Introduction

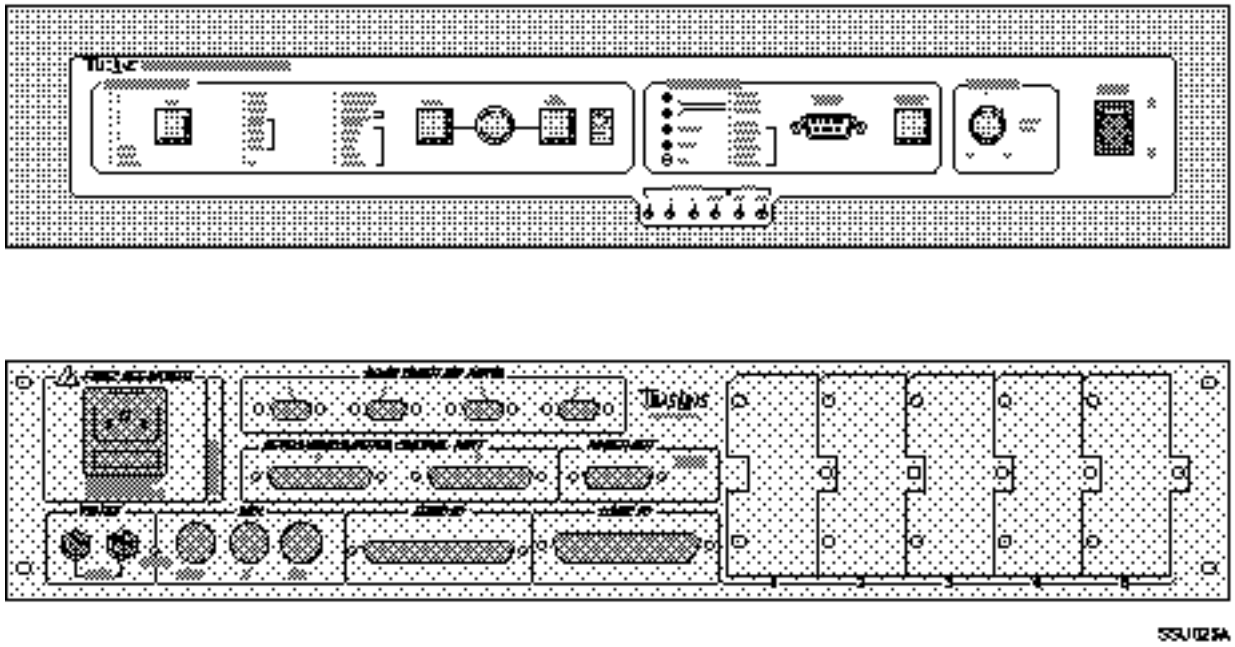

Figure 1-1. System Supervisor Unit Front and Rear Panel

The Lynx System Supervisor Unit (SSU) is a sophisticated communications interface, for integrated control of a variety of devices used in audio and sound post-production environments.

The SSU's primary design goal is to simplify the process of controlling a complex post-production system, from an external controller or computer. The SSU assumes the workload of all high-speed data communications necessary to control and synchronize tape machines and film transports, via Lynx-2 and Lynx Time Code and Film Modules.

The SSU provides a variety of additional control facilities including, but not limited to, eight GPI relays, four annunciator outputs, three externally controllable time code outputs, multiple remote controller connections, and MIDI Time Code output. This manual's Application section outlines several connection diagrams, showing examples of these features.

Features

- Computer Control Ports for simultaneous connection of multiple controllers, such as; Lynx Keyboard Control Unit (KCU), Console Control Unit (CCU), Console Computers and remote keyboard switch panels.
- Software defined RS422 tributary ports allow control of six machines per port. (Two ports currently available.)
- ADR Dialogue beep and countdown annunciator outputs, for flexible talent cueing.
- Eight GPI relays provide contact closures that can be used to start “wild” ATRs, tape cartridges, turntables, CD players, etc.
- Three system locked SMPTE/EBU time code generators for programmable control of time code driven devices and systems (Virtual Machine Control).
- A MIDI port provides system locked MIDI Time Code (MTC).
- SSU controlled by industry standard ES-Bus control protocol.
- Direct control of SSU from existing audio console automation systems (Neve, SSL, etc.).
- Parallel remote control connector allows external switch closures to operate machines, and provides status tallies.
- Five expansion slots for installing additional hardware.
- Universal serial port expansion card for additional controllers or tributary ports.
- Front panel indicators and test points provide serial system diagnostic access.
- Front panel terminal connection for enhanced serial system diagnostics.

