Chapter 8 Keyboard Controller

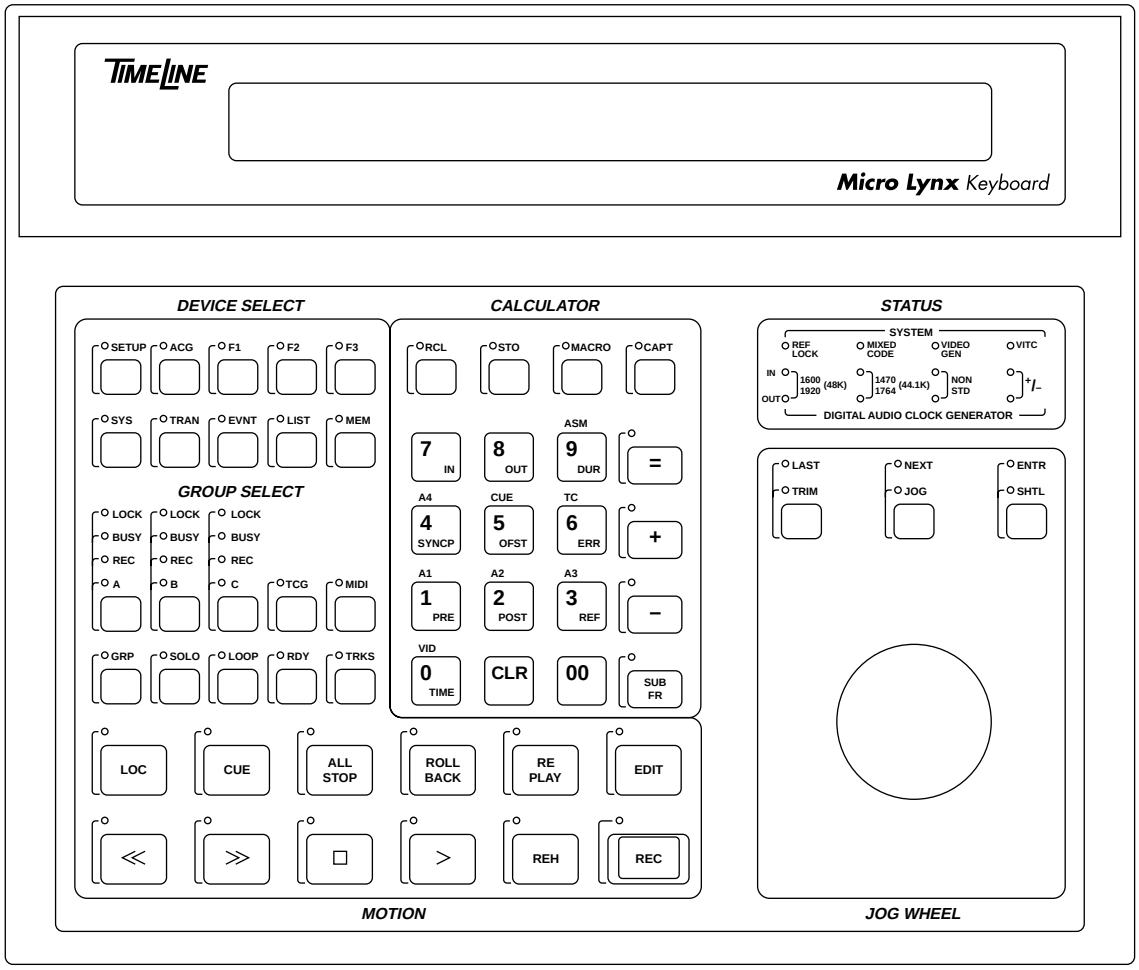
MIK037A

Figure Chapter 8 -1. Front Panel

Introduction

This chapter identifies the eight functional blocks for the Micro Lynx Keyboard. The function of each key and indicator is described in detail. The functional blocks described are:

Display	Transport Controls
Jog/Shuttle Wheel	Device Select
Group Select	Calculator
Auxiliary Function keys	Status Indicators



MIK044A

Figure Chapter 8 -2. Keyboard Key Locator

Table Chapter 8 -1. Key Mnemonics

Key Mnemonic	Description
DEVICE SELECT	
SETUP	Setup
ACG	Audio Clock Generator
F1	Function Key 1
F2	Function Key 2
F3	VITC
SYS	System
TRAN	Transport
EVNT	Event
LIST	List
MEM	Memory
GROUP SELECT	
A	Machine A (Transport 1
B	Machine B (Transport 2)
C	Machine C (Transport 3)
TCG	Time Code Generator
MIDI	MIDI Time Code
GRP	Group
SOLO	Solo
LOOP	Loop
RDY	Record Enable
TRKS	Tracks
MOTION	
LOC	Locate
CUE	Cue
ALL STOP	All Stop
ROLL BACK	Roll Back
REPLAY	Replay
EDIT	Edit
<<	Rewind
>>	Fast Forward
■	Stop
>	Play
REH	Rehearse
REC	Record

Key Mnemonic		Description
CALCULATOR		
RCL		Recall
STO		Store
MACRO		Macro
CAPT		Capture
CLR		Clear
SUB FR		Subframe
–		Minus or move 1 increment backward
+		Plus or move 1 increment forward
=		Equals
00		Double Zero
0 TIME	VID	0, Time Code register, Video Insert
1 PRE	A1	1, Preroll register, Track A1
2 POST	A2	2, Postroll register, Track A2
3 REF	A3	3, Reference Sync Point register, Track A3
4 SYNCP	A4	4, Sync Point register, Track A4
5 OFST	CUE	5, Offset register, Cue track
6 ERR	TC	6, Error register, Time Code track
7 IN		7, In Point register
8 OUT		8, Out Point register
9 DUR ASM		9, Duration register, Video Assemble
STATUS		
REF LOCK		Speed Reference is Locked
MIXED CODE		Mixed Code
VIDEO GEN		Video Generator
VITC		VITC
JOG WHEEL		
TRIM, LAST		Trim or Last menu selection
JOB, NEXT		Jog or Next menu selection
SHTL, ENTR		Shuttle or Enter

Display

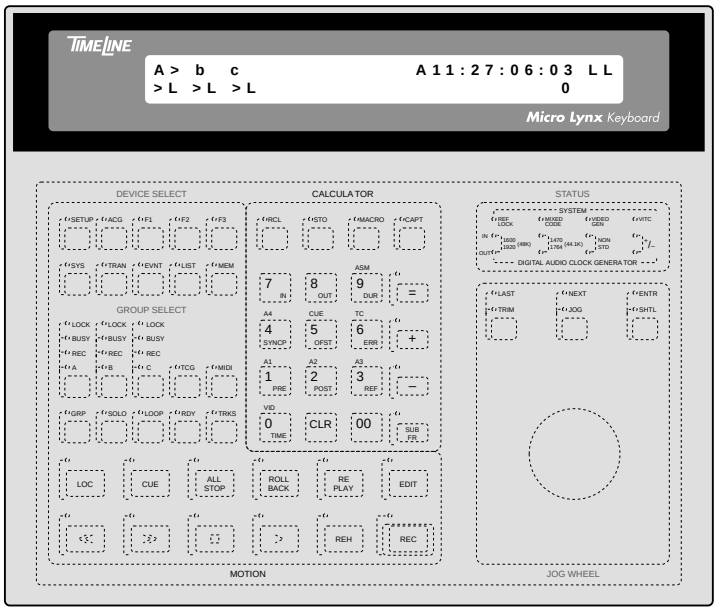


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Figure Chapter 8 -3. Display

The Micro Lynx uses an 80 character Liquid Crystal Display (LCD). Several categories of information are displayed:

1. Normal Operating Display
2. Calculator Display
3. Register Contents
4. Setup Displays
5. Prompts and Error Messages

The display can be conceptually divided into four quadrants. Each area provides a specific type of information.

(upper left) Machine Information

(upper right) Time Code

```
A* B+                          A→ 1:00:20:00 LL
>L >L                                        0
```

(lower left) Machine Status

(lower right) Calculator

Machine Information
A* b+

This area identifies which machines are selected and if master or slave status. A capital letter (A) indicates the master, an asterisk (*) indicates the reference machine, a small letter (b) indicates a slave machine, and a plus sign (+) indicates that a machine has an offset.

Time Code
11:27:06:03 LL

Time code for the selected machine is displayed. Leading zeros are not displayed. For example, 3 minutes, 13 seconds, and 2 frames:

00:03:13:02

is displayed as:

3:13:02

Drop frame code is indicated by separating the seconds and frames digits with a comma rather than a colon. For example, if the time code above is drop frame it would be written as:

3:13,02

Machine Status
>L

This area indicates the tape machine transport status. >L indicates that the machine is in lock. Other status mnemonics include:

<<	Rewind	CUE	Cueing	R	Record
>>	Fast Forward	RLB	Rollback	r	Rehearse
< >	Jog/Shuttle	LOC	Locate	Ch	Chase
•	Stop	REP	Replay	NC	No Code

Calculator
0

This area of the display is active whenever any of the calculator keys are pressed or a time code register or memory is recalled.

Normal Operating Display

The normal operating display is displayed once the Micro Lynx has been initialized. For example,

Solo Mode

```
SOLO: A >L                    A→11:27:06:03
                                          0
```

Group Mode

```
A* B+                         A→11:27:06:03 LL
>L >L                                     0
```

A Indicates which machine is selected. Status information is displayed for that machine.

A capital letter (A) indicates that the machine selected is the master. Remember, any machine can be the master.

A lower case letter (b) indicates that the machine selected is a slave.

An asterisk (*) indicates that the machine is the time code reference.

A plus (+) indicates that the machine is offset from the reference transport.

An >L indicate that it is in play and locked. An >W indicates that the machine is in wild speed. That is, the Micro Lynx is controlling the machine, but not synchronizing it.

11:27:06:03 Time code for the group or selected machine.

LL Indicates whether the machine or group are in lock and which system reference they are locked to. This example uses LL; the following reference designations are also used:

I	Internal Fix
i	Internal Variable
L	External Video
P	Aux
V	VSO
A	ACG

In group mode two letters are displayed. The first letter indicates that the master machine is locked to the system speed reference. The second letter indicates that all of the other machines in the synchronized group are locked.

Calculator Display

When any of the Calculator keys (00-9) are pressed, the digit is displayed in the calculator scratch pad located in the lower right area of the display.

```
A                              A→10:00:20:00
>L                               11:27:06:03
```

0 The calculator can be used to perform time code additions or subtractions. In the following example an addition is performed.

Procedure

1. [1], [1], [2], [7], [0], [6], [0], [3]

```
SOLO:A                         A→10:00:00:00
                                 11:27:06:03
```

   Enter a time code number.

2. [+] (plus)

```
SOLO:A                         A→10:00:00:00
                          plus             0
```

   Select a calculator mode. The operation selected is displayed

3. [1], [0], [0], [0]

```
SOLO:A                         A→10:00:00:00
                                       10:00
```

   Enter a time of 10 seconds.

4. [=]

```
SOLO:A                         A→10:00:00:00
                                 11:27:06:03
```

   The sum is displayed in the lower right.

Register Contents

The Calculator keys also provide access to time code register values. Values may be stored to or recalled from any of the 10 registers.

```
SOLO:A                    A→00:00:00:00
                    (A) In: 11:27:06:03
```

STO (Store) Press [STO] in the calculator key section to store a time code value to a Micro Lynx register. Next press the appropriate calculator register key to select the register to store the value in. The time code to be stored can be determined in one of several ways: it may be captured, entered, or calculated. If the [CAPT] key is used to capture a time code value then the store function is automatically invoked.

