecode source when random access machine control is desired, or for machines unable to generate their own timecode. Two readouts on the front panel LCD display incoming timecode from any selected Port. Additionally, a video burn-in window can be set to display one of the eight available timecode sources. The burn-in window can be superimposed on a video monitor by simply passing a composite video signal through the TT007 video reference input.

The TT007 stores 50, user-defined presets that are instantly recalled when needed. The presets store customized machine control configurations including Port configurations, timecode formats, sync preferences, and window displays.

The transport controls on the TT007 are similar to most tape machines: Play, Stop, Fast Forward and Rewind are all clearly marked on the front panel. Transport mode allows control of any one of the seven ports or the timecode generator from the transport keys and the front panel Data Wheel.

1.2 Navigating the Front Panel

Navigating the TT007's front panel and menu system is easy after you familiarize yourself with a few basics. The front panel has two rows of green buttons. The first 10 are dedicated Port Keys. The last six are Menu/Transport keys: they move through the menu tree and change parameter values and then act as transport buttons when in Transport Mode.

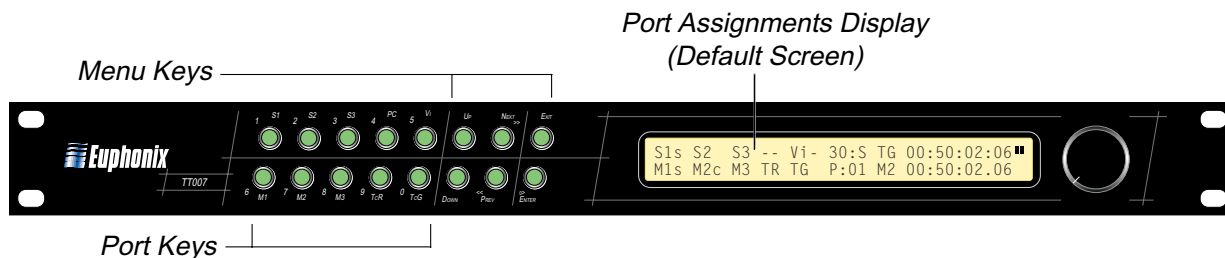


Figure 1-2 Front panel with Port Assignments Display

When the TT007 boots up, the first screen visible is the Port Assignments Display, which is the default screen. Press the **EXIT** key from this screen to display the TT007's ROM version number. Press the **EXIT** key one or more times from any other display (depending on the depth within the menu system) to restore the Port Assignments Display.

The Port Assignments Display shows the status of all ports, as well as the current SMPTE/EBU frame rate and synchronization reference. The two timecode readouts on the right remain visible at all times regardless of the current mode or menu level. The Port name to the left of each timecode window identifies its source. A single character at the far right of the LCD display shows the current transport status (Play / Stop / Rew / FF / Shuttle) for the displayed Port.

From the Port Assignments Display, press the **Enter** key to select the Menu mode.

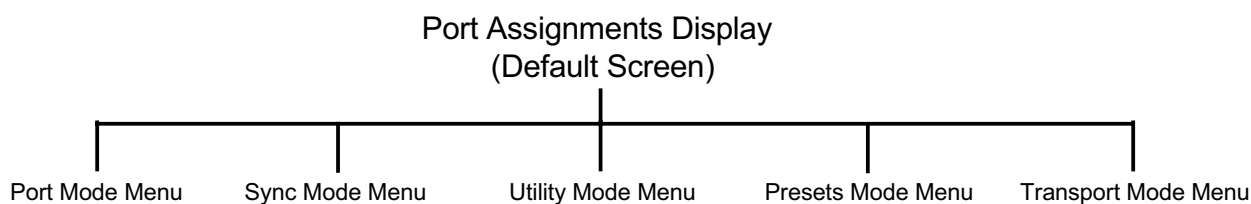


Figure 1-3 TT007 Menu Modes

The **PREV** and **NEXT** keys scroll through the list of menus. Press **ENTER** to confirm the current selection and display that mode's menus. Press **EXIT** to return to the Port Assignments Display. The **UP** and **DOWN** keys light when they can select parameter settings. In general, the **PREV** and **NEXT** keys scroll through parameters and lists and the **UP** and **DOWN** keys select a specific value for the parameter. The **PREV/NEXT** and **UP/DOWN** keys light in each context to guide you through the selection process.

The Data Wheel performs the same function as the currently lit keys: Rotate the Data Wheel counterclockwise for **PREV** or **DOWN** and clockwise for **NEXT** or **UP**.

Chapter 2: *TT007 Menu Modes* discusses the five mode menus in detail.

Chapter 3: *Configurations* discusses common TT007 configurations.

Chapter 2: TT007 Menu Modes

2.1 Port Mode Menu

To access Port Mode from the Port Assignments Display:

1. Press any Menu key.
2. Scroll through the list with the **PREV** and **NEXT** keys until **PORT MODE** is displayed.
3. Press the **ENTER** key.

You can also press any of the dedicated, front panel Port keys. Depending on the Port being viewed, the display shows a different status to indicate that Port's current assignment.

The possible assignments are:

Off

Port is inactive (off-line).

Controller

Port can pass both synchronization data and transport commands (FF, Rew, Stop, etc.) to/from the connected device. Transport commands relayed from the device, are returned to the Master Port. See Section A.2 - *Explanation of Controllers* for more information.

Slave

Port passes *only* synchronization data (timecode) to the connected device.

Master

Sets port as the *master* synchronization source for the entire system. Any timecode sync source from the Master device will be transmitted to all other TT007 ports selected as either Slave or Controller. The Master device's transport may be controlled locally via its own front panel or remotely via other controller devices attached to the TT007.

The **PREV** and **NEXT** keys scroll through the Port list. The **UP** and **DOWN** keys (or the Data Wheel) select assignment options. Pressing **EXIT** returns to the default display. **ENTER** has no function in this menu.

NOTE: *Selecting a Port as Master forces any previous Master Port selection off-line. Designating a Master is immediate when selected in the Port menu. If the TT007 is configured without a Master Port, the **EXIT** and **ENTER** keys flash alternately to alert the user that no Master Port has been defined for this preset.*

Table 2-1 Port Modes

Port	Available assignments	Symbol in Port Assignments Display
M1-M3	OFF / Controller / Slave / Master	c / s / M
S1-S3	OFF / Controller / Slave / Master	c / s / M
S1 (additional)	LynxNET (Master) / Lynxnet (Slave) / EsBUS* / A-Smith	T / t / E / A
TcG	OFF / Slave / Master	s / M
TcR	OFF / FromMaster** / Master	m / M
Resolve (Vi)	VIDEO / Free run	R / –

* Proprietary protocol for Studer D820 and D827 control

** Timebase synchronization is based on LTC signals received at the TcR Port. Longitudinal Time Code (LTC) signals are typically audio reference tracks on the Master machine.

NOTE: *The TT007's TcG should always be set to Slave if not selected as Master.*

2.1.1 Machine Menu

Pressing a Port key twice accesses the Machine Menu. The first press displays the Port Menu screen; the second press displays the Machine Menu. In the Machine Menu, the **PREV** and **NEXT** keys scroll the available parameters, which vary based on whether the Port is configured as a Master or Slave:

Record

OFF	Safe (Recording disabled)
EDIT	Insert recording over audio tracks only
ASSEMBLE	Overwrite sync track, video, and audio tracks

Track Arm

OFF	No Track Arming Request is translated to port
ON	Any analog or digital Track Arm Request is translated to port
D=A	Converts analog Track Arm Requests to equivalent Digital Requests
48 no tally	For use with Pro Tools. Since Pro Tools does not output track tallies when in record, the tallies generated by the TT007 are not current if track arming is changed while Pro Tools is in motion; they are just the last known state.

Stop

Still	Translates Stop commands to device as Still
Stop	Translates Stop commands to device as Stop
Standby	Translates Stop commands to device as Standby

Stop vs. Still or Standby commands are used by some hard disk machines, (such as Radar and Fairlight), to determine whether the device should return to input when parked.