Special Interface Options

- Neve Flying Faders Automation System control port.
- Option card available for direct cable connection to SSL G Series studio computer.
- Communications Port expansion card with one control port and one trib port.
- TimeLine Remote Motion Controller Kit, provides remote machine control in addition to KCU and/or CCU control.
- Jog wheel interface kit.

System Overview

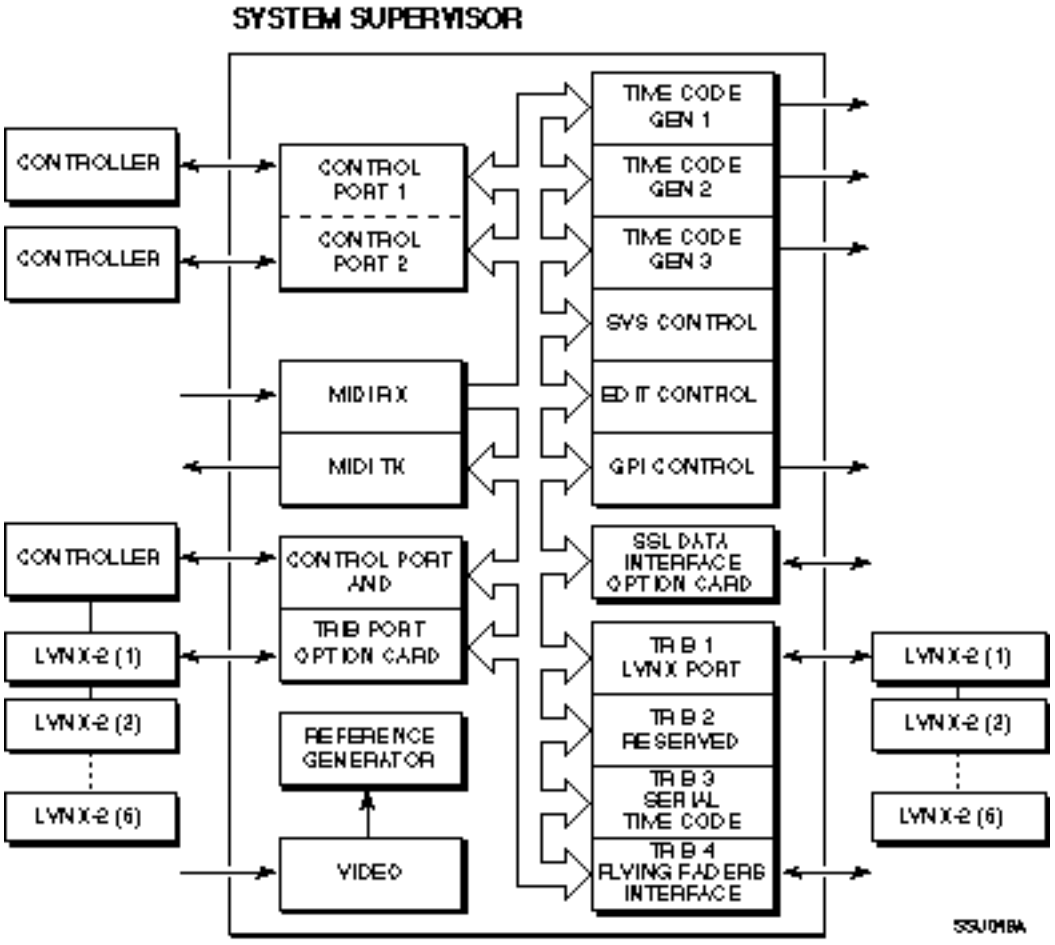

Figure 1-2. System Overview

System Supervisor Unit

The attraction of the SSU lies in its ability to easily expand it's features and controls, to keep pace with a facilities development. An installation may only require simple GPI outputs to control cart, CD, or computer devices; or may require integration with a Console Automation System, and MIDI time code out for MIDI sequencer synchronization. Large post-production console applications may require integration of multiple controller positions for the KCU and/or CCU, allowing several persons to address the machine group simultaneously. In each of these applications, the system can be quickly expanded because all communications to and from the KCU, CCU, Lynx modules, Remote Motion Controller and computer automation systems are routed through the SSU or simple serial cables.

Lynx-2 Time Code and Lynx-2 Film Module

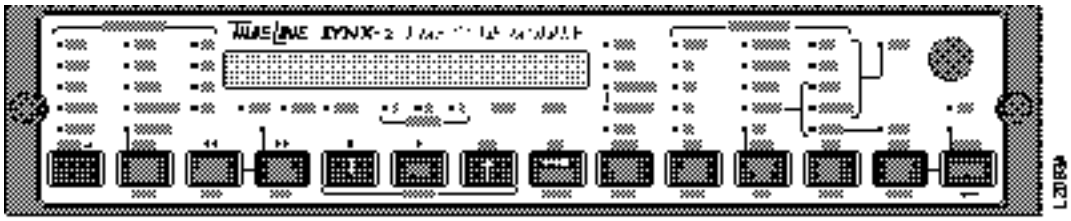

Figure 1-3. Lynx-2 Module

Lynx-2 Time Code Module

The Lynx-2 Time Code Module is a high performance product, based on the renowned Lynx module. The Lynx-2 is the building block processor in any TimeLine synchronizer system providing, as standard, a gearbox processor and serial transport control. A Lynx-2 system employs one Lynx-2 per machine, daisy-chained together with 9-pin RS422 serial data cables. Each module includes a wideband time code reader, a multistandard SMPTE and MIDI time code generator, a tape machine synchronizer and a standard RS422 serial communications port.

In a controlled system, the Lynx-2 software permits a tape machine to be directly connected to a video editor, a digital audio workstation, a TimeLine Keyboard Control Unit (KCU) or console automation system via the SSU.