RCL (Recall) Press [RCL] in the calculator key section to recall and display values stored in a Micro Lynx register. Next press the appropriate calculator register key to display the register value. For example, to examine the in point register, press [RCL] followed by [IN] (7). The register contents will be displayed in the calculator data entry area.

Procedure

1. [RCL]

   RCL LED flashes

   ```
   Recall reg or mem         A→10:00:00:00
   ```

   Enter recall mode.

2. [IN] (7)

   ```
   SOLO:A                    A→10:00:00:00
                       (A) In: 11:27:06:03
   ```

   Look at the value stored in the in point register. RCL LED turns off.

Setup Display

In Setup mode, you may access any of the user preference option menus to customize the Micro Lynx.

```
    Setup:  System options
Selection:  LED Brightness: 100%
```

To access the individual menus, press [SETUP], then the appropriate menu select key. On the Micro Lynx, you can select the following keys to access their respective menus.

ACG	SYS	TRAN	EVNT	MEM
TCG	GRP	LOOP	RDY	TRKS
ROLLBACK	EDIT	REC	REH	MACRO

To move through the Setup menus use the following keys:

- [LAST]/[NEXT]. Selects the next or previous item in a top level menu (i.e., machine manufacturers).
- [+]/[–]. Selects the next or previous item in the selected menu (i.e., machine types).

Procedure

1. [SETUP]

   ```
       Setup:
   Selection:
   ```

   You have entered Setup mode.

2. [REC]

   ```
       Setup:  Key options
   Selection:  Record by: Play + Rec
   ```

   Select the [REC] Key, there are 2 options (+ and –).

3. [+]

   ```
       Setup:  Key options
   Selection:  Record by: REC only
   ```

   Dual key record, operation begins by pressing [REC] and [PLAY] simultaneously.

4. [–]

   ```
       Setup:  Key options
   Selection:  Record by: Play + Rec
   ```

   Single key record operation, begins by pressing [REC] only.

5. [SETUP]

   ```
          Hold the “GRP” key, and add
          groups in order of priority
   ```

   Exit and save the record key selection.

Prompt & Error Display

The Micro Lynx has a comprehensive prompt/message system that guides the user in various operational situations. For example:

```
Hold the "GRP" key, and add
groups in order of priority
```

A concise message is flashed momentarily on the display to prompt an action, provide description, suggestions, and status information.

If a system error occurs, the [SYS] key will flash. A complete list of error messages is located in Chapter 5, Troubleshooting.

Press [SYS] to display the error messages. The SYS LED will turn on and the first error message will be displayed until you press [SYS] again. Pressing [SYS] again displays the next error message. After the last error is displayed, the errors are cleared and the error mode is automatically exited. The SYS LED flashes until all of the errors have been cleared. Press [CLR] to exit SYS mode at any point without erasing the list.

Procedure

1. SYS LED flashing

   When the SYS LED flashes, a system error or change has occurred.

2. [SYS]

   ```
   1:Communications error:
   ```

   The first error message in the error stack or list is displayed. Note the message as you will be asked for this information by the factory, if you are unable to correct the problem.

3. [SYS]

   ```
   2:System Frames changed
   ```

   Press [SYS] again to see the next error message and to exit when the list is done. The Micro Lynx holds error messages in a stack, when the top message is removed, the next one is displayed. Repeat step 3 until all messages have been read.

4. [CLR]

   ```
   SOLO:A >L                A→      11:27 LL
                                        0
   ```

   Press [CLR] to exit SYS mode at any point without erasing the list.

Transport Controls

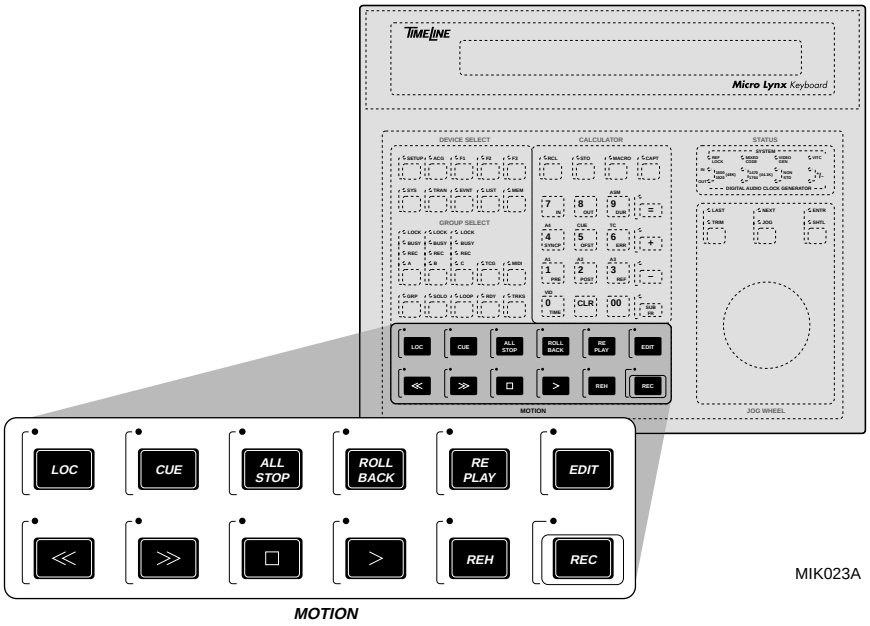


Figure Chapter 8 -4. Motion Control Keys

LOC (Locate) In solo mode, Micro Lynx will locate the soloed machine to the time code in the calculator data entry area, minus the system preroll.

In group mode, it will locate all transports currently assigned to the group to the time in the calculator data entry area, minus the system preroll.

CUE In solo mode, Micro Lynx Cues the soloed machine to the time code in the cue point register.

In group mode, it cues all machines currently assigned to the group to the time code stored in the cue point register. If a cue point is not set, then the Micro Lynx will use the in point register. If there is no cue point or in point set, the following message is displayed:

```
No in point or cue point set
```

ALL STOP The [ALL STOP] key issues an immediate Stop command to all transports on the system regardless of group status, solo status, or transport mode. All machines will stop. This key is used as a "panic button" to stop unexpected transport operations.

ROLLBACK The [ROLLBACK] key rewinds the selected machine or group by a predetermined amount. The default rollback value is 15 seconds. The rollback time can be changed by entering a new value then pressing the [STO] and [ROLLBACK] keys.

The [ROLLBACK] key can also be used as a reverse play key for transports that will play backwards. To change the [ROLLBACK] key to PLAY REV, enter the Key options menu by pressing [SETUP] followed by [ROLLBACK]. Use the [+] and [–] keys to select the desired function.

REPLAY The [REPLAY] key is used in conjunction with the [EDIT] key to replay the current edit. Pressing [EDIT] followed by [REPLAY] cues the selected machines in the group to cue to the current edit preroll position and commence an edit replay sequence.

The [REPLAY] key has an associated replay register that stores the time code when the [>] (PLAY) key was last pressed. Pressing [REPLAY] causes a locate to the time code when the [>] (PLAY) key was last pressed.

Remember *that pressing [>] (PLAY) while the machines are playing, can be used to update the replay register and set a new replay register time code.*

EDIT The [EDIT] key initiates a Micro Lynx edit sequence. It is used in combination with the [REC], [REH], [REPLAY], and [CUE] keys. Before pressing [EDIT], use the [F1] and [F2] macro keys to define the edit in and out points. When the Edit command is issued, the Micro Lynx cues the machines to a preroll or cue point and puts the machines into play. At the edit in point the record or rehearse command is issued. The machines continue to roll until the edit out point is reached, a REC OUT command is issued to exit record or rehearse. The machines run for a postroll period and stop. If the [LOOP] key is selected, the machines will recue and repeat the process (see Loop and Setup • Loop for loop options).

Press the [EDIT] key to enter the edit routine. Select an edit mode, the REC, REPLAY, REH, and CUE LEDs will flash to prompt selection of one of the edit options. The display shows the edit status as it runs. An example is presented in the Getting Started chapter.

REC. Initiates a record edit sequence. Machines will cue, roll and go into record at the edit in point.

REH. Initiates a rehearse edit sequence, machines will cue, roll, and go into rehearse at the edit in point.

REPLAY. Initiates a replay edit sequence; machines will cue and roll only.

CUE. Machine will locate to the cue or preroll point and park.

EDIT. Stops or cancels edit mode.

Edit Sequence

1. Preroll time counts down.
2. The edit command is displayed and the duration counts down, the postroll counts down and the machines stop.
3. If loop is selected, the edit recues and repeats.

In edit, record and rehearse, the Micro Lynx GPI's and dialog beep oscillator can be selected to operate at the edit in point (see EVNT under Device Select key for further information on the GPI relays). In edit replay these GPI's are disabled.

<< (Rewind) In solo mode, the Rewind command is issued only to the machine that is soloed.

In group mode, the Rewind command puts all machines currently assigned to the group into rewind or chase.

>> (Fast Forward) In solo mode, the Fast Forward command is issued only to the transport that is soloed.

In group mode, the Fast Forward command puts all transports currently assigned to the group into fast forward or chase.

■ (Stop) In solo mode, the Stop command is issued only to the machine that is soloed.

Pressing [■] (stop) in group mode initiates an intelligent stop function. The master machine stops immediately. Then each slave machine is parked at a position that corresponds to the master machine's position taking individual offsets into account. The system is cued and ready to synchronize.

> (Play) In solo mode, the Play command is issued only to the machine that is soloed.

In group mode, the Play command puts machines currently assigned to the group into play.

In play, the Micro Lynx synchronizes and locks each of the machines including the master machine to the system speed reference. When the master machine is locked, a letter appears after the time code in the display. This letter also indicates the specific system speed reference that the machines are locked to.

I Internal Fixed - the Micro Lynx internal crystal (default)
i Internal Variable - the Micro Lynx internal frequency synthesizer
L External Video - source of video sync
P Aux - pilot tone
V VSO - varispeed, the master machine's play speed
A ACG - digital input signal to the Audio Clock Generator

When all machines have achieved lock, a second letter is displayed. A sample sequence might be as follows:

Procedure

1.

```
A* b  c                    A→ 1:01:14:07
.  .  .                                0
```

The default display shows solo or group mode and the current time code location.

2. [>] (PLAY)

```
A* b  c                    A→ 1:01:42:17 I
>L >  >                              0
```

Time code should be running. The master is locked to the internal fixed reference.

```
A* b  c                    A→ 1:01:14:07 II
>L >L >L                             0
```

A second 'I' is displayed when all machines are locked to the internal fixed reference.

REH In solo mode, the Rehearse command is issued to the soloed machine if it is record enabled and in lock.

In group mode, the Rehearse command is issued to all machines currently assigned to the group that are record enabled, if the group is locked.

The Rehearse command can be issued manually by pressing the [REH] key or by pressing the [REH] and [PLAY] keys together (see Setup to alter the REH command option). The Rehearse command can also be issued automatically as part of the Micro Lynx edit routine.

The [REH] key has an associated REH LED. In solo mode, the REH LED indicates the rehearse status of the soloed machine. In group mode, the REH LED indicates the rehearse status of all the machines currently assigned to the group. If any machine in the group is in rehearse, then the REH LED is turned on.

