Chapter 7 System Unit

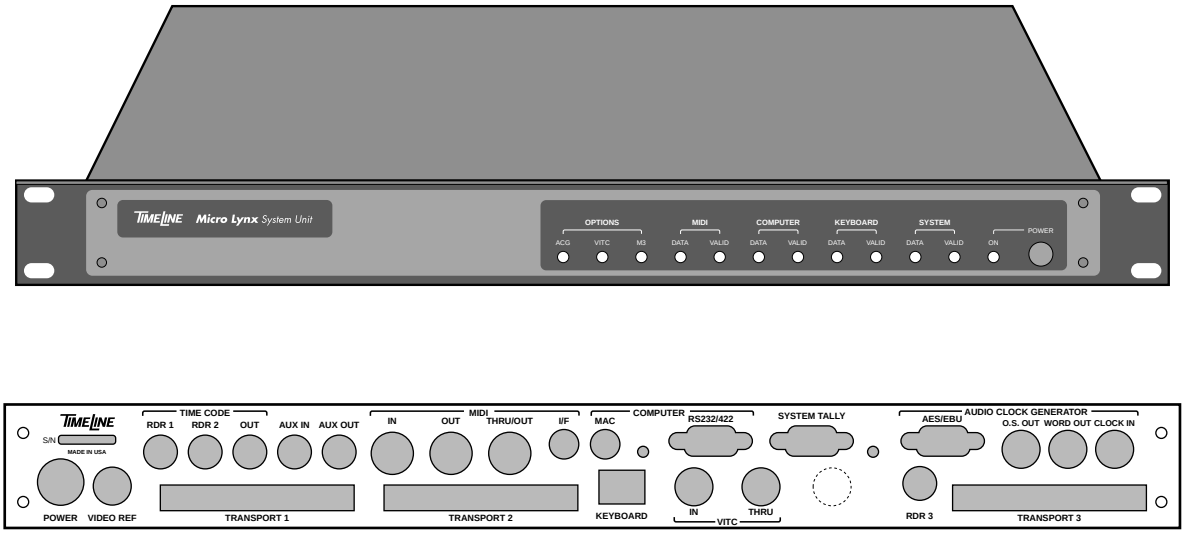
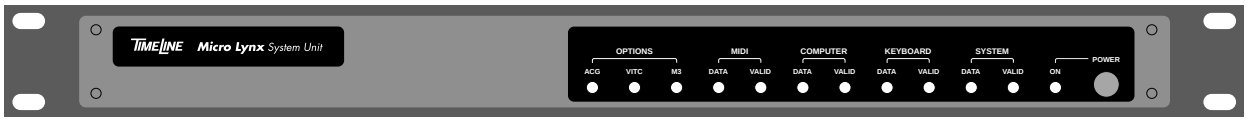


Figure Chapter 7 -1. System Unit

Introduction

The System Unit contains the main processors, software and control circuitry for Micro Lynx. It oversees all of the operator selected operations, communications between equipment, signal conversion and generation. It also contains all of the stored transport specific data, conversion tables, formulas, and time codes for performing operations.

Front Panel Indicators and Switches



MIK011A

Figure Chapter 7 -2. Front Panel Indicators and Switches

OPTIONS

ACG When turned on, a Digital Audio Clock Generator Card is installed. There are two versions of the card:

ACG-1 Word Clock and Oversample Clock Outputs

ACG-2 The same as ACG-1 but with AES/EBU clock inputs and silent output. Word clock or AES/EBU can be used as a system reference.

VITC When turned on, the VITC Reader Card is installed.

M3 When turned on, the Third Machine Expansion Card is installed and you may add a third transport to the system.

MIDI

DATA This LED indicates that communications signals are passing between the System Unit (SU) and connected MIDI equipment.

VALID When turned on, it indicates valid serial data is present on the link between the System Unit and the MIDI equipment.

EXTERNAL COMPUTER

DATA This LED indicates that communications signals are passing between the System Unit and an external computer.

VALID When turned on, it indicates valid serial data on the link between the System Unit and external computer equipment.

KEYBOARD

DATA When on, this LED indicates that communications signals are passing between the System Unit and the Keyboard Controller.

VALID When turned on, it indicates valid serial data on the link between the System Unit and the Keyboard Controller.

SYSTEM

DATA When on, this LED indicates that communications signals are passing internally between the control processor and the other processors in the System Unit.