Machines are interfaced by plugging in the correct cable and selecting the machine from the transport table - there are no internal adjustments. When a machine is selected, all operational parameters are automatically configured by the internal processor.

Lynx-2 Film Module

The Lynx-2 Film Module is a machine control device for use with pulse-interlock film transports (film dubbers, projectors and telecines). By using a Lynx-2 Film Module, a film transport or an interlocked film chain can be interfaced to a wide variety of tape transports and editing systems, using standard SMPTE/EBU time code.

The Lynx-2 Film Module accommodates all known biphase frequencies and standard film frame rates. This universal capability can provide a convenient means of interfacing sprocketed equipment with different biphase or frame rate standards.

A Lynx-2 Film Module is nothing more than a Lynx-2 Time Code Module with the Film Option Card installed, permitting the user to select a film module operation or time code module operation, included in the same hardware.

Keyboard Control Unit

Figure 1-4. Keyboard Control Unit

The Keyboard Control Unit (KCU) provides extensive editing control for each Lynx-2 or Lynx Time Code Module connected to the system. The KCU is functionally designed to provide flexible control of the transports in group or solo modes. The KCU is also used to control the dialog beep function, events GPI relays, and time code generators in the SSU.

The KCU provides a complete operating menu for the SSU features, allowing access to System Reference changes, time code generator status, GPI relays, ADR beeps, machine “wild” or resolved modes, and system reset parameters.

Several KCU’s may be used together for large, post-production style dubbing operations. Each operator has direct control of the entire operating range of the KCU, including all machine transport functions.

KCU’s may be used in conjunction with the TimeLine Console Control Unit.