REC In solo mode, the Record command is issued to the soloed machine if it is record enabled and in lock.

In group mode, the Record command is issued to all machines currently assigned to the group that are record enabled, if the group is locked.

The Record command can be issued manually by pressing the [REC] key or by pressing the [REC] and [PLAY] keys together (see Setup to alter the REC command option). The Record command can also be issued automatically as part of the Micro Lynx edit routine.

The [REC] key has an associated REC LED. The Micro Lynx machine interface cables monitor the actual record status of each machine. The REC LED is a true record tally. When turned on, it indicates that the machine is actually in record.

In solo mode, the REC LED indicates the record status of the soloed machine. In group mode, the REC LED indicates the record status of all the machines currently assigned to the group. If any machine in the group is in record, then the REC LED is turned on.

Jog/Shuttle

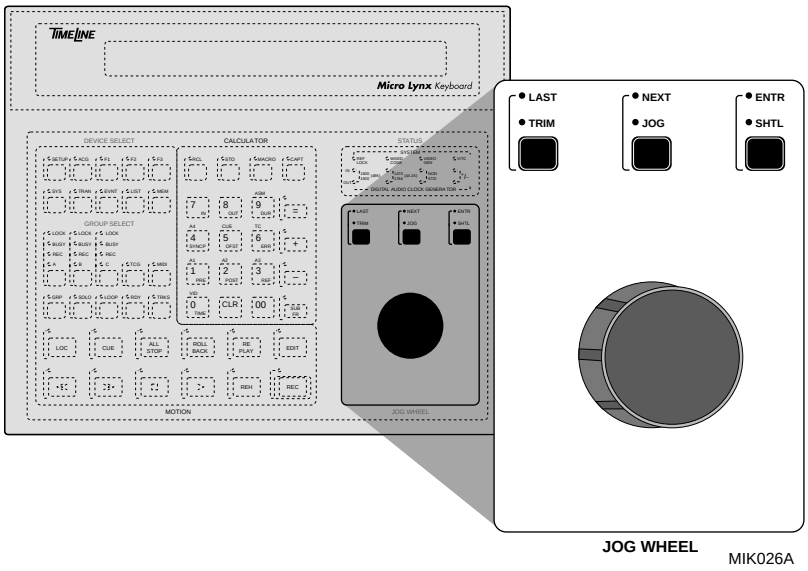


Figure Chapter 8 -5. Jog/Shuttle

Jog/Shuttle Wheel

The Jog/Shuttle Wheel has three modes: Trim, Jog, and Shuttle. It can be used to

- Spool machines at controlled wind speeds.
- Nudge or bump a tape one frame at a time.
- Trim the offset of a source machine in real time to achieve a precise time relationship between the master and slave machines.

TRIM/LAST

TRIM The [TRIM] key selects Trim mode, use the Jog Wheel and the [+] and [–] keys to adjust register values. You may adjust the values in most registers. After selecting trim, recall a register; then press the [+] or [–] keys, or use the Jog Wheel to increase or decrease the time code value. Holding [+] or [–] down will cause the key to auto-repeat.

Press the [SUB FR] key to enter subframes and use the Jog Wheel or [+] and [–] keys to adjust the subframe value. For example, you may need to finely adjust an offset value. Select a slave machine and recall the offset, press [SUB FR] then [TRIM]. Use the Jog Wheel to adjust the value. Press [TRIM] again to exit trim mode.

Each time that you press [TRIM], the Micro Lynx selects the last register that you trimmed. Press a register key on the calculator keypad to select a different register to trim.

The following keys are also active with TRIM:

[CLR] Clears any number from the data entry area of the display and exits trim mode.

[STO] Initiates a Store command and prompts for a register to store to.

LAST In setup mode, the [TRIM] key is used as the [LAST] key. This key steps backwards to the previous item in a menu.

JOG/NEXT

JOG In the Jog mode, the wheel is used to "bump" a transport forward (clockwise) or backward (counter-clockwise) a small amount each time that it is turned. If you turn the wheel continuously, the tape will "scrub" past the heads with a velocity proportional to how fast you turn the wheel.

NEXT In setup mode, the [JOG] key is used as the [NEXT] key. This key steps forward to the next item in a menu.

SHTL/ENTR

SHTL In the Shuttle mode, turning the wheel clockwise causes the selected machines to move forward with a velocity that is proportional to the amount that you rotate the wheel from its starting position. Likewise, turning the wheel counter-clockwise initiates variable-speed backwards motion. The Shuttle speed may be varied from a slow crawl to several times normal play speed.

Generally speaking, the Shuttle mode is a controlled speed mode only on video transports. Most audio tape machines do not have a variable speed shuttle mode, so the shuttle function is implemented by rapidly toggling between rewind and fast forward. The actual velocity is determined by the ballistics of the particular machine.

Shuttle is most effectively used in the solo mode to accurately position a single machine for setting sync points, in points and out points. If you use the Shuttle function in group mode, the wheel controls only the master machine; all other machines will chase the master machine and attempt to maintain their correct park-ahead offset.

ENTR The [ENTR] key is used to confirm operations that may cause a loss of data or setup information. For example, [CLR] + [SYS] will reset the System Unit, [ENTR] is used to confirm this action.

Device Select Keys

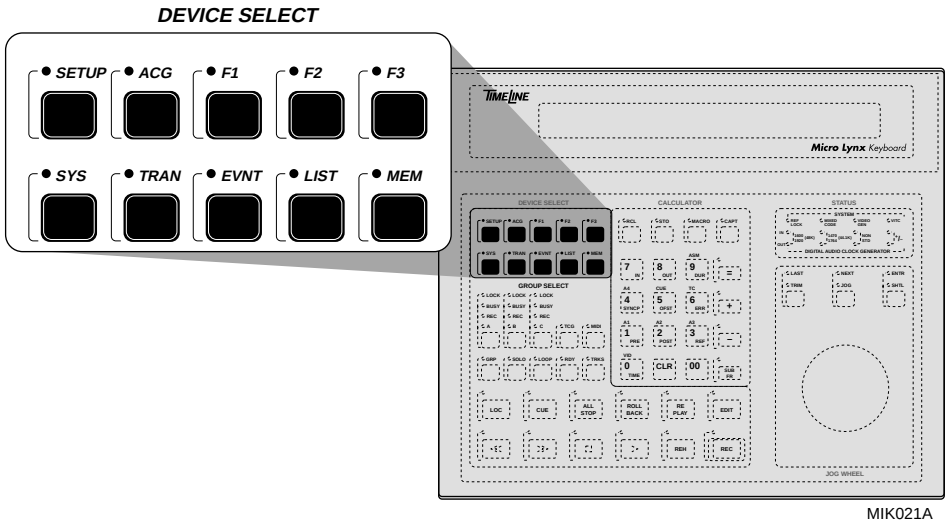


Figure Chapter 8 -6. Device Select Keys

The Device Select keys determine the system operating mode, set system, transport, GPI and Audio Clock Generator card operating parameters, and other system functions.

SETUP

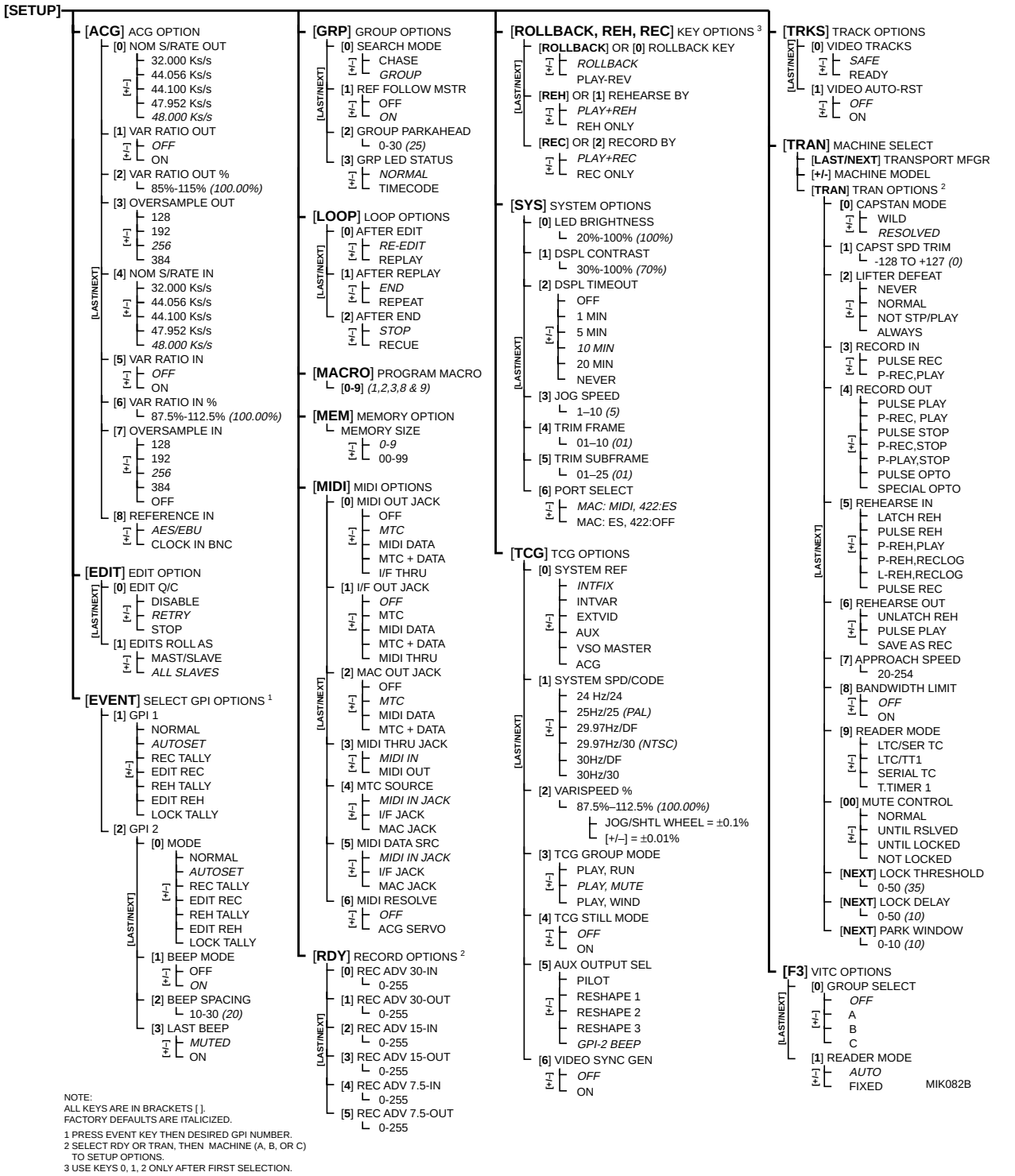
The Micro Lynx has a comprehensive setup procedure for customizing the system for a particular mode, transport or application. The setup options are organized by function in a menu type format with 14 option categories:

Key	Category
ACG	Audio Clock Generator
SYS	System
TRAN	Transport
EVNT	Events
MEM	Memory
TCG	Time Code Generator & System Reference
GRP	Group
LOOP	Loop
RDY	Record Ready
TRKS	Tracks
KEY	Rollback, REH, REC Operation
EDIT	Edit
MACRO	Program Macro
F3	VITC Reader

Press the [SETUP] key to enter Setup mode. Next, select the category that you wish to modify. After modifying the selected option, exit Setup mode by pressing [SETUP] a second time. Each item in a particular menu can be accessed either directly by

selecting it numerically or sequentially by pressing the [LAST] and [NEXT] keys. Step through the menu options by pressing the [+] and [–] keys. The setup key options are provided in the following table.