Type (Master)

Normal

TC in Play	For non-video resolved machines
Code only	Uses wind commands to locate for machines with no timecode reader
MMC	Standard MIDI Machine Control
MTC Only	Uses MTC only to determine status for systems that do not respond to MMC information requests (i.e., Pro Tools). Additionally, the punch IN and punch OUT commands are continuous controllers.

Type (Slave)

Slow Shtl	U-matic, etc.
Med Shtl	D1, D2, Beta, etc.
Hard Disk	V1, etc.
Slow Vari	
Tape DAxx	DA88, DA98, etc.
Tape 33xx	324, 3348, 3348HR, etc.

Selecting the proper machine type for each serial Slave port provides a fast and reliable lock between device machines. The Type sub-menu provides a list the most commonly used device types. Determine the type that best matches the ballistics of the machine connected to this particular Port. Older U-matic video decks should be set to **Slow Shtl**. Newer D2 and Beta video machines can be set to **Med Shtl**.

Offset (slave/TcG)

Use this field to set positive or negative TC offsets for any serial Slave device. The data wheel is used to set the desired offset. The **UP** and **DOWN** keys select between HH, MM, SS or FF. Data entry is immediate so there is no need to confirm an offset value. Offsets may also be trimmed on the fly. Press the **ENTER** key to clear the current offset.

The Timecode Generator (TcG) can have an offset even when configured as Master. This is helpful when striping timecode starting at a time other than 00:00:00.00.

Generator

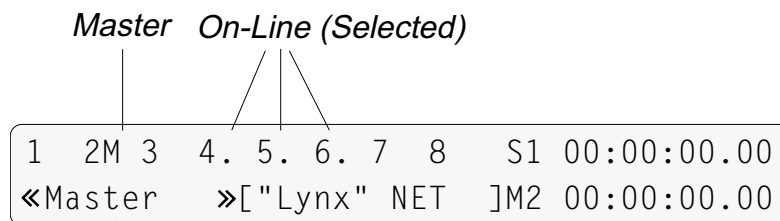
Gain	+9 to -24 dB in 3-dB steps
Burst	Selects the number of frames to output during serial Rew/FF and locate commands
Delay	For Euphonix diagnostics use only: should be set to OFF

2.1.2 TimeLine Lynx Network Support

In addition to its own network of devices, the TT007 may also be integrated with a TimeLine Lynx machine control network. The S1 Port connects as the Lynx Network controller where it can command any combination of the eight machines on the Lynx network.

The Port Assignment menu for S1 has three additional settings (besides the standard Controller / Slave / Master). Scroll to the LynxNET setting using the **UP** and **DOWN** keys or the Data Wheel, then press the S1 Port key a second time to enter the TimeLine Network configuration menu. A master machine must be selected from one of the eight displayed addresses. Additional machines may be selected into the *on-line* group as desired. All selections for the TimeLine Network menu are stored within a preset, so selecting groups of machines in any combination is fast. Simply recall the desired preset to reconfigure the entire network.

Select the Master machine (1-8) by pressing the corresponding numbered Port key. Display the **Select** page with the **PREV** and **NEXT** keys or Data Wheel, then use the Port/number keys again to bring other machines on-line.



Use the [PREV] and [NEXT] keys or Data Wheel to toggle between "Master" and "Select" pages.

Figure 2-1 Port Assignments for Time Lynx Network

2.1.3 Connecting Controllers to the TT007

The TT007 serial ports (S1, S2, S3) are wired so they can be cabled directly to devices. When connecting an additional controller to the network, the transmit (Tx) and receive (Rx) pins of the RS-422 interconnect cable must be reversed to enable the TT007 to emulate a device and translate controller commands to the network.

The pinout for such a cable is shown in Figure A-12 on page 41.

2.2 Sync Mode Menu

Sync Mode is used to set basic synchronization parameters, such as frame rate and clock reference. To access the Sync Mode from the Port Assignments Display:

1. Press any Menu key.
2. Scroll through the list with the **PREV** and **NEXT** keys until **SYNC MODE** is displayed.
3. Press the **ENTER** key.

The **PREV** and **NEXT** keys scroll through the list of selections. The **UP** and **DOWN** keys and the Data Wheel change the setting.

Table 2-2 Sync Modes

Parameter	Value	Description	LCD Symbol
Resolve	Free Run	Internal Clock Reference	-
	Video	Sync to External Video Reference	R
TC Detect	ON	TT007 automatically selects the frame rate to match incoming timecode (default)	
	OFF	Frame rate auto-sensing is disabled	
Frame Std	24:FILM	Film	24:F
	25:EBU	EBU	25:E
	30:DF	SMPTE (Drop frame)	30:D
	30:SMPTE	SMPTE (Non-drop)	30:S
Video Std	NTSC		
	PAL		
LEDs	Comms	Port Keys light to indicate communications with attached devices	
	Locking	Port Keys light to indicate synchronization lock with attached devices	
Relock	OFF	Slaves not relocked if they lose lock	
	ON	Slaves re-lock if they lose lock	
MTC Stop	OFF		
	ON		

2.3 Utility Mode Menu

Utility Mode is used to configure the TT007's user interface options. All timecode display windows and Data Wheel functions are configured from this menu. To access the Utility Mode from the Port Assignments Display:

1. Press any Menu key.
2. Scroll through the list with the **PREV** and **NEXT** keys until **UTILITY MODE** is displayed.
3. Press the **ENTER** key.

SERVICE

RESET TT Soft system re-boot

MEM CLEAR Clears presets to factory defaults and erases any RAM-based OS

BURNIN TC

BURN-IN TC (Src) Selects Port for on-screen display

Column (0-219) Moves burn-in from left to right on-screen

Line (0-139) Moves burn-in up and down on-screen

Size/Mode (OFF, 1-8) Selects display format for burn-in

Bottom TC

Selects source Port for lower TC display in LCD window.

Top TC

Selects source Port for upper TC display in LCD window.

SHORTCUT: Pressing the **UP** or **DOWN** keys while holding any Port key displays that Port in the top or bottom LCD timecode readout, respectively (see Figure 2-2).

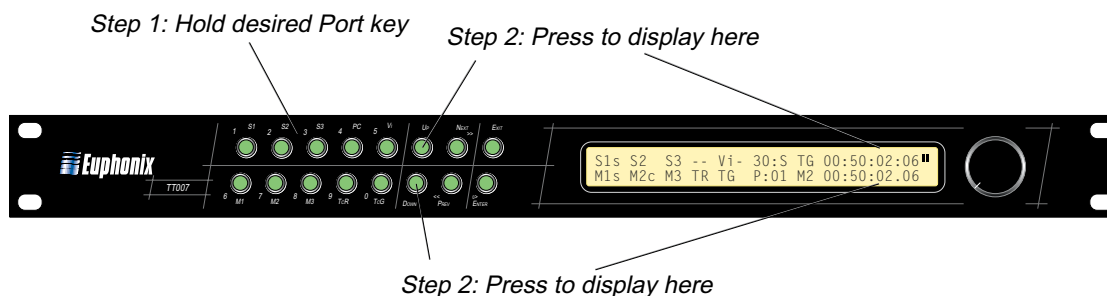


Figure 2-2 Front panel usage

NudgeMode Select

In Transport Mode, the Data Wheel functions as:

JOG Jog Wheel (movement in single-frame steps)

SHUTTLE Shuttle Wheel (scan speed control)

CS3000/2000 owners: From the DSC, enter Jog by toggling the [\triangleleft] key until it flashes. Enter Variable Shuttle by toggling the [\triangleleft] key until it is solid. Both functions use the Spin Knob as the machine control interface when active.

WindSpeed Adjust

Selects scan speed rate in the range 001–010. This setting applies to machines that support a threaded (heads engaged) vs. unthreaded (heads disengaged) wind mode. The higher the WindSpeed number, the faster the machine will scan in threaded wind mode. This setting is stored with the Preset.

If set OFF, FF and Rew commands are always unthreaded. If set to any non-zero value, the first press of a FF or Rew key initiates a threaded wind (scan). A second press of the same key initiates an unthreaded wind. A third press of the same key toggles back to a threaded wind, etc.