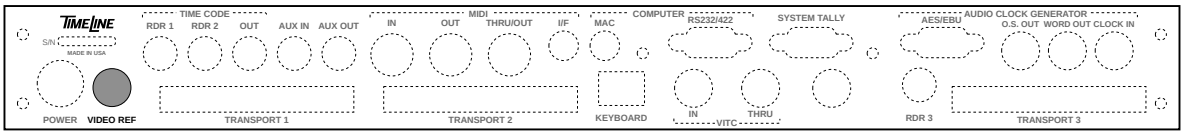
VALID When turned on it indicates valid internal serial data communications.

POWER

ON When on this LED indicates that power is being supplied to the System Unit.

Note: If a DATA LED is flashing or turned off, this indicates that there is a hardware problem. First turn off the power and check all cables and connections. It should be corrected after powering up the system. If a VALID LED is flashing or turned off, there is a software or communications problem. Press [CLR] + [SYS] then [CLR] + [SETUP] to reinitialize the SU and KBD. Verify that the external control devices are correctly configured.

Video Reference



MIK036B

Figure Chapter 7 -3. Video Reference

VIDEO REF BNC, single-ended input. This combined input/output supports PAL and NTSC video sync references.

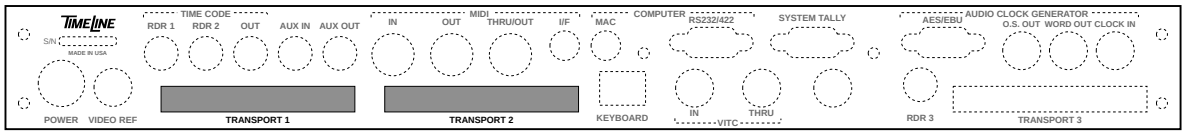
If the TimeLine internal composite Video Sync Generator card (VSG) is installed, then the connector is used as an output to provide video reference for DTRs, VTRs, and Digital/Audio Workstations connected to the system.

If the system is selected to EXT VID reference then this connector is used as an input. Use a black burst or composite video sync source to reference the system to video.

It is not possible to select the TimeLine VSG if an External Video reference is selected.

To select the external or internal video reference source, see the Keyboard Section of this manual.

Transport Connectors



MIK012B

Figure Chapter 7 -4. Transport Connectors

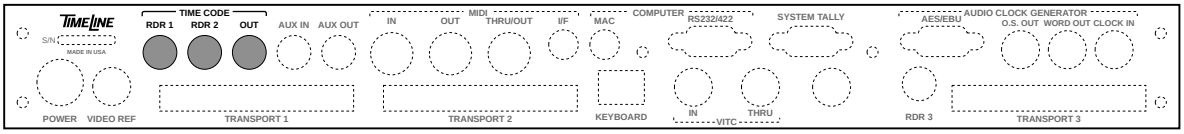
TRANSPORT 1, 2 40-pin, dual inline headers. All machine control signals pass through this 40-pin input/output port. The transport control signals, capstan servo signal, and machine tallies needed for the transport to correctly operate and synchronize are on this connector.

See the Installation Chapter or TRAN under SETUP in the Keyboard Controller chapter for information on how to select the transport type and configure this connector for your machine.

Table Chapter 7 -1. Transport Connector Pin Description

Pin	Description	Pin	Description
1	Ground	2	Transport Ground Sense
3	Ground	4	Assemble
5	Fast Forward	6	Rewind
7	Mute	8	Pull-up common
9	Record Tally	10	Tach
11	+ 5 V	12	Servo relay B, normally closed contact
13	Rehearse	14	Video Track Enable (INS)
15	Ground	16	Ground
17	Play Tally	18	Audio Track Enable (A2)
19	RS422, TX-	20	RS422, TX+
21	RS422, RX-	22	RS422, RX+
23	Record Exit	24	Search Enable
25	Aux In	26	Search Control Voltage
27	Capstan Frequency	28	Tape Direction
29	Servo Relay B, Normally Open Contact	30	Capstan Control Voltage
31	Record In	32	Servo Relay B Common
33	Audio Track Enable (A1)	34	Servo Relay A Common
35	Lifter Enable, In/Out	36	Command Common
37	+12 V	38	-12 V
39	Stop	40	Play

Time Code Readers and Generator



MIK019B

Figure Chapter 7 -5. Time Code Readers and Generator

RDR 1, 2 1/4" stereo jack differential input. Time code inputs for transports 1 and 2. Readers 1 and 2 are wideband high speed linear time code inputs with a speed range from 1/10 speed to 60x play speed.