Table Chapter 8 -2. Setup Key Description



NOTE:
ALL KEYS ARE IN BRACKETS [ ].
FACTORY DEFAULTS ARE ITALICIZED.

1 PRESS EVENT KEY THEN DESIRED GPI NUMBER.
2 SELECT RDY OR TRAN, THEN MACHINE (A, B, OR C) TO SETUP OPTIONS.
3 USE KEYS 0, 1, 2 ONLY AFTER FIRST SELECTION.

ACG When the ACG card is installed, it is automatically active. The ACG setup configuration can be adjusted during any Micro Lynx operation without affecting the current operation since the ACG card processor operates independently from the other Micro Lynx functions. The ACG LED will light to indicate that the ACG card is installed. Refer to the Option Card chapter for more detailed information on the Audio Clock Generator.

SETUP • ACG

Press [SETUP] then [ACG] to enter the ACG options menu. Use it to set the following operating parameters.

Table Chapter 8 -3. ACG Setup Menu

KEY	MENU	SUB-MENU	RANGE
ACG	ACG Option	0 Nom S/Rate Out	32.000, 44.056, 44.100, 47.952, *48.000* Ks/s
		1 Var Ratio Out	*Off*, On
		2 Var Ratio Out %	85% - 115% *(100.00%)*
		3 Oversample Out	128, 192, *256*, 384
		4 Nom S/Rate In	32.000, 44.056, 44.100, 47.952, *48.000* Ks/s
		5 Var Ratio In	*Off*, On
		6 Var Ration In %	87.5% - 112.5% *(100.00%)*
		7 Oversample In	128, 192, *256*, 384, Off
		8 Reference In	*AES/EBU*, Clock In BNC

F1, F2 The [F1] and [F2] keys are short cut keys to macros (1-2). They are preprogrammed by the factory to capture and store the edit in and out points. It is possible to clear and reprogram these keys; however they will default to the factory settings if the Keyboard Controller is reset. See Macro for more information.

F3 The [F3] key is used for the VITC reader card.

Table Chapter 8 -4. F3 Setup Menu

KEY	MENU	SUB-MENU	RANGE
F3	VITC Options	0 Group Select	*Off*, A, B, C
		1 Reader Mode	*Auto*, Fixed

SYS The [SYS] key displays the software version numbers for the Micro Lynx system microprocessors and provides access to the system error list.

To display the software version numbers, press [RCL] followed by [SYS]. The version number for each PROM will be displayed. These software numbers are *required* for any communication with the factory.

The SYS LED will flash when a system error occurs. Press [SYS] to enter the "error mode". The SYS LED turns on and the first error message is displayed. Pressing [SYS] again displays the

next error message. After the last error is displayed, all messages are cleared and the Micro Lynx automatically exits the error mode. Pressing [CLR] also exits the error mode. Refer to Troubleshooting for a complete list of error messages.

CLR + SYS

Hold the [CLR] key and press the [SYS] key to cold boot or reset the System Unit. This clears all user setup options and returns to the factory defaults. Before this command is executed the following warning message and prompt is displayed:

```
Press ENTR to confirm.
```

If you are sure that you want to reset the System Unit, press the [ENTR] key.

SETUP • SYS

Press [SETUP] followed by [SYS] to enter the system options menu. There are seven headings in this menu. Use it to set the following system operating parameters:

Table Chapter 8 -5. SYS Setup Menu

KEY	MENU	SUB-MENU	RANGE
SYS	System Options	0 LED Brightness	20% - 100% *(100%)*
		1 DSPL Contrast	30% - 100% *(70%)*
		2 DSPL Timeout	Off, 1, 5, *10*, 20 min., Never
		3 Jog Speed	1-10 *(5)*
		4 Trim Frame	01-10 *(01)*
		5 Trim Subframe	01-25 *(01)*
		6 Port Select	*MAC:MIDI, 422:ES* MAC:ES, 422:Off

TRAN

The [TRAN] key is used to display current machine status.

TRAN • A (B or C)

Press [TRAN] followed by a machine select key (A-C). The display shows the selected transport type, the time code frame rate, capstan control, resolved or wild, and whether the time code reader bandwidth limit is selected.

```
Tran: A AMPEX ATR-124
TC=30 Resolved BWL Off
```

CLR + TRAN

The [TRAN] key is also used with the [CLR] key to reset a machine select key to factory default settings. Solo a transport then press and hold the [CLR] key and press [TRAN], the following message is displayed as the transport parameters are reset:

```
Transport Clearing Now
```

SETUP • TRAN

Press [SETUP] followed by [TRAN] to enter the TRAN options menu. This menu has two pages. Press the [TRAN] key again to access the second page.

The first page has a list of all the machines that the Micro Lynx supports. Use the [LAST] and [NEXT] keys to select the tape machine manufacturer. Press the [+] and [–] keys to step through the list of transports for that manufacturer. This process should be repeated for each machine connected to the system. Press machine select key (A-C) to select the next machine and set the appropriate transport type.

Press [SETUP] again to exit setup and store the transport settings. The transport selections are retained in memory and should only need to be reset if the transport type is changed.

The second transport setup page contains a list of transport specific parameters. Most of the 10 menu settings are automatically set by the selected transport type. Select a specific heading and use the [+] and [–] keys to make changes to the default settings, if required.

Table Chapter 8 -6. TRAN Setup Menu

KEY	MENU	SUB-MENU	RANGE
TRAN	Machine Select		
	Last/Next	Transport Mfgr	
	+/–	Machine Model	
	TRAN	0 Capstan Mode	Wild, *Resolved*
		1 Capst Spd Trim	-128 to +127 *(0)*
		2 Lifter Defeat	Never, Normal, Not Stp/Play, Always
		3 Record In	Pulse Rec; P-Rec, Play
		4 Record Out	Pulse Play; P-Rec, Play; Pulse Stop; P-Rec, Stop; P-Play, Stop; Pulse Opto; Special Opto
		5 Rehearse In	Latch Reh; Pulse Reh; P-Reh, Play; P-Reh, Reclog; L-Reh, Reclog; Pulse Rec
		6 Rehearse Out	Unlatch Reh, Pulse Play, Save as Rec
		7 Approach Speed	20-254
		8 Bandwidth Limit	*Off*, On
		9 Reader Mode	LTC/SER TC; LTC/TT1; Serial TC; T.Timer 1
		00 Mute Control	Normal, Until Rslved, Until Locked, Not Locked
		NEXT Lock Threshold	0-50 *(35)*
		NEXT Lock Delay	0-50 *(10)*
		NEXT Park Window	0-10 *(10)*

The transport option menu parameters operate as follows:

Capstan Mode Resolved. The Micro Lynx controls the speed of the machines capstan. It is used when synchronizing.

Capstan Mode Wild. The machine capstan is set to its own internal reference and the Micro Lynx does not control its speed. Use it when striping time code or if the tape has no time code.

Capstan Speed Trim. This advanced feature should be used only by an experienced engineer or technician. It allows the "wild speed" of the machine to be adjusted by the operator when a voltage controlled machine does not run at the right speed before synchronizing. It also adjusts the wild speed for a tape that was recorded off pitch.

This adjustment is retained in memory, separately for each transport type. It is restored when the transport is selected. It is NOT erased when [CLR] + [TRAN] is pressed. It is only erased if a complete memory clear is performed, [CLR] + [SYS]. This allows

the information to be retained for a machine when selecting another machine.

Lifter Defeat. Selects which condition allows the Micro Lynx to defeat the machines lifters to read time code from the tape; it is usually set to Normal. In Normal, the Micro Lynx defeats the lifters only as the machine slows to park, to check that it has located correctly.

Record In. Selects the command method or logic to punch the machine into record.

Record Out. Selects the command method or logic to punch the machine out of record.

Rehearse In. Selects the command method or logic to punch the machine into rehearse.

Rehearse Out. Selects the command method or logic to punch the machine out of rehearse.

Approach Speed. Sets the approach speed or deceleration point for a machine as it slows to park. Use it to adjust machine performance if the park point is consistently over or under shot. Increase the value to slow the transport later. Decrease the value to slow the transport earlier.

Bandwidth Limit. Selects a time code reader input (RDR) filter circuit that bandwidth limits the input frequency range. This should be used if the time code source is noisy. This is usually only required with video machines.

Reader Mode. Selects the time code source for the machine; it is normally set to LTC. Serially controlled video machines will be set to read serial time code as follows:

- **Serial TC:** The Micro Lynx asks the transport for either longitudinal or VITC time code. Arbitration between the two is performed by the transport itself. Synchronization is achieved using serial time code only, and the local longitudinal reader is completely disabled. All numeric information in the time display is collected over the serial port.

  It is essential, if serial time code lock is to be used, that both the Micro Lynx and the serial transport are referenced to the same video reference source, as time code requests to the transport must synchronize to this reference.

  This selection will revert internally to “LTC/SerTC” if the selected transport is not capable of serial time code locking.

- **Serial TT1:** The Micro Lynx requests only tape timer information from the serial transport. Synchronization is

performed using control track data alone, without the assistance of a time code track. The tape timer time code defines tape position absolutely, and may be reset or preset from the keyboard. When in this mode, all operations are performed exactly as if actual time code were present.

Notes:

a) The new time code selections apply to transports using Sony protocols only. For Ampex transports, no distinction is made between LTC/VITC, LTC and VITC.

b) The default serial time code selection for any transport is loaded when the transport is selected. It is no longer reset by a CLR TRAN.

Lock Threshold. The time code window or threshold in subframes (0-50 sfr) that the machine has to be within before the lock delay starts running. The lock window setting can be adjusted when time-to-lock may be more critical than lock accuracy. This can be used to fix problems with unstable machines, bad or misframed time code or to cause a Digital or Video tape transport to release with a looser lock tolerance. The setting is used in conjunction with the Lock Delay setting.

Lock Delay. The time in frames (0-50 fr) that the machine has to be continuously in the lock window, before it is considered that the transport is locked, and the Micro Lynx will show lock status. It should be noted that very short lock delays could result in the machine locking in the wrong place.

Park Window. The park window in frames (0-10 fr), for video and film transports only. This is used to accurately cue a video transport to a specific location. If the park window is set to zero, then the transport will respond to a ±1 frame locate. The video park window setting is set for all VTRs and is not reset when a different video machine is selected for that group (A-C).

EVNT The [EVNT] key is used to access the Micro Lynx GPI relays. The GPI relays can be made to operate or follow several internal time code registers. The default setting for the GPIs is Auto-set. In this mode, the relays follow the edit in point. When the in point is changed, then the GPI execution point changes with it.

If a GPI closure is required at a particular time code value then set the GPI mode to Normal and enter a GPI in point time code value. The GPI will then always operate at that time code value.

Each GPI has a Preroll and Duration register. The Preroll register is used to advance the closure time to allow for slow start of externally triggered devices. The Duration can be set to suit the

closure type required. Press [EVNT] followed by a 1 or 2 to select the respective GPI.

The following transport keys are used to affect GPI operation:

STOP. Takes the GPI offline

PLAY. Sets the GPI to ready or active

REH. Will rehearse the closure

SETUP • EVNT

Press [SETUP] followed by [EVNT] to enter the EVNT Setup option. Select the GPI number to enter the menu. GPI 1 only has a mode select option. GPI 2 has four headings that define the event process. GPI 2 can be set to operate as a dialog beep or talent cue output, by setting options 1-3.