REV Play

OFF Reverse Play disabled

ON Reverse Play enabled; press Play immediately after Rew to initiate Reverse Play

REC Safe

This is the global master Record Safe switch for the TT007 and all ports are configured by this selection:

OFF Record Ready; any port may receive Record commands

ON All Safe Mode; record commands will not pass out to any device

Re-Direct

Selects a port, other than the Master, to receive track arming and record commands:

OFF

M1

M2

M3

S1

S2

S3

2.4 Presets Mode Menu

Presets Mode is very powerful for users who require flexibility in machine control set-ups. Up to 50 presets can store different port assignment configurations. Each preset can be named for easy identification.

To access the Presets Mode from the Port Assignments Display:

1. Press any Menu key.
2. Scroll through the list with the **PREV** and **NEXT** keys until **PRESETS** is displayed.
3. Press the **ENTER** key.

Presets Mode has three functions:

Recall	Recalls currently selected preset number upon pressing ENTER
Rename	Renames the current RAM preset
Store	Stores the current configuration into the selected preset number upon pressing ENTER

Recalling a Preset

Select Recall with the **PREV** and **NEXT** keys. Use the Data Wheel to select the desired preset by name or preset number. Confirm the selection and recall the preset with the **ENTER** key.

SHORTCUT: Use the Port keys as a fast way to access presets. From the Recall Menu, press a Port key to recall the corresponding Preset number (1-10).

Renaming a Preset

Select Rename with the **PREV** and **NEXT** keys. Use the **UP** and **DOWN** keys to move the cursor and the Data Wheel to change the selected character. There is no need to confirm the new name; **ENTER** has no function in this screen.

Renaming affects only the current preset in RAM. A renamed preset may be stored to its original preset number or another location using the Store function.

Storing a Preset

Select Store with the **PREV** and **NEXT** keys. Use the Data Wheel to select the desired preset number, then press **ENTER** to select that number. You will then be asked to confirm the selection by pressing the **UP** key. The current configuration is written to the selected location in RAM (battery backed-up).

Individual machines may be controlled independently simply by creating presets that identify only a single port. Groups of machines may be configured in the same manner. Those presets may then be instantly recalled from the console to control the entire network, a group, or individual machines.

NOTE: *Turning on MSTR CTRL recalls the current preset number lit on the DSC. Any TT007 configuration not saved to a preset will be lost.*

Figure 2-3 shows some examples of TT007 preset setups.

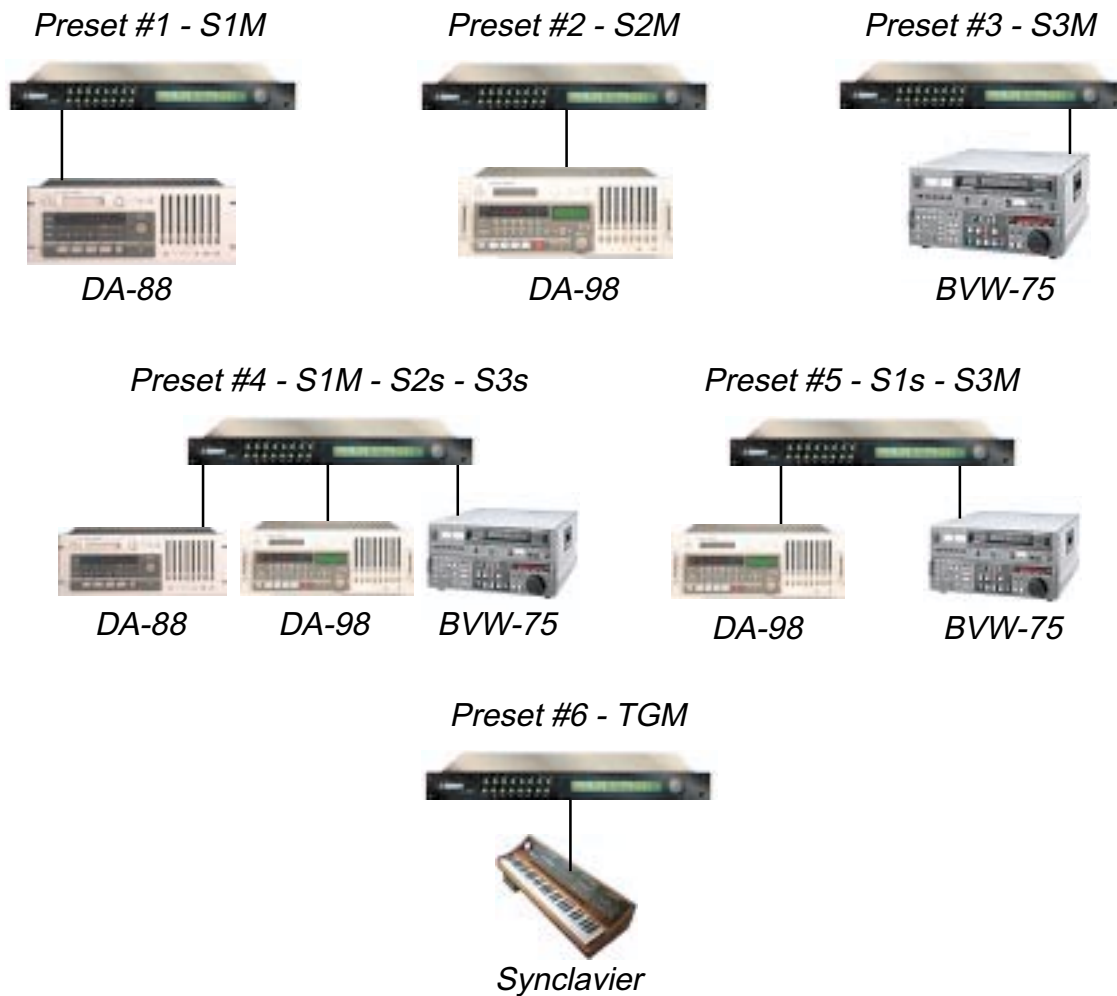


Figure 2-3 TT007 preset examples

Parameters Stored in Presets

- Port Assignments (Master, Controller, Slave, LynxNET, EsBUS)
- LynxNET Master and On-line selections
- Video Reference (Resolve/Free run)
- Timecode Frame rate
- Video Standard
- Port selections for LCD Window timecode displays
- Burn-in Window Port selection
- Master Port Record Mode (Edit/Assemble/OFF)
- Slave Port Type
- Slave and Master Offset values

2.5 Transport Mode Menu

Any machine in the network can be controlled from the TT007's front panel. To access the Transport Mode from the Port Assignments Display:

1. Press any Menu key.
2. Scroll through the list with the **PREV** and **NEXT** keys until **TRANSPORT MODE** is displayed.
3. Press the **ENTER** key.

When the Transport Mode is entered, the Port currently defined as Master is automatically selected. The Menu keys have the functions shown in Table 2-3. The machine's transport state is indicated to the right of the timecode display.

Table 2-3 Function and LCD symbols for front panel keys

Key	Function	LCD Symbol
ENTER	Play / Stop	▶ /
<<	Rewind / Scan	« / ←
>>	Fast Forward / Scan	» / →
Data Wheel	Jog / Shuttle	← or →

Chapter 3: Configurations

Before attempting to synchronize multiple machines, you must:

- be familiar with all basic TT007 functions discussed in the previous sections;
- have a basic understanding of synchronization and machine control.

3.1 Euphonix as Master Machine

In the recording industry, many devices cannot generate their own timecode and rely on incoming LTC to synchronize. The many workstations, sequencers, consoles, and automation systems that fall into this category are known as *code-only slaves*. A problem arises when neither the audio source nor the mixing console can generate timecode. The solution is to add a third machine with the sole function of providing timecode to the other two devices.

Both the System 5 and CS3000/2000 series consoles are designed to control the TT007 as a seamless extension of the Euphonix system. All TT007 functionality is available to the mixer as if it were actually embedded in the console. In such a situation, the console becomes a *virtual machine*.