Table Chapter 7 -2. RDR 1 Time Code Connector Pin Description

Pin	Description
Tip	Time Code Reader 1+
Ring	Time Code Reader 1-
Sleeve	Ground

Table Chapter 7 -3. RDR 2 Time Code Connector Pin Description

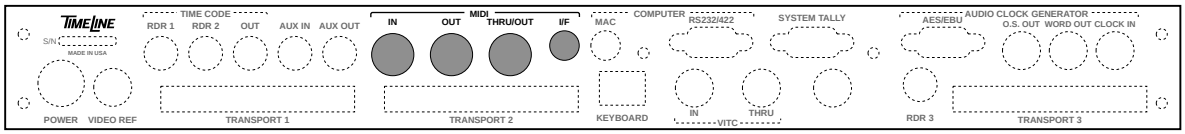
Pin	Description
Tip	Time Code Reader 2+
Ring	Time Code Reader 2-
Sleeve	Ground

OUT 1/4" stereo jack unbalanced output. Time Code output for software selectable, multi-standard time code generator. It has a fixed output level of -1 dBm (1.4V pp).

Table Chapter 7 -4. Time Code OUT Connector Pin Description

Pin	Description
Tip	Time code generator +
Ring	Ground
Sleeve	Ground

MIDI



MIK013B

Figure Chapter 7 -6. MIDI

IN 5-pin DIN socket. MIDI input is used to read MIDI time code (MTC) from an external MIDI device.

Table Chapter 7 -5. MIDI IN Connector Pin Description

Pin	Description
1	NC
2	Ground
3	NC
4	MIDI In+
5	MIDI In-

OUT 5-pin DIN socket. The MIDI output is used when the Micro Lynx generates MIDI Time Code.

Table Chapter 7 -6. MIDI OUT Connector Pin Description

Pin	Description
1	NC
2	Ground
3	NC
4	MIDI Out+
5	MIDI Out-

THRU/OUT 5-pin DIN socket. Used as a MIDI output or to retransmit MIDI input information.

Table Chapter 7 -7. MIDI THRU/OUT Connector Pin Description

Pin	Description
1	NC
2	Ground
3	NC
4	MIDI Out+
5	MIDI Out-

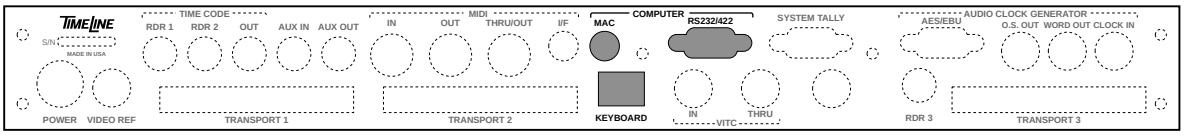
I/F MAC to MIDI Interface. Mini 8-pin DIN MAC serial connector is

used to directly connect the Micro Lynx to a MAC serial modem or printer port. An external MIDI interface box is not required. The Micro Lynx has a nominal interface speed of 1 MHz. Select the correct serial port and interface speed from the MAC MIDI application. This connector is used when the Micro Lynx generates MIDI time code

Table Chapter 7 -8. I/F Connector Pin Description

Pin	Description
1	1 MHz clock (Bi-polar)
2	NC
3	Adapter Out-
4	Signal Ground
5	Adapter In-
6	Adapter Out+
7	NC
8	Adapter In+

Computer



MIK014B

Figure Chapter 7 -7. External Control Interface

MAC Mini 8-pin connector. Connects to a standard MAC serial peripheral port. We recommend using the modem port because the computer gives it priority over the printer port when checking for activity. The Micro Lynx serial interface conforms to RS422 standards and has an interface speed of 1 MHz.

Table Chapter 7 -9. I/F Connector Pin Description

Pin	Description
1	1 MHz clock (Bi-polar)
2	NC
3	Adapter Out-
4	Signal Ground
5	Adapter In-
6	Adapter Out+
7	Frame Clock ±5v at system reference
8	Adapter In+

RS232/422 9-pin 'D' type socket. The Micro Lynx supports both major EIA standards: RS232C and RS422.

The RS232 transmitter modulates a signal with respect to a common ground (bipolar). The receiver senses whether the signal is sufficiently negative with respect to ground to determine a logical 1 which makes it susceptible to noise and interference. As a consequence, RS232C can only be used over short distances.

The RS422 transmitter modulates the signal against an inverted copy of the same signal (i.e., a differential signal). The receiver senses which line is more negative than the other. Because the signal is differential, it is more immune to noise and interference and will not degrade over significant distances.