Table Chapter 8 -7. EVENT Setup Menu

KEY	MENU	SUB-MENU	RANGE
EVENT	Select GPI Options		
	1 GPI 1		Normal, *AutoSet*, Rec Tally, Edit Rec, Reh Tally, Edit Reh, Lock Tally
	2 GPI 2	0 Mode	*Normal*, Autoset, Rec Tally, Edit Rec, Reh Tally, Edit Reh, Lock Tally
		1 Beep Mode	Off, *On*
		2 Beep Spacing	10-30 *(20)*
		3 Last Beep	*Muted*, On

LIST This function is not currently in use. It will be used in the future for access to list functions.

MEM The [MEM] or Memory register key is used with the calculator keypad. Use [STO] to store time code numbers to a memory register and [RCL] or [MEM] to recall numbers from a memory register.

Up to 100 memory registers are available in the Micro Lynx. The default is 0-9. Use the Setup menu to select 00-99 memory locations. If you select 100 registers, you must always enter two digits to store or recall a number. To recall a memory, press the [MEM] key followed by the memory register number. The memory time code value is displayed. To store a time code number, press [STO] followed by [MEM] and the memory register number.

SETUP • MEM

Press [SETUP] followed by [MEM] to change the memory size. Memory size selects the number of memory spaces that will be available for storing values.

Table Chapter 8 -8. MEM Setup Menu

KEY	MENU	SUB-MENU	RANGE
MEM	Memory Option	Memory Size	*0-9*, 00-99

Group Select Keys

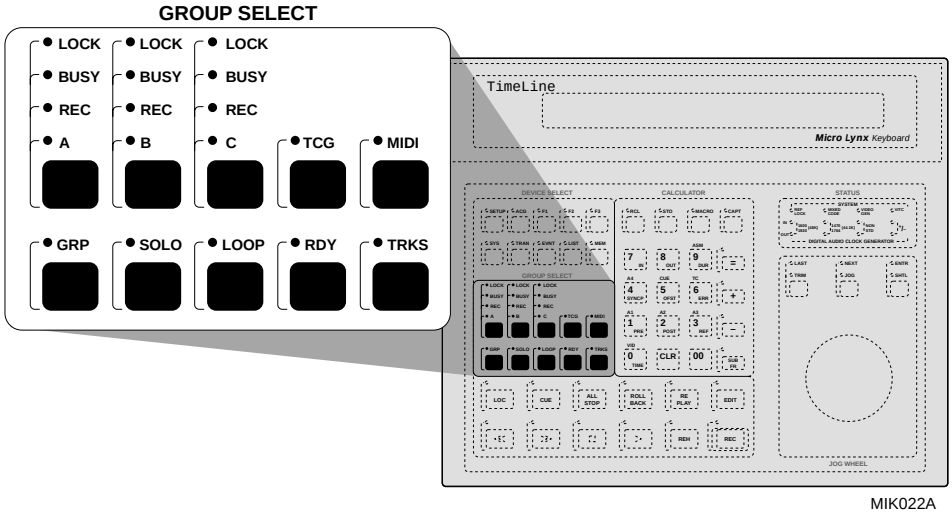


Figure Chapter 8 -7. Group Select Keys

A-C, TCG, MIDI

The Micro Lynx will control up to three machines that are assigned to the Group keys (A-C). The C machine is only available when a Machine Expansion Card (M3) is installed. The Time Code Generator (TCG) also has a “machine” key and can be considered as a 4th machine. The [TCG] key controls both the LTC and MTC generators. The three machines and the TCG may be operated either individually in solo mode or together, synchronously in group mode.

Solo Mode

Press [SOLO] and the appropriate machine select key (A-C, TCG). The transport control keys will control only the selected machine. All other machines will remain in their current state of motion. To select a different machine, press the appropriate machine select key (A-C, TCG). Solo TCG is normally only used if you want to generate time code, but can be used to control a time code only chase device.

Group Mode

All machines assigned to the group will be controlled together by the transport control keys (synchronously in play). To assign a machine to the group, press and hold the [GRP] key and press the appropriate machine select key (A-C, TCG). To remove a machine

from a group, press and hold the [GRP] key and the appropriate machine select key (A-C, TCG). The [MIDI] key is a special case that is used for MIDI time code chase. When the [MIDI] key is grouped, it automatically becomes the Master.

SETUP + A-C, TCG

Use this key combination to change the master machine designation. Press and hold the [SETUP] key, then press the key (A-C or TCG) of the machine that you want to select as master.

LOCK LED

This LED indicates that the corresponding machine (A-C) is in play and locked to the system reference.

BUSY LED

This LED indicates that the corresponding transport is in motion but not locked. Generally, one of the following operations is in progress:

Start of Play
Rewind
Fast Forward
Shuttle/Jog

If this LED is always turned on, then the corresponding machine (A-C) is in wild speed mode. In wild speed mode the Micro Lynx is not controlling the machine's capstan and the machine is not locked to the system reference. It is used to stripe a new reel of time code or if a tape has no time code. See Getting Started for an example of striping time code.

REC LED

This LED indicates that the corresponding machine is in Record. If it is flashing then the machine is record enabled; it will go into record when a REC command is issued.

TCG

The [TCG] key selects or deselects the Time Code Generator (TCG). The TCG can be soloed or included in a group like a tape machine. Use the TCG options menu in Setup mode to select the time code type and generation method. The generator will always jam to the incoming reader code and can be set to either run continuously or follow group transport operation. If necessary, an offset can be entered.

The TCG LED indicates that SMPTE time code is being generated or will be generated when the play command is issued. Time code generation is selected in Setup mode under TCG options. When striping time code for the first time, use the preprogrammed macros, which automatically set up the Micro Lynx to generate time code (MACRO + 9) and macro (MACRO + 8) to exit time code generation mode. An example is presented in the Getting Started section.

SETUP • TCG

Press [SETUP] followed by [TCG] to enter the TCG options menu. This menu has seven headings that set the system reference, time code types, generator mode, aux output signal, and the video sync generator. Pressing a calculator key (0-6) gives direct access to the various menu headings. Use the TCG options to configure the Micro Lynx system for your particular application. The selections are as follows.

Table Chapter 8 -9. TCG Setup Menu

KEY	MENU	SUB-MENU	RANGE
TCG	TCG Options	0 System Ref	*Intfix*, Intvar, Extvid, Aux, VSO Master, ACG
		1 System Spd/Code	24Hz/24; 25Hz/25 *(PAL)*; 29.97Hz/DF; 29.97Hz/30 *(NTSC)*; 30Hz/DF; 30Hz/30
		2 Varispeed %	87.5% - 112.5% *(100.00%)* Jog/Shtl Wheel = ±0.1% +/– = ±0.1%
		3 TCG Group Mode	Play, Run; *Play, Mute*; Play, Wind
		4 TCG Still Mode	*Off*, On
		5 Aux Output Sel	Pilot, Reshape 1, Reshape 2, Reshape 3, *GPI-2 Beep*
		6 Video Sync Gen	*Off*, On

MIDI

The Micro Lynx generates MIDI Time Code (MTC) locked to the system reference with the same time code value as the SMPTE time code generator. When the TCG LED is on, it indicates that MTC is being generated or will be generated when a play command is issued. The MIDI Time Code generator is automatically selected with the time code generator.

When MIDI is selected as a machine, the MTC source automatically becomes the group master. This is a special synchronization case that is only used when it is required to operate the system in MIDI time code chase.

SETUP + MIDI

The Micro Lynx provides a comprehensive MIDI routing capability. Please refer to the Advanced Features section for detailed information.

GRP (GROUP)

Press [GRP] to operate selected tape machines as a synchronous group. When group is active, the GRP LED and the selected machine keys (A-C, TCG) will turn on. See the Getting Started section for a complete example.

Procedure

To assign a tape machine to a Group:

1. [GRP]

   GRP and machine LEDs flash

   ```
   Hold the "GRP" key, and add
   groups in order of priority.
   ```

   This is the machine selection prompt. You have not grouped any machines.

2. [GRP] + [A]

   A LED turns on

   ```
   A*                          A→ 1:03:47:17
   .                                       0
   ```

   Press [GRP], hold it, and press the Machine select key. Time code and machine letters are displayed, the A machine is the master.

Remove a machine from the Group:

3. [GRP] + [A]

   ```
   Hold the "GRP" key, and add
   groups in order of priority.
   ```

   Press [GRP] and the machine select key to remove a machine from the group.

GRP Status Mode

The machine keys (A-C, TCG) are used to access status mode. Status mode displays information specific to the machine selected. Status mode is indicated on the display as follows:

```
STAT:A                        A→23:59:32:22
.                          Err:          0.-
```

The time code and offset error for the selected machine is displayed. The group LEDs stay lit in both GRP and STAT modes.

To display machine status perform the following:

Procedure

1. [GRP]

2. [B]

Select the appropriate machine key. Status information for B is displayed.

3. [B]

Exit status mode by pressing the machine key or [GRP].

SETUP • GRP

Press [SETUP] followed by [GRP] to enter group options in the setup menu. There are four headings:

Table Chapter 8 -10. GRP Setup Menu

KEY	MENU	SUB-MENU	RANGE
GRP	Group Options	0 Search Mode	Chase, *Group*
		1 Ref Follow Mstr	Off, *On*
		2 Group parkahead	0-30 *(25)*
		3 GRP LED Status	*Normal*, Time code

Group Search Mode If Group search is selected the machines will locate independently. If Chase search is selected they will chase the master machine. Whether you select chase or group depends on the machines selected and your normal method of working. If a lot of manual locating will be performed, then the system time to lock may be improved by selecting chase search.

REF Follow MSTR When Reference follow Master is set to on, then each time the Master machine is changed, the reference transport will change with it.

Group Park Ahead The default time in frames (0-30) that the slave transports will park ahead of the Master in stop. This value is modified by the system to optimize lock time, unless set to zero when the machine will always park at the Master position.

Group LED Status The GRP LEDs can be set to indicate

- Normal status, the machines selected to the group.
- Time code present.

In normal status the GRP LEDs (A-C, TCG) will be on if a machine is selected to the group.

In time code status, the GRP LEDs turn on when a machine is in play and time code is present. The LEDs turn off in stop and if a machine is in play with no time code present.

If time code present status is selected, when the [GRP] key is pressed, the LEDs will switch to normal status and turn on to indicate those machines selected to the group.

GRP + SETUP

Press and hold the [GRP] key, then press the [Setup] key to clear all machines in the group and select a new reference machine. The first machine selected becomes the new time code reference machine. All positional information is retained and any offset information is correctly transferred to the new slave machines. Remember: The time code reference machine (*) does not have to be the master machine. (See Setup + A-C to select a new master machine).

Procedure

1. [GRP]

A is the reference machine.

2. [GRP] + [SETUP]

Reselect the group. The first machine selected will be the reference machine.

3. [GRP] + [B]
   [GRP] + [A]

B becomes the reference and master. Offsets are automatically transferred.

4. [A] + [SETUP]

A becomes the master, B remains the reference. Offsets are transferred.

SOLO

Press [SOLO] and the appropriate machine select key (A-C, TCG) to place a machine in Solo mode. The transport motion control keys will only control the soloed machine, all other machines remain in their previous state. Press the [SOLO] key a second time to switch back to GRP mode.