Console Control Unit

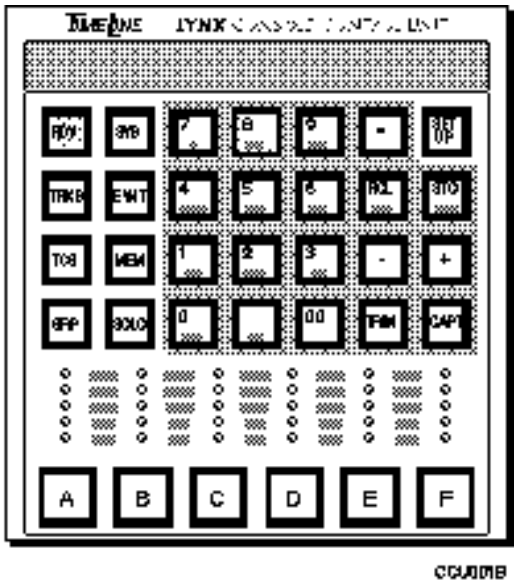

Figure 1-5. Console Control Unit

The Console Control Unit (CCU) is a keyboard input accessory for the SSU. This miniature controller is designed to mount in the faceplate of the mixing console. The CCU can handle up to six transports, and multiple CCU's may be connected to the SSU to provide expanded configurations for film dubbing multiposition consoles. Each operator has individual control of machine transport functions. A CCU may be used in conjunction with a KCU. Remote Motion Controller and Jog/Shuttle Wheel option kits for console mounting are available.

Remote Motion Controller

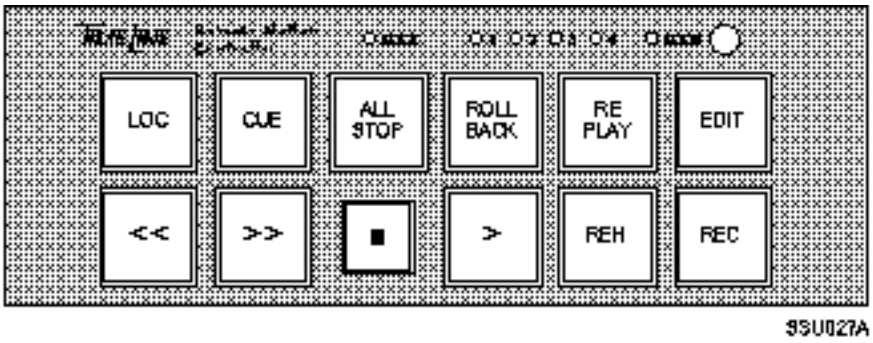

Figure 1-6. Remote Motion Controller

The Remote Motion Controller (RMC) provides the same motion control switches as the KCU. The RMC may be added to the SSU to provide an additional remote transport controller, or to provide machine control and editing features for a CCU/ SSU installation. When directly connected to the SSU, the RMC provides LED indications for ADR beep countdown and group lock. The RMC is available as a kit for mounting into a console or other remote location.

Jog/Shuttle Wheel

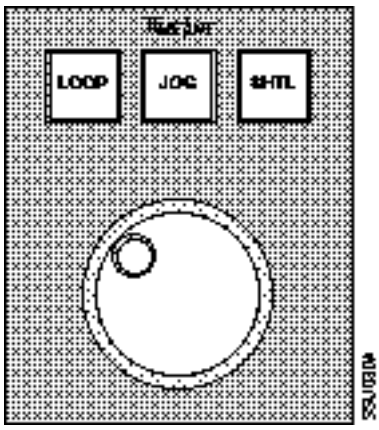

Figure 1-7. Jog/Shuttle Wheel

A Jog/Shuttle Wheel option kit is available for customer installation into several SSU applications. The Jog/Shuttle kit is designed to connect directly to the CCU or the SSU, SSL data interface option. Please refer to the Appendix for wiring information.

The Jog/Shuttle Wheel provides console top mounting, for CCU applications, and allows expansion of the Remote Motion Controller.

System Configurations

In its basic configuration the SSU provides expanded functions for the Lynx Keyboard Control and Console Control Units.