3.1.1 LTC

A simple application for this additional functionality uses the Euphonix system to generate LTC. To use the Euphonix system as the LTC master, consult Figure 3-1 for parameter settings and configuration.

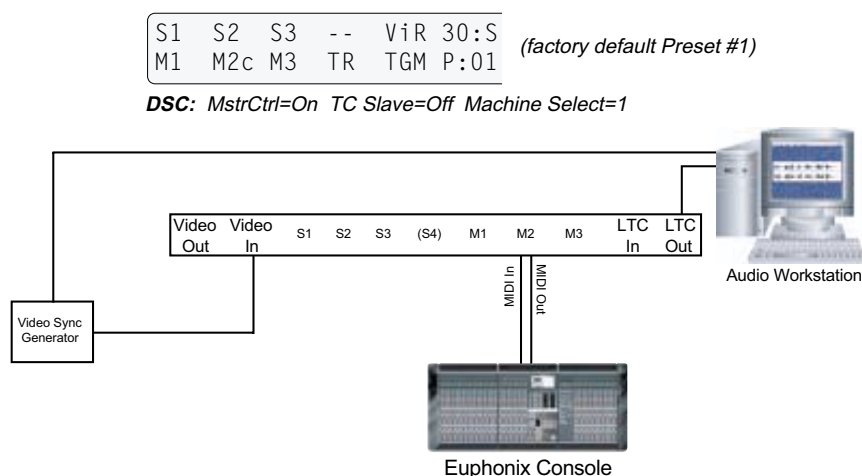


Figure 3-1 LTC Master parameter setting and configuration

Notice that the console is connected to the M2 Port; this is a standard system connection. By default, every TT007 preset pre-assigns M2 as a controller so the console is always on-line and able to drive the machine control system.

3.1.2 Serial

Synchronizing audio and video is a common and useful application for the TT007. The Euphonix machine control system can access three separate video decks using standard Sony P2 serial control. The following preset slaves a video machine to Euphonix-generated timecode connected on S1.

```
S1s S2 S3 -- ViR 30:S (factory default Preset #2)
M1 M2c M3 TR TGM P:02
```

DSC: MstrCtrl=On TC Slave=Off Machine Select=2

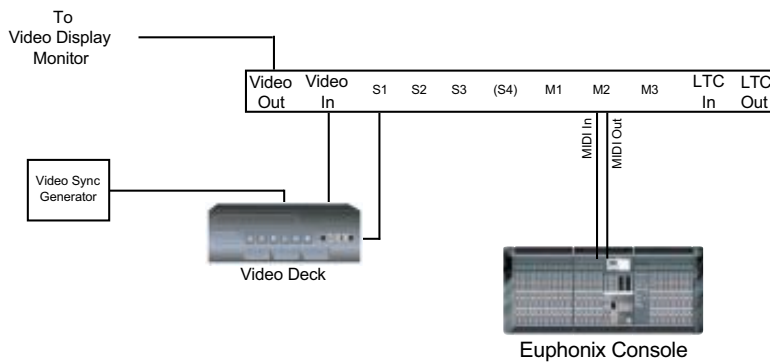


Figure 3-2 Video machine slaved to Euphonix console

3.1.3 MIDI

Many sequencers use MIDI Machine Control (MMC) and MIDI Time Code (MTC) for synchronization instead of SMPTE/EBU timecode. The Euphonix system provides a tremendous benefit to a studio by converting SMPTE/EBU to MTC, which allows MTC machines to follow SMPTE/EBU synchronization networks. Figure 3-3 shows how to slave an Audio Workstation on the M1 port to the Euphonix System.

```
S1 S2 S3 -- ViR 30:S (factory default Preset #3)
M1s M2c M3 TR TGM P:03
```

DSC: MstrCtrl=On TC Slave=Off Machine Select=3

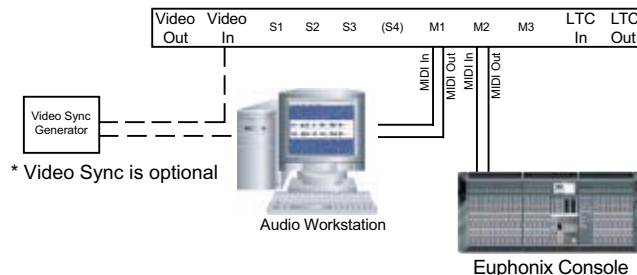


Figure 3-3 Audio Workstation slaved to Euphonix console

3.1.4 LTC/Serial/MIDI

The Euphonix system can control a group of slave machines as easily as a single slave. Figure 3-4 shows three machines slaved to the Euphonix system simultaneously.

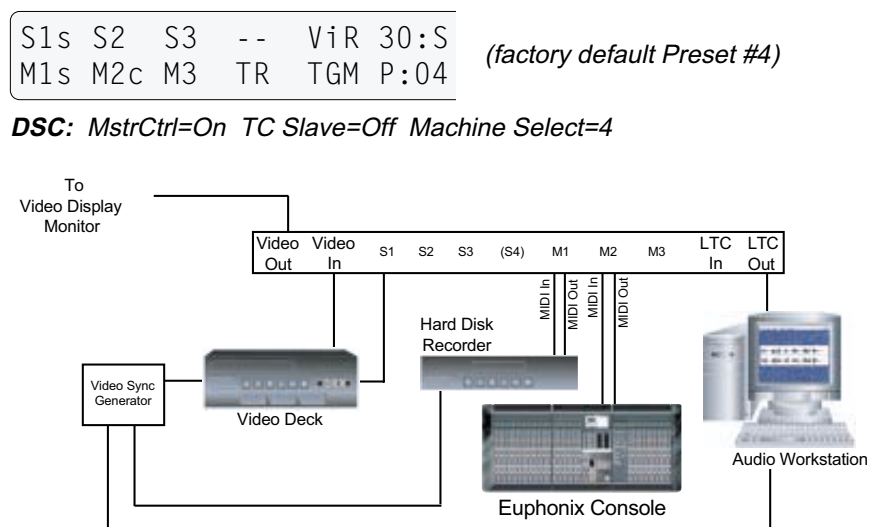


Figure 3-4 Audio Workstation, video deck, and hard-disk recorder slaved to Euphonix console

3.2 Euphonix As Slave Machine

3.2.1 Serial

Most video post applications prefer using the video machine as the master sync source. The Euphonix system can easily slave to serial timecode on any of its 9-pin Ports. Preset 5 configures the S1 Port as Master (Figure 3-5).

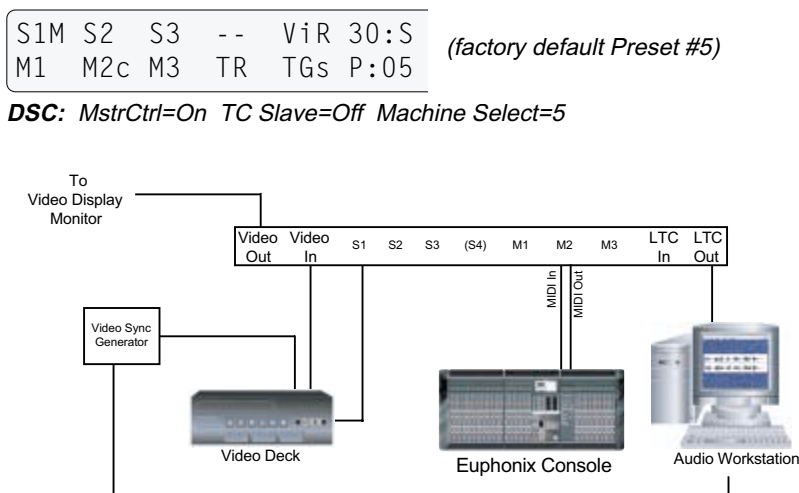


Figure 3-5 Euphonix console slaved to video machine

In addition to simply slaving to timecode, however, the Euphonix system can also act as the machine transport controller for the Master video deck. Even though the Euphonix console is a slave to incoming timecode, it can still use its transport controls to drive the master machine. Play/Stop/Locate commands issued from the console are received by the master synchronization device, which then sends timecode to all machines on the network. This is extremely powerful because all the console's locate functions are available for every machine in the studio without having to move from the console: named locate points, automatic cycling, jog, variable shuttle, threaded vs. unthreaded winding, and remote punch-ins.