Status Mode

The machine keys (A-C, TCG) are used to access Status mode in Solo. Press the soloed machine key; the display will show the offset error for the soloed machine. Press [SOLO] or the machine key again to return to Solo mode.

Procedure

1. [SOLO] + [A]

A is soloed.

2. [A]

The offset error status is displayed.

3. [A]

Press the machine key or [SOLO] to take A out of status mode

LOOP

Press the [LOOP] key to select Edit Loop or Cycle mode. The Loop key will continuously cycle an edit until it is interrupted by a transport command.

SETUP • LOOP

Press [SETUP] followed by [LOOP] to select the loop options. This menu has three headings that define the loop process after edit and replay passes. Press a calculator key (0-2) for direct access to the menu headings.

Table Chapter 8 -11. LOOP Setup Menu

KEY	MENU	SUB-MENU	RANGE
LOOP	LOOP Options	0 After Edit	*Re-Edit*, Replay
		1 After Replay	*End*, Repeat
		2 After End	*Stop*, Recue

RDY

The [RDY] key is used to record enable tape machines. Press and hold the [RDY] key followed by a machine select key (A-C) to record enable a specific machine. When the machines REC LED flashes, it is record enabled. When a transport record command is issued, machines that are in play and locked will enter record and the REC LED stops flashing and turns on.

To disable record enable status for an individual machine, press and hold the [RDY] key; then press the machine select key again.

To disable all machines that are record enabled, press and hold [CLR] followed by [RDY].

SETUP • RDY

Press [SETUP] followed by [RDY] to enter the record timing options menu.

Table Chapter 8 -12. RDY Setup Menu

KEY	MENU	SUB-MENU	RANGE
RDY	Record Options	0 Rec Adv 30-In	0-255
		1 Rec Adv 30-Out	0-255
		2 Rec Adv 15-In	0-255
		3 Rec Adv 15-Out	0-255
		4 Rec Adv 7.5-In	0-255
		5 Rec Adv 7.5-Out	0-255

The record command advance timing is automatically set for each transport when it is selected. If necessary, use this menu to further advance or retard the record command at each tape speed for a particular machine.

TRKS

Use the [TRKS] key to record enable specific tracks on a tape or video machine. This feature is normally only fully used on serially controlled machines. Press the [TRKS] key to enter track select mode. Press the machine select key (A-C) that you wish to record enable.

When a track is enabled the track number is displayed; if the track is safe, a line (–) is displayed. XXX indicates that the track is safe or unavailable. To accommodate the various types of machines, one of three different setup displays will be used.

Procedure

1.

```
TRAN A:              A1 A2 A3 A4 Syn TC
TRACKS
```

Video or audio machine with less than 5 audio channels.

2.

```
TRAN A:           A1 A2 A3 A4 A6 A7 A8
TRACKS
```

Machines up to 8 audio channels.

3.

```
TRAN A:      01 - - - - - - - - - - 23
TRK #5       02 - - - - - - - - - - 24
```

Multitrack with more than 8 audio channels.

To disable (or safe) all record enabled tracks, hold [CLR] then press [TRKS].

Video Machines Press the following calculator keys to record enable the corresponding track.

Key	Track	Key	Track
1	A1	0	Vid
2	A2	5	Sync/Cue
3	A3	6	Time code
4	A4	9	Assemble

Audio Machines For multitrack machines with up to 8 tracks, press the following calculator keys to record enable the corresponding track.

Key	Track	Key	Track
1	A1	5	A5
2	A2	6	A6
3	A3	7	A7
4	A4	8	A8

Multitrack Machines Enter the track number and use the [LAST] and [NEXT] keys or the Jog Wheel to select the track to be record enabled. Press [+] to enable and [–] or [CLR] to disable (or safe) each track. If the machine has more than 24 tracks, press the [TRKS] key a second time to display the higher number tracks.

Key	Function
(Number)	The number toggles the track
CLR	The selected track is cleared
CLR + TRKS	Clears all of the tracks
+/–	Toggles the track
Jog Wheel	Selects the track number

Procedure

```
A* B  t                    B→ 1:09:55:07
.  .  .                                0
```

1. [TRKS]

   TRKS LED flashes
   Selected TRAN LEDs flash

```
TRAN B:       - - - - - - - - - - - -
TRK #         - - - - - - - - - - - -
```

   The selected machine and TRAN LEDs flash. Change machine by pressing a different machine select key.

2. [01], [02], [03], [04]

```
TRAN B:       1 3
TRK #4        2 4
```

   Press [NEXT], use the Jog Wheel, or enter the track number (number less than 10 must be preceded by a zero).

```
      Track is safe or not available
```

   If this message is displayed, the track is not available or must be enabled.

3. [+] and [–]

```
TRAN B:       1 3 5
TRK #5        2 4
```

   Press [+] (plus) to enable tracks. Press [–] (minus) to disable (safe) tracks.

4. [CLR] + [TRKS]

```
TRAN B:       - - - - - - - - - - - -
TRK #5        - - - - - - - - - - - -
```

   Press [CLR] + [TRKS] to make all tracks safe.

5. [TRKS]

```
A* B  t                    B→ 1:09:55:07
.  .  .                                0
```

   Press [TRKS] or a motion key to return to normal operation.

SETUP • TRKS

Press [SETUP] followed by [TRKS] to enter the Tracks option menu. The two selections in this menu relate specifically to video machines.

Table Chapter 8 -13. TRKS Setup Menu

KEY	MENU	SUB-MENU	RANGE
TRKS	Track Options	0 Video Tracks	*Safe*, Ready
		1 Video Auto-Rst	*Off*, On

Video Tracks Ready allows access to the video insert track enable and assemble mode for video machines. This option defaults to safe and is inhibited in track select.

Video Auto Reset Video Auto Reset, works in conjunction with setup menu option 0, Video tracks. If Video auto-reset is set on and Video tracks is set to ready, access is permitted to the video tracks for a single record pass. The Micro Lynx allows one record command to be issued to the video machine and then automatically resets the video tracks option back to safe.

These two options are designed to protect the audio facility from inadvertently recording on the video portion of a work tape. However, in some circumstances video track enable may be necessary. For example, when a transfer is being done from one machine to another.

Calculator Keys

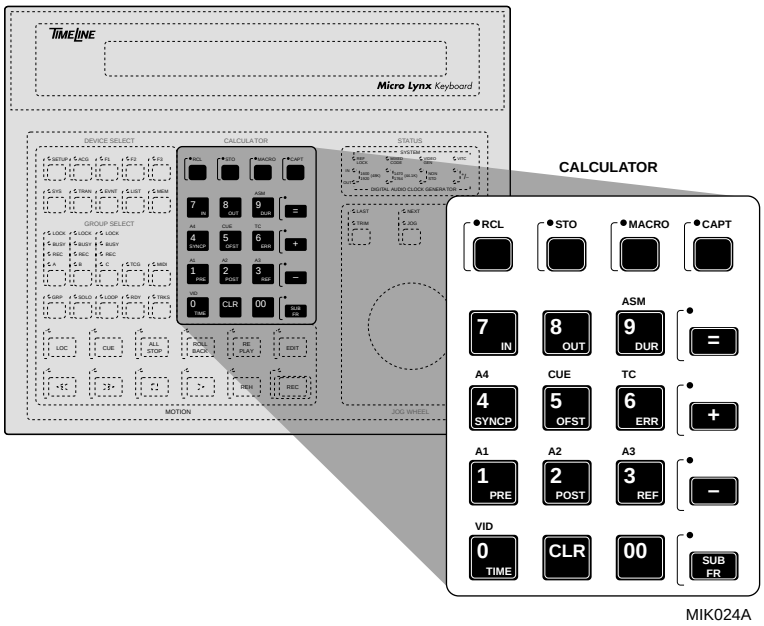


Figure Chapter 8 -8. Calculator Keys

The Micro Lynx Calculator keys perform multiple functions:

- Number Keypad
- Register & Memory Locations
- Auxiliary Function

When a numbered key is pressed, the calculator is active. Calculator numbers are entered left-to-right with the most significant digit first, leading zeros are ignored. Auxiliary function keys [+], [–], and [=] are used with the calculator.

When a numbered key is pressed after [TRIM], [CAPT], [RCL], or [STO], the auxiliary function of the numbered key becomes active.

00

This key is similar to the double 0 key on a calculator; it inserts two zeros into the display. This is particularly useful when entering time code numbers.

CLR

This is a multiple mode Clear key. It clears the data entry area of the display window.

Press [CLR] to perform the following:

1. Exit calculator mode and return to the normal operating display.
2. Clear incorrect entries for any key or function.
3. Clear the data entry buffer. If a number is entered but not yet stored to a register, the original register value is retained.
4. Clear registers. To clear a specific register, simultaneously press the [CLR] key and the calculator key for the register that you wish to clear. For example, hold down the [CLR] key and press [OFST] to clear the offset register for a slave machine.
5. The [CLR] key is also used in combination with the "Device Select" and "Group Select" keys to cancel or reset system parameters.

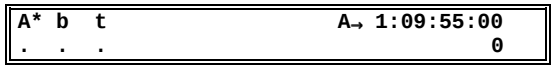
Procedure

CLR

1. 1 2 3

The numbers entered are displayed in the calculator display, the lower right quadrant of the display.

2. [CLR]



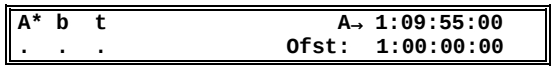
The calculator display is cleared. It will be cleared during any arithmetic operation also.

Clear a Register

3. [RCL]

Press [MEM] or a register number.

4. [5] (OFST)



The register or memory contents are displayed.

5. [CLR] + [5]

The register display is cleared.

CLR + SYS

6. [CLR] + [SYS]

```
Press ENTR to confirm
```

Since this key combination resets the System Unit to its default condition, you are asked to confirm this action.

[ENTR] (SHTL)

```
System Unit Clearing Now
```

Press any other key to abort the reset.

CLR + SETUP

7. [CLR] + [SETUP]

```
Press ENTR to confirm
```

Since this key combination resets the Keyboard Controller to its default condition, you are asked to confirm this action.

[ENTR] (SHTL)

```
"Holding memory" unless you press and
    hold CLR key within 1 second
```

```
Lamp test, Holding Memory
```

The Keyboard resets. All memory settings are retained.

8. [CLR]

```
Lamp test, Clearing Memory
```

If the [CLR] key is held within 1 second of pressing [ENTR], the Keyboard resets and clears memory settings.

CLR + TRAN

9. [SOLO] + [A]

```
SOLO:A >                    A→ 1:00:00:00
                                        0
```

Select solo mode. Select the machine to reset.

10. [CLR] + [TRAN]

```
Transport Clearing Now
```

The selected machine is reset to factory default parameters.
Remember: it is not necessary to reselect the transport.

0 TIME/VID

TIME When not used as a 0 in calculator mode, the [TIME] key provides

access to the Time register. Press [RCL] or [STO], then [TIME] to recall the current value or store a new value in the Time register. The current time code of the machine selected will be displayed. To display the current time code of a different machine: press the appropriate machine select key followed by [RCL] then [TIME].

VID Press this key in TRKS mode to select and deselect the video insert track record enable on a video machine.

1 PRE/A1

PRE When not used as a 1 in calculator mode, the [PRE] key provides access to the Preroll register. This register may be accessed during store, recall, and trim operations. The value in the preroll register is used to calculate the preroll position.