The KCU and/or CCU communicates with the SSU via the KEYBOARD/COMPUTER CONTROL PORTS. The SSU handles all of the real-time communications with the Lynx Modules and tape transports, via one or more of its RS422 TRIBUTARY PORTS.

The SSU can also be used as the central interface unit between a Lynx-2 synchronization system and a variety of computerized control devices, such as editing systems or audio console automation computers. In such a system, the external control computer has full control of all SSU and transport functions via a single serial communications connection.

SSL Console Interface Configuration

An alternate configuration of the SSU provides a “transparent” interface between a Solid State Logic G Series Master Studio System, and a Lynx synchronization system. This configuration of the SSU is designed to connect directly to existing G Series synchronizer control hardware.

The SSL Interface configuration of the SSU includes the Lynx SSL Data Interface, a plug-in option, which occupies one of the SSU's five hardware expansion slots, and four of the connector positions on the SSU's rear panel. Three of the four connectors provide direct plug-in connection to the existing SSL cabling from the Master Transport Control and Synchronizer Status panels on the SSL console, and a parallel data I/O port to the SSL computer. The fourth connector on the Lynx SSL Data Interface provides expanded control functions for a jog/shuttle wheel and VTR track selection.

The SSU with the SSL Data Interface option provides control protocol translation between the SSL and the Lynx Modules, and provides the appropriate transport status and tally signals to the SSL Console Computer and Sync Status panel. The SSU also provides the SSL Computer with resynthesized time code, tachometer, and direction signals.

The SSU software also allows for the simultaneous use of a KCU and/or CCU, with the SSL Interface.

Software Versions

The Lynx System Supervisor Unit incorporates multiple micro-processors, and there are several sets of software within the SSU. This manual describes the SSU's features and functions when fitted with the following software:

U61	Main processor software
U21	Timing generator software
U45	Tributary port software

As the SSU software is updated, any functional and operational changes will be covered in an addendum to this manual. The information on the title page of this manual indicates the date and designation of the latest software version covered by the manual and any included addenda.

Specifications

Time Code Generators

Operating Code	SMPTE (30 FPS NDF) SMPTE Drop Frame (30 FPS DF) EBU (25 FPS) Film Code (24 FPS)

Reference Sources

Internal Crystal	30, 29.97, 25, 24 Hz
Internal Timing	Crystal (±50 ppm)
External Video	30, 29.97 (NTSC Sync), 25 (PAL Sync)

Pilot Output

Output	Electronically balanced
Pilot Rate	48-60 Hz Sinusoidal signal
Signal Output	0-2 Vpp adjustable
Output Impedance	560 Ohms

Pilot Input

Input	Differential Input
Input Sensitivity	200 mV to 5 Vpp
Input Impedance	>10 KHz
Frequency Range	48-60 Hz ±15%

RS422 Trib Ports

RS422: 38.4 Kbaud and RS232: 9600 baud.

Front Panel

The front panel has the following characteristics:

Seven segment, single character display

Four selection keys

40 LED status indicators

Electrical

Mains Input	90-265 VAC at 50-60 Hz
Power Requirement	Approximately 10 W

VID Reference

Two BNC Female Connectors (internally looped to each other)

Sources: Properly terminated Color bars, Blackburst or Composite sync

Keyboard/Computer Control Ports (1&2)

25-pin, D-subminiature, female

The serial data on the Keyboard/Computer Control Ports is full duplex, balanced communications operating asynchronously at a standard transmission rate of 38.4 kilobits per second.

Power Out

+5 Volts, 20 amps max.

+12 Volts, 100 mA max.

-12 Volts, 100 mA max.

MIDI Communications

MIDI In, Out and Thru

31.25 Kbaud asynchronous

Option Cards

SSL Data Interface

Port Expansion Card

Mechanical

Dimensions	17 1/8”W x 3.5”H x 14.5”D
Weight	8 lbs, 0 oz
Shipping Dimensions	20”W x 6”H x 24”D
Shipping Weight	11 lbs, 0 oz