3.2.2 Large Network (Serial/MIDI/LTC)

Figure 3-6 shows a typical large-scale installation that demonstrates the power of a Euphonix studio.

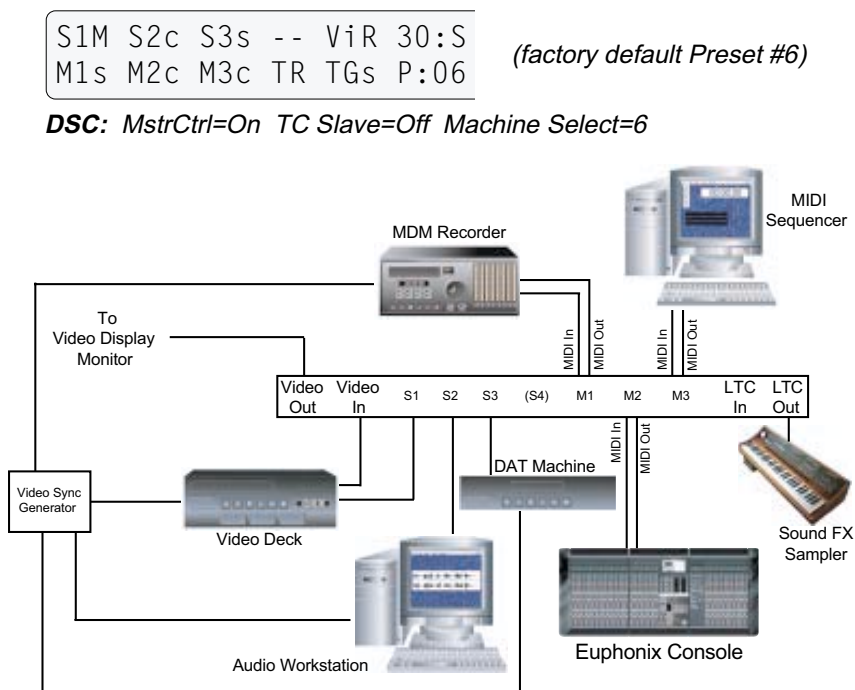


Figure 3-6 Euphonix console slaved in a large network

Note that S2 is a controller, which means that not only does it chase the serial timecode, but it also sends machine control commands to the master. M3 is also a controller, which provides control to the network operator from four locations: the master deck, the Euphonix console, the dialog workstation, or the music sequencer.

3.3 TcR as Master with Serial Control

Many older video decks do not provide timecode on their serial control cable, which is used only for machine control. The Euphonix system allows these machines to act as the Master by reading its audio LTC timecode track at the TcR Input Port.

```
S1M S2 S3 -- ViR 30:S
M1 M2c M3 TRm TGs P:04
```

DSC: *MstrCtrl=On TC Slave=Off Machine Select=Setup Required (1-6)*

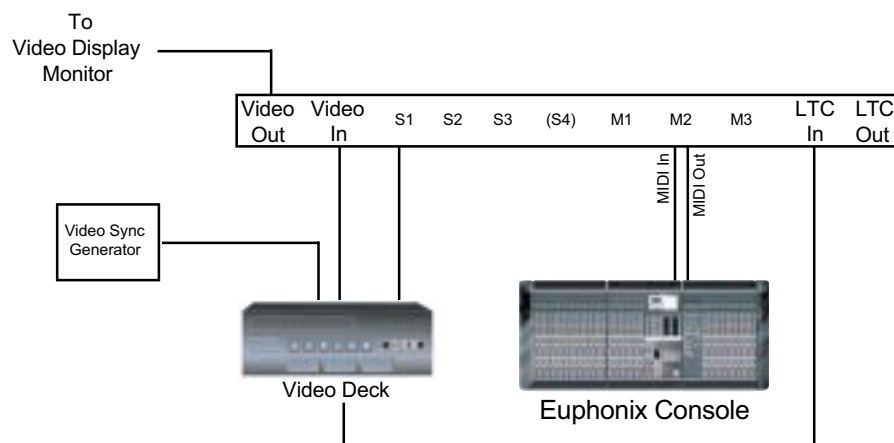


Figure 3-7 TcR as Master

Play/Stop/FF/Rew commands are issued to the master machine via the 9-pin connection, and the synchronization timecode is then sent back from the TcR Port. This configuration is also useful when regenerated (offset) code is desired as the synchronization source. The **From Master** option on the TT007 allows reading code from MIDI Masters when LTC has been recorded on an audio track of an editor or MDM.

3.4 LynxNET as Master

The Euphonix system can address eight machines using the TimeLine Lynx protocol. S1 can be configured as the interface Port to the LynxNET. Any machine on the LynxNET may be assigned as Master for the entire TT007. We recommend that the master Lynx module feed timecode to the TcR Port using the **From Master** option to ensure accurate synchronization if video is not present.

```
S1T S2 S3 -- Vi 30:S
M1 M2c M3 TRm TGs P:05
```

DSC: MstrCtrl=On TC Slave=Off Machine Select=Set-up Required (1-6)

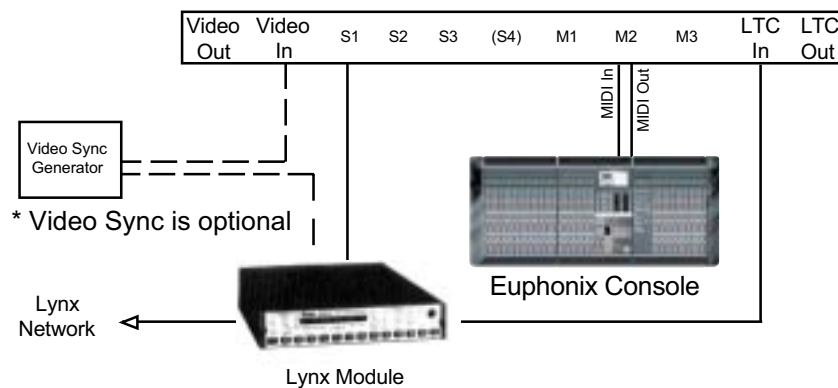


Figure 3-8 LynxNet as Master

Appendix

A.1 Frequently Asked Questions

Why does my TC generator not run when I hit play?

- It is not configured as a Master or Slave.
- It is set to video resolve but no video sync is being received

Why does the master machine selection keep shutting off?

There can only be one master machine, so when you configure a new port as Master, any port previously designated as Master automatically toggles OFF. This may happen unintentionally while passing through the master selection for a port while intending to configure it for some other setting.

Why does the video sync selection keep shutting off?

The TcR (Timecode Reader) and Video sync are mutually exclusive, i.e., the TT007 can only use one of them as a reference. When either is selected, the other automatically toggles OFF.

Why does the TC reader keep shutting off?

See above.

What is the difference between a Master, Slave and Controller?

See *Explanation of Controllers* on page 30.

Why are my presets gone?

Replacing the system software Eprom and/or selecting **MEM CLEAR** from the Service submenu erases system presets.

Why is there no timecode at the desk but I see it on the TT007 display?

The Timecode Generator is not set to Slave. TC should be set to slave in all cases unless it is configured as a master.

Why won't my slave chase (P2-to-P2 mode)?

- Check that all machines are video referenced.
- Be sure that you have selected an appropriate slave type in the Type sub-menu.
- Be sure the device does not require a controller-to-controller Tx/Rx pin swap. See *Cable Pinouts* on page 41.

Why won't my Lynx modules lock?

- Be sure each module has a unique address number.
- Be sure LTC from the Master is being sent to the TcR port and that the port is selected as **From Master** if no video sync is present.
- Be sure that the Lynx modules are running current software versions. Euphonix has tested the TT007 using the following software versions:

Lynx I: v500_26L

Lynx II: v700_11

Why does the video sync LED light even when video is not connected?

This is caused by a sensing bug in the video reader chip that, in some cases, confuses open air RF as a video signal. Cycling the TT007's power on/off usually clears the erroneous indication.