Table Chapter 7 -10. RS232/422 Connector Pin Description

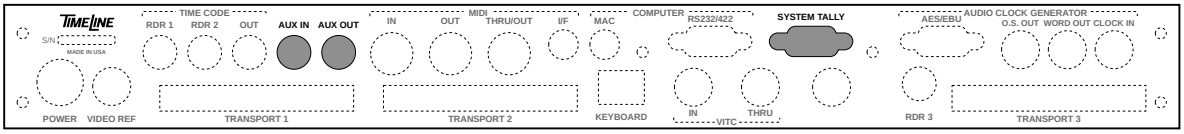
Pin	Description
1	Ground
2	RS 422, Tx-
3	RS 422, Rx+
4	RS232, Tx
5	Frame Clock at system reference, open collector signal
6	Ground
7	RS422, Tx+
8	RS422, Rx-
9	Frame Clock, ±5 V at system reference

KEYBOARD Standard RJ-45 telephone socket. Power, data, and communications between the TimeLine System Unit and the Keyboard Controller pass through this port.

Table Chapter 7 -11. Keyboard Connector Pin Description

Pin	Description
1	+12V
2	+12V
3	KBD RX+
4	KBD RX-
5	KBD TX+
6	KBD TX-
7	Ground
8	Chassis

System Tally, Aux In, Aux Out



MIK015B

Figure Chapter 7 -8. System Tally and Aux Jacks

SYSTEM TALLY 9-pin 'D' plug. This port supports GPI 1 and GPI 2 events, relays, mute relay, and the system lock tally indicator light.

Table Chapter 7 -12. System Tally Connector Pin Description

Pin	Description
1	Ground
2	System Lock light, open collector signal
3	Mute Relay +
4	GPI 2 Relay +
5	GPI 1 Relay +
6	+5 V, 50 mA current limited
7	Mute Relay -
8	GPI 2 Relay -
9	GPI 1 Relay -

AUX IN 1/4" socket, differential input. Used for the Pilot In reference signal.

Table Chapter 7 -13. Aux In Connector Pin Description

Pin	Description
Tip	Auxiliary reference In+
Ring	Auxiliary Reference In-
Sleeve	Ground

AUX OUT 1/4" socket, unbalanced output. This output signal has a fixed output level of -1 dBm (1.4V pp) and is software selectable. Selections include:

- Reshape time code RDR 1
- Reshape time code RDR 2
- Reshape time code RDR 3
- Pilot out
- Dialog beep out

See TCG options under SETUP in the Keyboard Controller chapter for information on how to select the Aux Output signal.

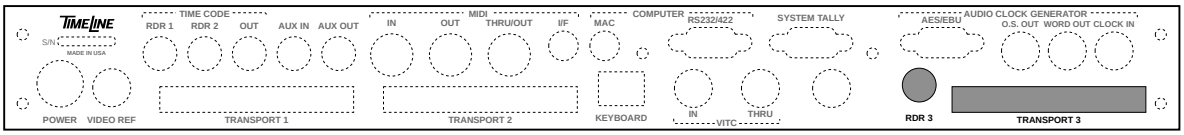
Table Chapter 7 -14. Aux Out Connector Pin Description

Pin	Description
Tip	AUX Output +
Ring	Ground
Sleeve	Ground

The Pilot Output signal is locked to and at the same rate (60, 59.94, 50, 48 Hz) as the system reference.

The dialog beep output is a 1 kHz oscillator that follows the pulsed timing parameters set for Events GPI-2. See SETUP TCG options under SETUP in the Keyboard Controller chapter for information on how to select the Aux Output signal.

Third Machine Interface



MIK016B

Figure Chapter 7 -9. Third Machine Interface

TRANSPORT 3 40-pin, dual inline header. All machine control signals pass through this 40-pin input/output port. The transport control signals, capstan servo signal, and machine tallies needed for the transport to correctly operate and synchronize are on this connector.

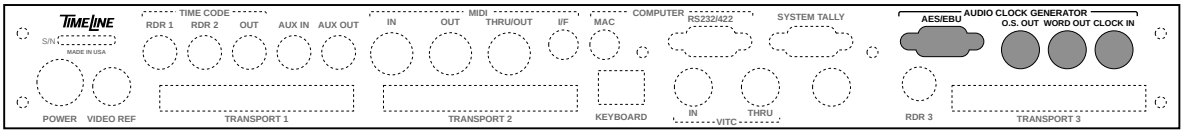
See the Installation Chapter or TRAN under SETUP in the Keyboard Controller chapter for information on how to select the transport type and configure this connector for your machine.