Preroll position = In Point - Preroll value

The preroll position is the time code location that the Micro Lynx uses to cue the master machine during locate and edit functions. The default value for preroll is five seconds.

A1 Press this key in TRKS mode to select and deselect the A1 track record enable.

2 POST/A2

POST When not used as a 2 in calculator mode, the [POST] key provides access to the postroll register. This register may be accessed during store, recall, and trim operations. The value in the postroll register is used by the Micro Lynx to calculate the postroll time code position at the end of an edit sequence. The postroll position is the time code location that the Micro Lynx will roll the transports to at the end of an edit. The default value for postroll is five seconds.

Postroll position = Out Point + Postroll value

A2 Press this key in TRKS mode to select and deselect the A2 track record enable.

3 REF/A3

REF When not used as a 3 in calculator mode, the [REF] key provides access to the Reference Sync Point register. This register may be accessed during store, recall, and trim operations. Press [CLR] and [REF] simultaneously to clear the reference sync point register. The time code number in the reference sync point register is used by the Micro Lynx to automatically calculate offsets for any source machines with source sync points entered. The offsets are calculated as follows:

Offset = Source Sync Point - Reference Sync Point

If you change the reference sync point value, in Trim mode or enter a new reference sync point value, the Micro Lynx automatically recalculates and stores the correct offset for all source machines with active source sync point values.

A3 Press this key in TRKS mode to select and deselect the A3 track record enable.

4 SYNCP/A4

SYNCP When not used as a 4 in calculator mode, the [SYNCP] key provides access to the Source Sync Point register for a specified machine. This register may be accessed in store, recall, and trim operations. Each source machine in the system has a separate sync point register.

To clear the source machine's sync point register, solo a slave machine then simultaneously press [CLR] and [SYNCP].

The time code value in each machine's source sync point register is used by the Micro Lynx to automatically calculate an offset for a source machine relative to the reference sync point. The offset is calculated as follows:

Offset = Source Sync Point - Reference Sync Point

The result of this calculation is displayed as a positive or negative number with an absolute value of 12:00:00:00 (12 hours) or less.

If the reference sync point has a higher time code number than the source sync point, the keyboard displays the offset as a small negative number (for example: -1:10:00:00 rather than the equivalent large positive number, which would be 22:50:00:00).

If you change a source sync point value in trim mode or enter a new source sync point value, the Micro Lynx automatically recalculates the offset for that machine.

The reference machine can not have a source sync point register.

A4 Press this key in TRKS mode to select and deselect the A4 track record enable.

Procedure

Set a Sync Point

1. [SOLO] + [B]

```
SOLO:b .                    b→ 2:09:55:00
                                       0
```

   Solo a slave machine.

2. [CAPT]

   STO LED flashes.

```
Store reg or mem            b→ 2:09:55:00
                               2:09:55:00
```

   Enter or capture a time code value and select a register to store the value.

3. [4] (SYNCP)

```
SOLO:b .                    b→ 2:09:55:00
                         Sync: 2:09:55:00
```

   The value is stored in the register. A new offset is automatically calculated and stored for the slave machine, if a ref sync point exists.

Clear a Sync Point

4. [SOLO] + [B]

```
SOLO:b .                    b→ 2:09:55:00
                                       0
```

5. [CLR] + [4]

```
SOLO:b .                    b→ 2:09:55:00
                                       0
```

   The value in the sync point register is cleared.

6. [RCL] + [4]

```
SOLO:b .                    b→ 2:09:55:00
                         Sync:         0
```

   You can verify the clear by recalling the sync point register contents.

5 OFST/CUE

OFST When not used as a 5 in calculator mode, the [OFST] key provides access to the Offset register for a specified machine. This register may be accessed during store, recall, and trim operations. Each slave machine in the system has a separate offset register. The reference machine can not have an offset.

The offset is a numerical expression of the relationship between the source and reference machine time code positions. It is always applied to a slave machine. Offset is determined:

Slave/Source time code	-	Master/Reference time code	=	Offset
02:00:00:00	-	03:00:00:00	=	-1:00:00:00

A positive offset indicates that the source machine time code position is in advance of the reference machine time code position. If the machine selected is the reference tape machine, then the offset register value will be zero since offsets are always applied to slave machines.

Select a machine in solo or group status mode and press [RCL] or [STO] to recall the current offset value or to store a new value in the offset register. If an offset is required, there are three ways to calculate the value: by sync points, manually, or by capturing the offset.

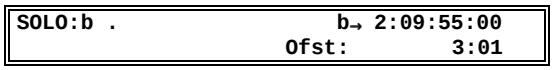
Procedure

1. [SOLO] + [B]

Solo a slave machine.

2. [RCL] + [5]

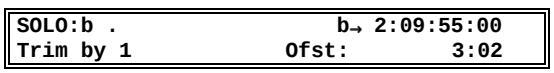
RCL LED flashes



Recall the contents of the offset register.

3. [TRIM] + [+]

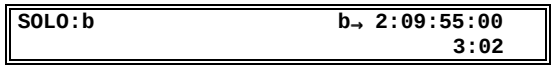
TRIM LED flashes



Turn the Jog Wheel or press [+] or [–] to change the offset value

4. [TRIM]

   TRIM LED off



   Exit trim mode, the new offset is automatically saved.

The Micro Lynx handles offsets correctly in either drop frame or non-drop frame time code as well as in mixed time code situations. Offsets are always stored and displayed in the code format of the reference transport's time code, regardless of the type of code that is present on each source machine. For example, if the reference time code is drop frame, all offsets are handled and displayed by the Micro Lynx as drop frame time code values, even if a particular offset is related to a machine with non-drop frame code.

Remember, *drop frame code is displayed on the keyboard with the frames digits separated from the seconds digits by a comma rather than a colon:*

03:20:40,00

In mixed code situations, the actual offset value necessary to achieve the desired synchronization in the Micro Lynx system is the sum of three components:

1. The actual, "clock" difference between the two time code numbers.
2. A correction to this "clock" offset based on the difference in frame counts between the two time code formats.
3. A correction for the accumulated frame count difference since 00:00:00:00 (time code 'midnight').

For example, if you want to synchronize 1:00:00:00 (non-drop frame) with 1:00:00,00 (drop frame), it actually requires an offset of 3 seconds and 18 frames to account for the difference in running frame count since 'midnight'.

As shown by the complexity of this drop frame example, the simplest method of calculating offsets is to use sync points or capture the frame count and let the Micro Lynx calculate the correct time code offset value.

CUE Press this key in TRKS mode to select or deselect the [CUE] track record enable on a video machine.

6 ERR/TC

ERR When not used as a 6 in calculator mode, the [ERR] key provides access to the machine offset Error register. The error register does not store any numbers, it provides a display of the positional error of a machine. Press [RCL] then [ERR] to display the error register for a selected machine. The error is automatically displayed in status mode.

TC Press this key in TRKS mode to select and deselect the time code track record enable for a video transport.

Status Mode When the Micro Lynx is in group mode, pressing the machine key (A-C, TCG) selects Status mode and automatically recalls the error register. The error register contains the error between the master and slave tape position in frames (see the [GRP] key description under Function Select keys for more information).

The error register display is programmed to show the most relevant information at all times. There are occasions when the offset error display has no meaning. The following table shows the error register status in each transport mode.

Table Chapter 8 -14. Error Register

Display Mode	STOP	PLAY	Rewind/FWD
Solo	0.--	Resolve error (in subframes)	0.--
Group	0.--	Resolve error (Mast machine)	0.--
Stat slave	Distance from Mast (park-ahead)	Resolve error (in subframes)	Distance from Mast (Offset err)
Stat master	0.--	Resolve error (Mast machine)	0.--

The Micro Lynx automatically displays subframe error when the error is less than 1 frame.

For example:

```
STAT:b .                  b→ 2:09:55:00
                       Err:        0.01
```

When the displayed error is greater than 1 frame, the sub-frame component is suppressed and shows only as “x.--.”

```
STAT:b .                  b→ 2:09:55:00
                       Err:          23.-
```

7 IN

When not used as a 7 in calculator mode, the [IN] key provides access to the In Point register. The in point register may be accessed in store, recall, and trim operations. Press [CLR] and [IN] simultaneously to clear the in point register. The number in the in point register is the record in point time code value of the currently programmed edit; it is expressed in terms of the master machine's time code. If there is no in point set then it will be automatically calculated when you enter an out point and a duration.

In Point = Out Point - Duration

The edit-in point is used to calculate source machine offsets if no reference sync point is entered.

8 OUT

When not used as an 8 in calculator mode, the [OUT] key provides access to the Out Point register. This register may be accessed during store, recall, and trim operations. Press [CLR] and [OUT] simultaneously to clear the out point register. The number stored in the out point register is the record out point of the currently programmed edit; it is expressed in terms of the master machine's time code.

The out point is automatically calculated and stored when you enter an in point and a duration.

Out Point = In Point + Duration

Altering the value of the duration will also cause the out point to be recalculated. Conversely altering the out point automatically recalculates the duration.

9 DUR/ASM

DUR When not used as a 9 in calculator mode, the [DUR] key provides access to the Duration register. This register may be accessed in store, recall, and trim operations. Whenever there are active values in the in- and out-point registers, there is a calculated time code value in the duration register. Press [CLR] and [DUR] simultaneously to clear the duration register. Clearing the duration register automatically cancels the out point register. The number in the duration register is the length of the current programmed edit.

Duration = Out Point - In Point

If either the in point or out point are changed, the duration is automatically recalculated.

ASM Press this key in TRKS mode to select or deselect the Assemble function for a video machine.

Procedure

Enter In Point

1. [1], [2], [3], [00], [00]

```
A* b  t                    A→ 1:09:55:00
.  .  .                       1:23:00:00
```

   Use the calculator keys to enter an in point or press [RCL] and select a register or memory.

2. [STO]

```
Store reg or mem           A→ 1:09:55:00
.  .  .                       1:23:00:00
```

   Store the value displayed in the calculator display area in the in point register.

3. [7] (IN)

```
A* b  t                    A→ 1:09:55:00
.  .  .              (A) In: 1:23:00:00
```

   The value is stored in the register.

Enter Out Point

4. [3], [2], [1], [00], [00]

```
A* b  t                    A→ 1:09:55:00
.  .  .                       3:21:00:00
```

   Enter a value or use [RCL] to recall a value from a register or memory.

5. [STO]

```
Store reg or mem           A→ 1:09:55:00
.  .  .                       3:21:00:00
```

   Store the value in the out point register.

6. [8] (OUT)

```
A* b  t                    A→ 1:09:55:00
.  .  .             (A)Out:  3:21:00:00
```

   The value is stored in the out point register. The duration is automatically calculated and stored in the duration register.

Verify the Duration register contents

7. [RCL] + [9] (DUR)

```
A* b  t                    A→ 1:09:55:00
.  .  .                Dur:  1:58:00:00
```

Entering a different value in either the out point, in point, or duration registers will cause the duration to be recalculated.