Why am I having problems making my MicroLynx / Audio Kinetics synchronizer work with the TT007?

These synchronizers are not yet supported.

How can I adjust the LCD viewing angle contrast on my display?

There is no software-based control for this feature. There is an adjustment potentiometer inside the TT007 on the main circuit board next to the front panel connectors.

Why does my video deck not unthread the tape and high-speed wind when I select Rew/FF?

The Windspeed option is selected in the TT007 Utility Menu. With this option set, the first press of Rew/FF will result in a threaded Scan and the second press will unthread the tape and initiate a high-speed wind.

A.2 Explanation of Controllers

The RS-422 ports on the TT007 are wired (normalised) to send (Tx) and receive (Rx) data to and from tape-based machines. To connect any device to the TT007, use a standard, straight-thru, pin-to-pin cable. The TT007 may also emulate a device simply by swapping the Tx and Rx lines of the RS-422 cable. In this configuration, the TT007 may be considered a *virtual machine*.

A.2.1 Examples of Devices, Controllers, and Emulators

Table A-1 shows examples of devices and controllers. A machine that can act as both a device and controller is defined as an *emulation device*. They are particularly well suited to work with the TT007 because they can be an on-line audio member of a group while acting as an additional controller in the network. The diagrams below illustrate various TT007 configurations and the cabling required.

Table A-1 Devices and Controllers

Machine	Device	Controller
J.L. Cooper CS-10		X
J.L. Cooper MCS 9-pin		X
Sony Video Controller		X
Sony BVU-950	X	
Doremi Labs V-1	X	
Tascam DA-88/98	X	
Sonic Solutions SonicStudio	X	X
Otari Radar	X	
Opcode StudioVision	X	X
Logic Audio	X	X
TT007	X	X

TT007 as Controller

Figure A-1 shows an example of typical single-machine remote control from TT007 using normal Tx/Rx cable pinout wiring.

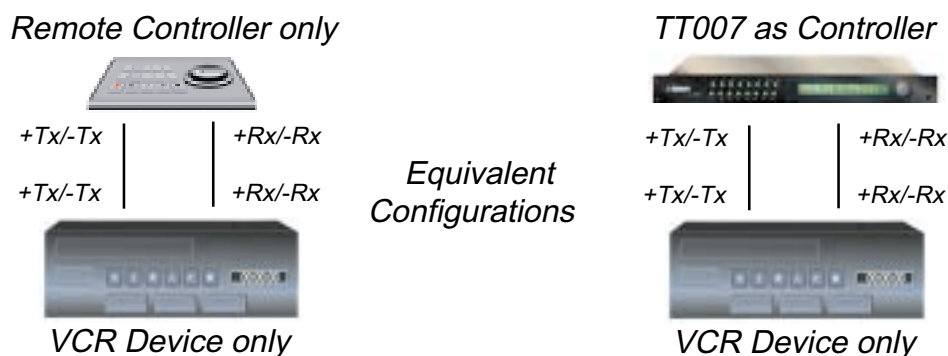


Figure A-1 TT007 as controller

TT007 as Device

Figure A-2 shows a typical *virtual machine* configuration with the TT007 serving as random access TC Generator to drive sequencers and/or DAWs; uses reverse Tx/Rx cable pinout wiring.

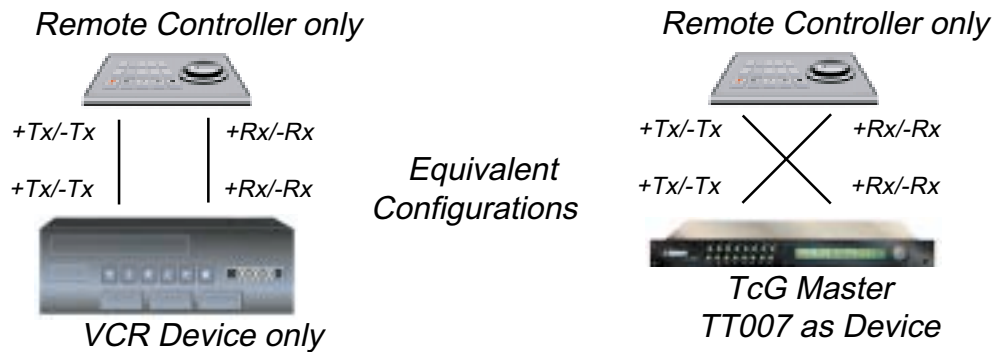


Figure A-2 TT007 as device

TT007 used as Secondary Controller

Figure A-3 shows an expanded control configuration that allows two Controllers simultaneous control of a single Device; uses reverse Tx/Rx cable pinout wiring.

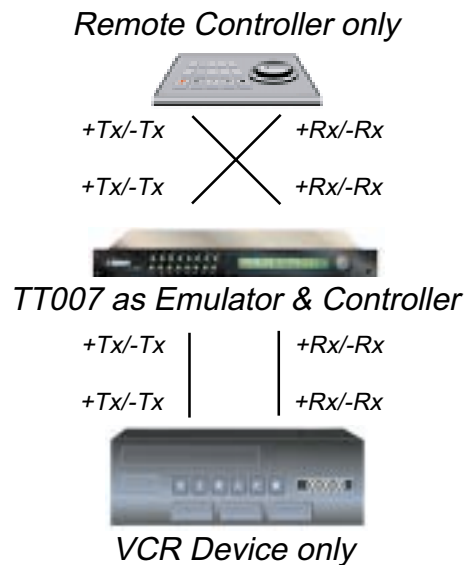


Figure A-3 TT007 as secondary controller

TT007 as Multiple Controller Hub

Figure A-4 shows a configuration that takes advantage of the TT007's unique ability to accept and translate commands from multiple controllers to a single master device. Any one of the four controllers in the network can operate the transport on the tape machine. Uses reverse Tx/Rx cable pinout wiring.

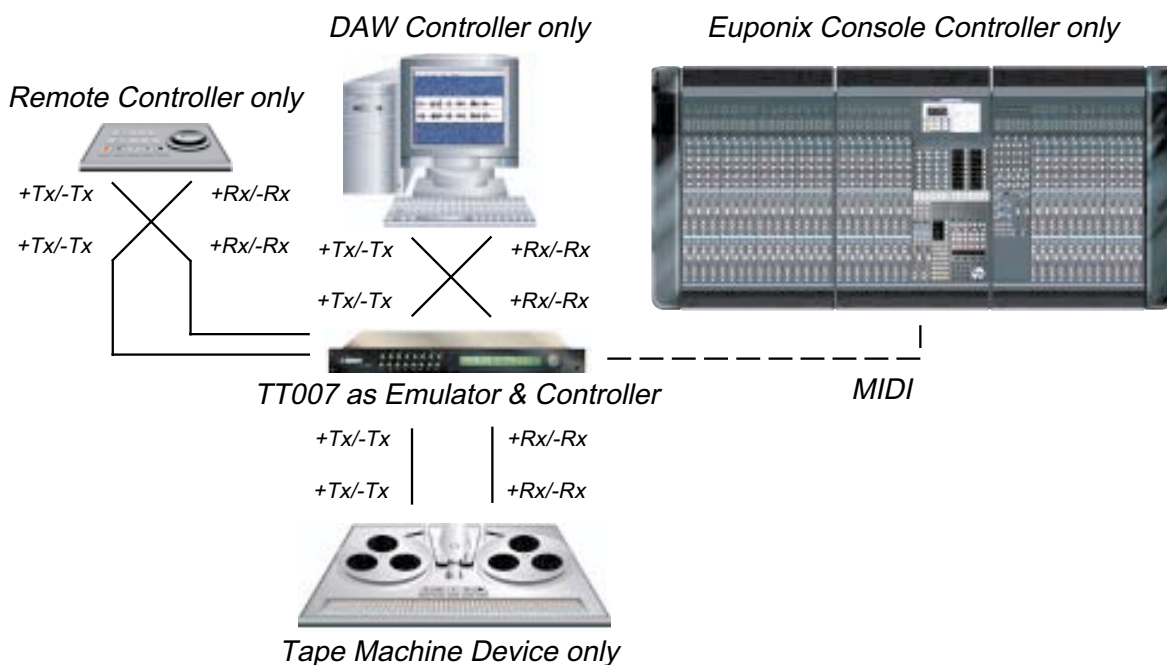


Figure A-4 TT007 as multiple controller hub

For additional system configurations, see Chapter 3: *Configurations*.