Table Chapter 7 -15. Transport 3 Connector Pin Description

Pin	Description	Pin	Description
1	Ground	2	Transport Ground Sense
3	Ground	4	Assemble
5	Fast Forward	6	Rewind
7	Mute	8	Pull-up common
9	Record Tally	10	Tach
11	+ 5 V	12	Servo relay B, normally closed contact
13	Rehearse	14	Video Track Enable (INS)
15	Ground	16	Ground
17	Play Tally	18	Audio Track Enable (A2)
19	RS422, TX-	20	RS422, TX+
21	RS422, RX-	22	RS422, RX+
23	Record Exit	24	Search Enable
25	Aux In	26	Search Control Voltage
27	Capstan Frequency	28	Tape Direction
29	Servo Relay B, Normally Open Contact	30	Capstan Control Voltage
31	Record In	32	Servo Relay B Common
33	Audio Track Enable (A1)	34	Servo Relay A Common
35	Lifter Enable, In/Out	36	Command Common
37	+12 V	38	-12 V
39	Stop	40	Play

RDR 3 1/4” stereo socket, differential input. Wideband linear time code input for transport 3 with a speed range is of 1/10 to 60x play speed.

Audio Clock Generator



MIK017B

Figure Chapter 7 -10. Audio Clock Generator

The Audio Clock generator is a multi input/output digital audio clock card that can be either locked to or generate the Micro Lynx system frame reference. See ACG under SETUP in the Keyboard Controller Chapter for information on how to set up the ACG options.

Table Chapter 7 -16. AES/EBU Connector Pin Description

Pin	Description
1	Ground
2	AES/EBU In-
3	Ground
4	AES/EBU Out-
5	Ground
6	AES/EBU In+
7	Ground
8	Ground
9	AES/EBU Out+

AES/EBU 9-pin 'D' socket, transformer coupled. AES/EBU digital input and output connector. Will output a silent AES/EBU bit stream locked to the system reference with either a fixed or variable ratio to the nominal sample rate. Will accept an AES/EBU input which can be used as a system reference. ACG-2 Option card only.

OUT BNC, +5V TTL level output. The Oversample Clock Output is locked to the system reference with a frequency determined by the word clock rate and the oversample output multiplier.

WORD OUT BNC, +5V TTL level output. The Word Clock Out is locked to the system reference with either a fixed or variable ratio to the nominal sample rate.

CLOCK IN BNC, +5V TTL level input. The Digital Audio Word or Oversample Clock input is used with the oversample input demultiplier to provide a system reference. ACG-2 Option card only.

VITC

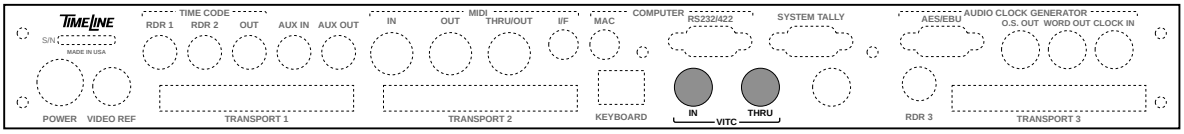


Figure Chapter 7 -11. VITC Interface

IN BNC, differential input. Connected to the output from the video machine.

THRU BNC. Loop through of the video input connector.

Power

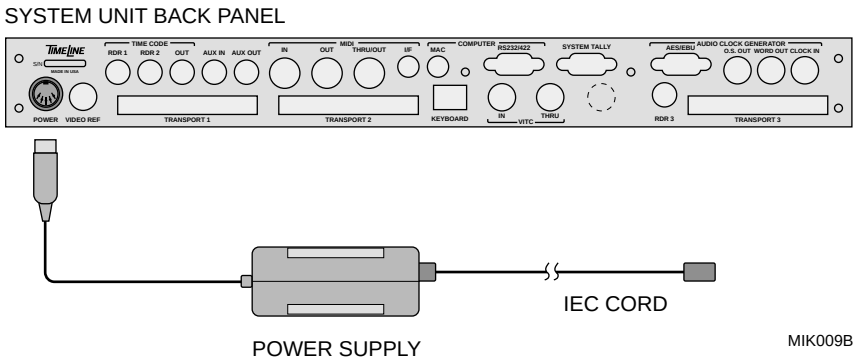


Figure Chapter 7 -12. Power

POWER 5-pin DIN socket. Power is supplied to the Micro Lynx System Unit by an external power supply. Do NOT add an extension to the 5-pin DIN cable between the Power Supply and the System Unit.

Table Chapter 7 -17. POWER Connector Pin Description

Pin	Description
1	Ground
2	Ground
3	+5 V
4	-12 V
5	+12 V

Power Supply The Power Supply Unit is a switched mode type, which automatically adjusts to the correct AC voltage for your area. It is suitable for operation at any voltage in any country.