A.3 MIDI Operation with Pro Tools

A.3.1 OMS MIDI Setup

Configure settings according to those set in the following dialogs.

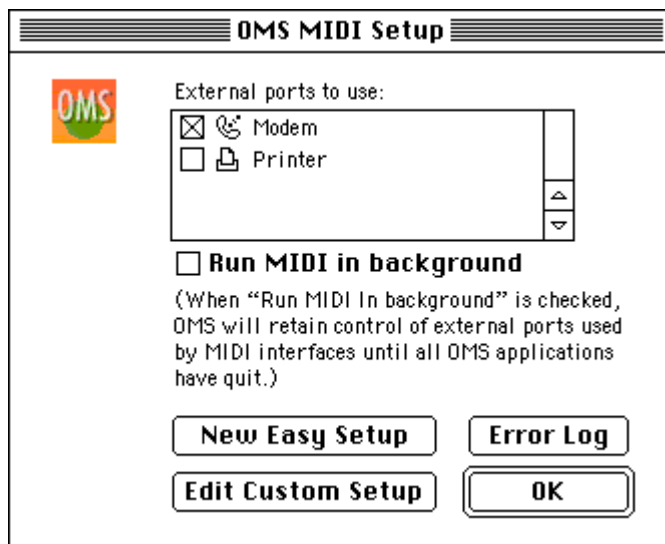


Figure A-5 OMS MIDI Setup

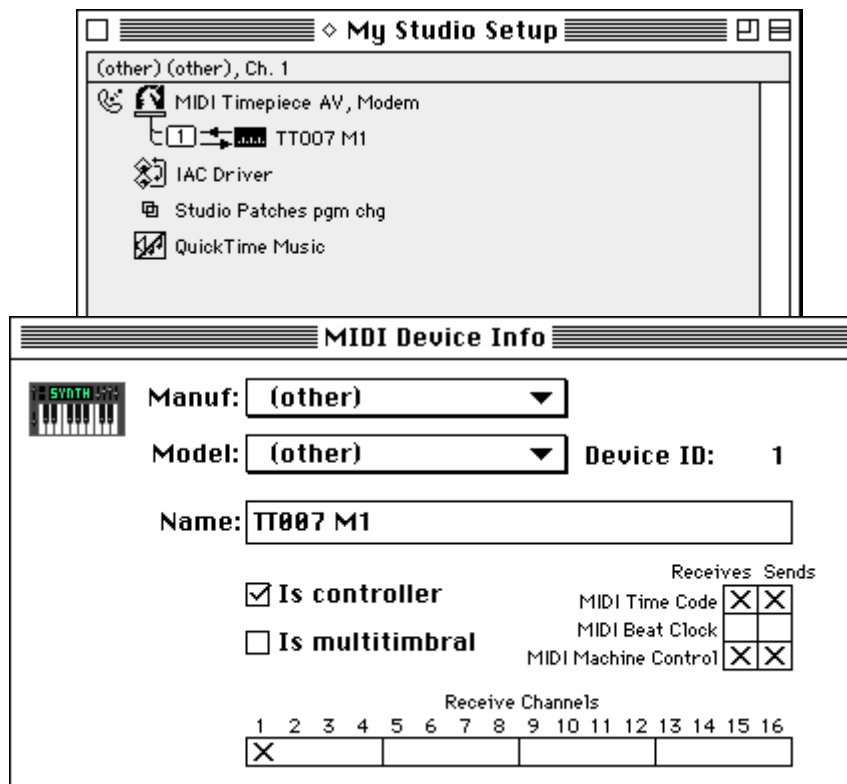


Figure A-6 OMS Studio Setup and MIDI Device Info dialogs

A.3.2 Pro Tools as Master

In the Synchronization tab of the Pro Tools Peripherals dialog (Figure A-7), select the **Enable Control of Pro Tools via MMC** checkbox. Configure other settings according to Figure A-7.

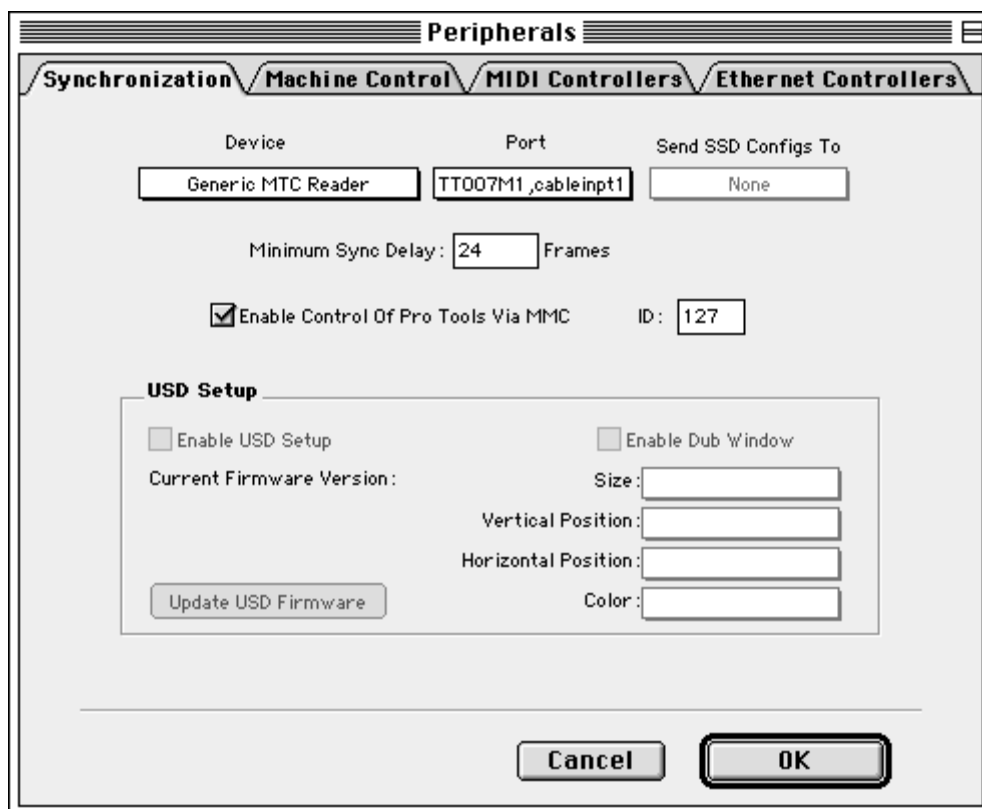


Figure A-7 Synchronization tab in the Pro Tools Peripherals dialog

On the TT007, set the MIDI port to: **MTC only** and **Master**.

This setup will not permit track-arming from the console but will allow recording to be initiated from the console. There is no record tally. For these reasons, this setup is not recommended. If you need these functions, see Section A.4.2 - *ProTools (9-pin Remote) as a Serial Master or Slave*.

A.3.3 Pro Tools as Controller

In the Synchronization tab of the Pro Tools Peripherals dialog (Figure A-7), deselect the **Enable Control of Pro Tools via MMC** checkbox.

In the MIDI Controllers tab, configure the settings as shown in Figure A-8.

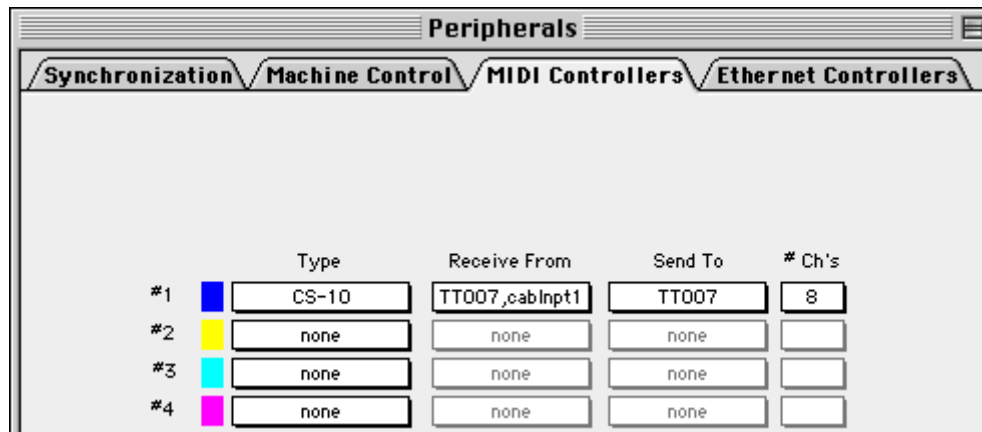


Figure A-8 MIDI Controllers tab in the Pro Tools Peripherals dialog

In the Transport Control, set the Transport menu to **Pro Tools** (Figure A-9).

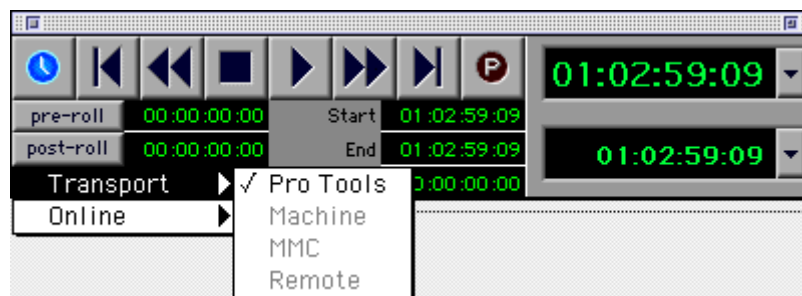


Figure A-9 Pro Tools Transport Controls

On the TT007, set the MIDI port to **Controller**. This setup will not allow track-arming from the console but will allow recording to be initiated from the console.

A.4 9-Pin Operation with ProTools

A.4.1 OMS Setup

Deselect the Modem port in the OMS MIDI Setup dialog (Figure A-5).

A.4.2 ProTools (9-pin Remote) as a Serial Master or Slave

To control Pro Tools from the TT007, configure Pro Tools as follows:

1. Set the Machine Control tab in the Peripherals dialog as shown in Figure A-10.

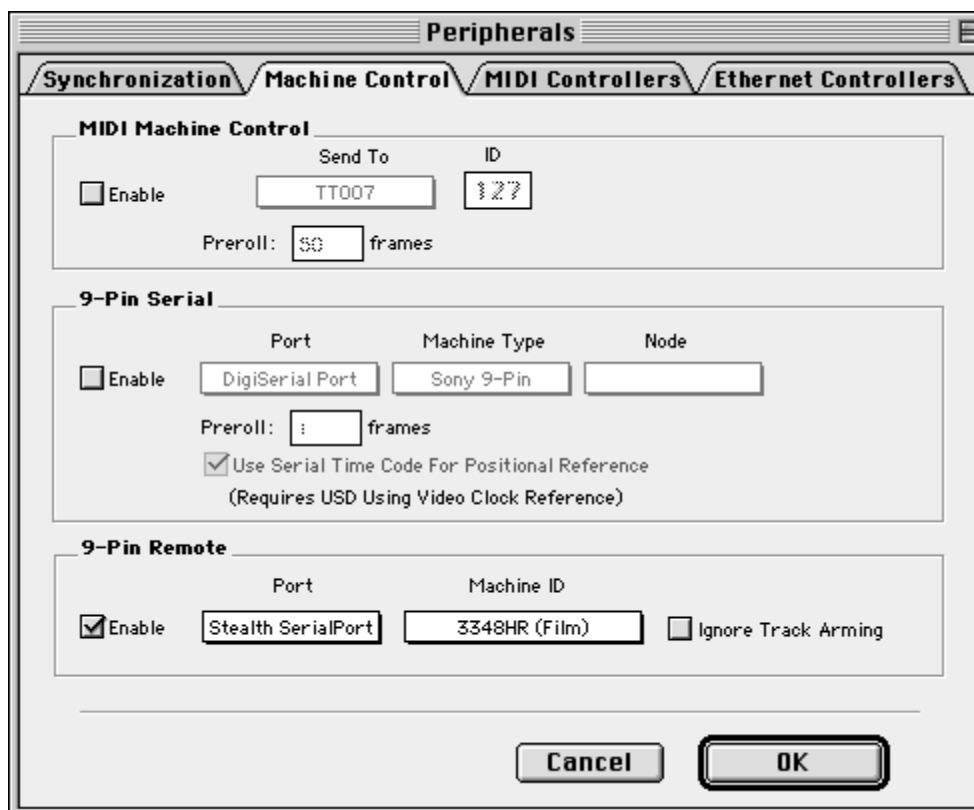


Figure A-10 Machine Control tab in the Pro Tools Peripherals dialog

2. Click the clock on the upper-left of the Transport Control so it highlights (as shown in Figure A-9). This sets Pro Tools **Online** and relinquishes local control.
3. Select the **Remote** option from the Transport Control's Transport menu.

Track-arming (only when Pro Tools is stopped) and record are functional but **Quick Punch** must be selected.

Track tallies are turned off while Pro Tools is in record so check the ProTools screen for track status. The TT007 can fake tallies, but if arming is changed while Pro Tools is in motion, the console tally states will be out of sync.

On the TT007, set:

- Stop = **Stop**
- Arming = **On** or **48 no tallies**

Use the Pro Tools remote mode 9-pin cable shown below. A serial control 9-pin cable or v-LAN configuration will not work

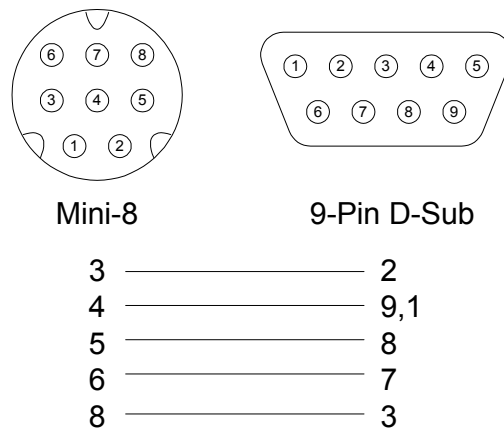


Figure A-11 Pro Tools Remote Mode 9-pin cable

A.5 Operation with a 3324, 3348, or 3348HR

Master (Word Clock)

1. For System 5, connect the word clock from the SH612 to the 3348.
2. Connect the 3348 to the TT007's serial port.
3. Set the port to **Master**.
4. Set the machine type to **TC in Play**.
T/C from Master will be active.
5. Connect the LTC from the 3348 to the TT007's TcR.

If the tape was striped to a video reference:

- the machine type can be set to **Normal**;
- TT007 should be video referenced;
- LTC is not needed.

Master (Video Sync)

1. Connect video sync to the 3348 and the TT007.
2. Connect the 3348 to the TT007's serial port.
3. Set the port to **Master**.
4. For System 5, connect the word clock from the 3348 to the SH612.
5. Set the SH612 to **Reference Word Clock**.

Slave (Word Clock)

1. For System 5, connect the word clock from the SH612 to the 3348.
2. Connect the 3348 to the TT007's serial port.
3. Set the port to **Slave**.
4. Set the machine type to **33xx**.

Slave (Video Sync)

1. Connect video sync to the 3348 and TT007.
2. Connect the 3348 to the TT007's serial port.
3. Set the port **Slave**.
4. Set the machine type to **33xx**.
5. For System 5, connect the word clock from the 3348 to the SH612.
6. Set the SH612 to **Reference Word Clock**.

If record and track arming control is needed when running as a slave, set **Re-direct** to the machine's port.

NOTE: *The Sony 3348HR used for testing did not accept Track Arm and Record commands simultaneously. From the System 5 Main panel, **Machines** -> **Setup** -> **Track Arm in Motion** should be set to **Arm Only**.*