Auxiliary Function Keys

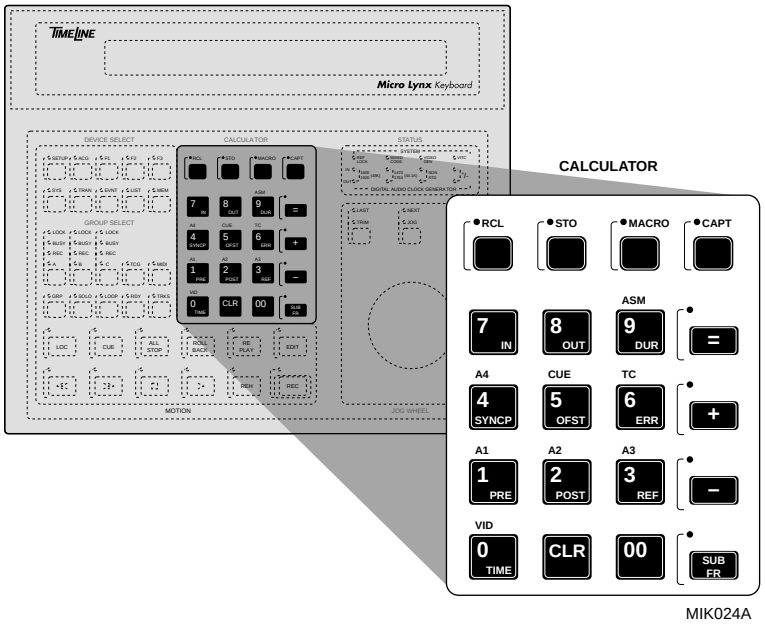


Figure Chapter 8 -9. Auxiliary Function Keys

The Auxiliary Function Keys are used to perform arithmetic operations with the calculator keys and in combination with other keys to facilitate Micro Lynx operations.

RCL

The [RCL] key recalls time code values that are stored in the Micro Lynx registers and memories. Some registers are specific to each machine for example, sync point and offset. To display the sync point or offset for a machine, solo the machine or select group stat mode before recalling these registers.

Procedure

1. [RCL]

   RCL LED flashes

   ```
   Recall reg or mem          A→ 1:03:47:17
   ```

   A calculator key selects a register or press [MEM] and calculator key to select a memory.

2. [7] (IN)

```
SOLO:A .                    A→ 1:03:47:17
                      (A) In:  1:23:00:00
```

The in point time code is displayed and the RCL LED turns off.

STO

The [STO] key is used to store time code values in the Micro Lynx registers and memories. Press the [STO] key, "Store reg or mem," will be displayed. Press one of the calculator keys to store the value in the calculator data entry buffer to the corresponding register. Press the [MEM] key followed by a memory number to store the value in a memory location.

Press [CLR] or [STO] again to cancel the command. The [STO] key can be used to store a value to any of the following registers.

Time	
In Point	
Out Point	
Duration	
Sync Point	(select a machine first by pressing A-C or TCG)
Offset	(select a machine first by pressing A-C or TCG)
Preroll	
Postroll	
Reference	

If the currently selected machine is the reference machine, it is not possible to store an offset or sync point value. The following error message will be displayed:

```
Must be slave
```

Press a machine select key (A-C, TCG) to change the current machine to a slave transport.

The store function is automatically selected when you press the [CAPT] key. Requiring only the selected register or memory key to be pressed to store the time code value.

Procedure

1. [3], [1], [3], [0], [2], [2], [3]

```
SOLO:A .                    A→ 1:03:47:17
                               3:13:02:23
```

   Enter (or recall) a time code value. 3:13:02:23

2. [STO]

   STO LED flashes

```
Store reg or mem          A→ 1:03:47:17
                             3:13:02:23
```

Press a calculator key to select a register or press [MEM] and a calculator key to select a memory.

3. [7] (IN)

   STO LED turns off

```
SOLO:A .                  A→ 1:03:47:17
                  (A) In:  3:13:02:23
```

The time code is stored in the in point register.

MACRO

The Micro Lynx has 10 programmable Macro keys. They can be programmed to execute any key sequence. Press [MACRO] followed by a number (0-9) to execute a macro sequence.

The [F1] and [F2] keys are short cut keys to macros (1 & 2). They are programmed by the factory to capture and store in, out, and cue points. Macro's 8 and 9 are also factory programmed to switch the Micro Lynx in and out of the correct mode for striping time code. It is possible to clear and reprogram these keys; however they will default to the factory settings if the keyboard is reset.

The message "Macro # executing" is displayed whenever a macro key is pressed.

SETUP • MACRO

Press [SETUP] followed by [MACRO] and the macro number that you wish to program. Enter the key strokes in the correct sequence that the macro will run. Press the [MACRO] key again to save the sequence and exit, macro setup.

A macro sequence may not be included or nested within another macro sequence. To clear a macro, press and hold the [MACRO] key while pressing the number of the macro that you wish to clear.

Procedure

1. [SETUP] + [MACRO]

   MACRO LED flashes

```
Program Macro:     0 - - - 4 5 6 7 - -
```

The macros that are not programmed are listed. Select a macro number.

2. [4]

```
SOLO:A .                    A→ 1:03:47:17
```

Select macro 4 to program, the display returns to normal operation.

3. [CAPT]

CAPT LED flashes

```
Store reg or mem            A→ 1:03:47:17
                               1:03:47:17
```

A calculator key selects a register or press [MEM] and calculator key to select a memory.

4. [7] (IN)

```
SOLO:A .                    A→ 1:03:47:17
                         (A) In:  1:03:47:17
```

The time code is stored in the in point register.

5. [MACRO]

MACRO LED turns off

```
SOLO:A .                    A→ 1:03:47:17
                         (A) In:  1:03:47:17
```

The macro is programmed. In this sequence each time that Macro 4 is selected the current time code will be stored in the in point register. (This is the function that Macro 1 (F1) performs).

CAPT

The [CAPT] key captures the current time code value for storage in any of the Micro Lynx registers or memories. When you press the [CAPT] key, the value of the time code shown in the display is instantly captured.

Press a register or memory key to store the time code value. If you do not want to store or save the value in a register, then press [CLR] or [CAPT] a second time.

Procedure

1.

```
A* b+                       A→03:13:02:23
.  .
```

You would like to capture this value and store it in the in point register.

2. [CAPT]

CAPT LED flashes
STO LED flashes

```
Store reg or mem          A→03:13:02:23
.  .                        03:13:02:23
```

The current time code is placed in the data entry buffer.

3. [IN] (7)

CAPT LED turns off
STO LED turns off

```
A* b+                     A→03:13:02:23
.  .                (A) In: 03:13:02:23
```

The time code is stored in the in point register.

= (equal)

The Equal key is used in conjunction with the [+] and [–] keys to perform time calculations. It is used to complete a calculation sequence and when pressed, the sum or difference will be displayed. The answer is always displayed in the time code format of the master machine.

Procedure

1. [RCL] + [7] (IN)

```
A* b+                      A→ 3:13:02:23
.  .                (A) In:     3:47:17
```

Enter a value into the calculator display. If adding a value to an existing register, recall the register contents first.

2. [+]
2 0

```
A* b+                      A→ 3:13:02:23
.  .                  plus           20
```

Enter number to be added.

3. [=]

```
A* b+                      A→ 3:13:02:23
.  .                             3:48:07
```

The answer is displayed in time code. Press [+] or [–] to begin a new calculation or [CLR] to return to the normal operating display.

+ (plus)

The [+] or addition key is used with the [=] key to add two values together.

Additions are computed in frames and displayed in the code type or format of the master machine. Press [CLR] to begin a new calculation or to return to the normal operating display. The arithmetic is correctly performed even if the numbers entered are

incorrectly formatted. For example, if you enter 1:65:43, it will be translated to 2:06:13 (30 frame calculation) during the calculation.

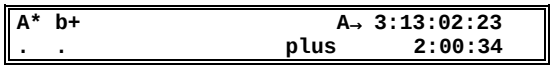
The [+] (plus) key is also used in setup to select the next option in a menu. It is used in TRIM mode to bump or increase the numerical value stored in a selected register by the trim register value.

Procedure

1. [1], [6], [5], [4], [3]

   Enter the first number or press [RCL] and use the value in a register.

2. [+]
   [2], [0], [0], [3], [4]



   Enter the second value.

3. [=]

   The answer is displayed in time code (30 frame calculation). At this point you may decide to save this time code in another register.

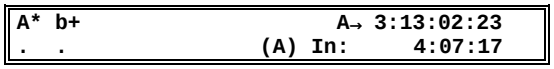
4. [STO]

   STO LED flashes

   Select a register or memory in which to store the value.

5. [IN] (7)

   STO LED turns off



   The sum is stored in the in point register.

6. [CLR]

   The display returns to the normal operating display.

– (minus)

The [–] or minus key is used with the [=] key to subtract two time code values. Subtractions are computed in frames and displayed in the code type or format of the master machine. After perform-

ing the calculation, it may be stored to a register. Press [CLR] to begin a new calculation or return to the normal operating display.

The minus key is also used in setup to select the previous option in a menu and in TRIM to bump or decrease the numerical value stored in a selected register by the trim register value.

If you subtract a large number from a smaller one, the result will be displayed as a negative time code number.

Procedure

1. [1], [6], [5], [4], [3]

```
A* b+                          A→ 3:13:02:23
.  .                                1:65:43
```

   Enter the first number or press [RCL] and use the value in a register.

2. [–]
   [2], [0], [0], [3], [4]

```
A* b+                          A→ 3:13:02:23
.  .                    minus      2:00:34
```

   Enter the second value.

3. [=]

```
A* b+                          A→ 3:13:02:23
.  .                                   5:09
```

   The answer is displayed in time code (30 frame calculation). At this point you may decide to save this time code in another register.

4. [STO]

   STO LED flashes

```
Store reg or mem               A→ 3:13:02:23
.  .                                   5:09
```

   Select a register or memory in which to store the value.

5. [IN] (7)

   STO LED turns off

```
A* b+                          A→ 3:13:02:23
.  .                  (A) In:         5:09
```

   The difference is stored in the in point register.

6. [CLR]

```
A* b+                          A→ 3:13:02:23
.  .                                      0
```

   The display returns to the normal operating display.

SUBFR

The Micro Lynx stores time code values in high resolution format. In normal operation, the high resolution or subframe content of all time code numbers except for the error display is suppressed.

Press the [SUBFR] key to enter or trim the subframe information. SUBFR is commonly used when adjusting offsets between machines. This can be done dynamically so that it is possible to easily adjust the positional relationship between machines until the audio phases.

Recall the offset for a slave machine that requires altering and press [TRIM] and [SUBFR]. The Jog Wheel and [+] and [–] keys can now be used to trim the offset register in subframe increments.

The Micro Lynx defaults to a subframe trim value of 01 subframes. See Setup SYS for information on how to alter the subframe increment value.

Procedure

1. [B] + [RCL] + [OFST] (5)

```
STAT:b .                  b→ 2:03:52:03
.  .                   Ofst:  1:22:56:09
```

   Recall the offset for a slave machine.

2. [TRIM] + [SUBFR] + Jog Wheel

```
STAT:b .                  b→ 2:03:52:03
Trim by 0.01         Ofst:  1:22:56:08>00
```

   The trim arrow points at the subframes. Turn the Jog Wheel or use the [+] and [–] keys to trim the offset register in subframe increments.

```
STAT:b .                  b→ 2:03:52:03
Trim by 0.01         Ofst:  1:22:56:08>79
```

3. [TRIM]

```
STAT:b .                  b→ 2:03:52:03
.  .                                   0
```

   Exit trim mode. The trimmed value is automatically saved to the offset register.

4. [RCL] + [OFST] (5)

```
STAT:b .                  b→ 2:03:52:03
.  .                   Ofst:  1:22:56:08.79
```

   If desired, recall the offset register to view the new offset.

Status Indicators

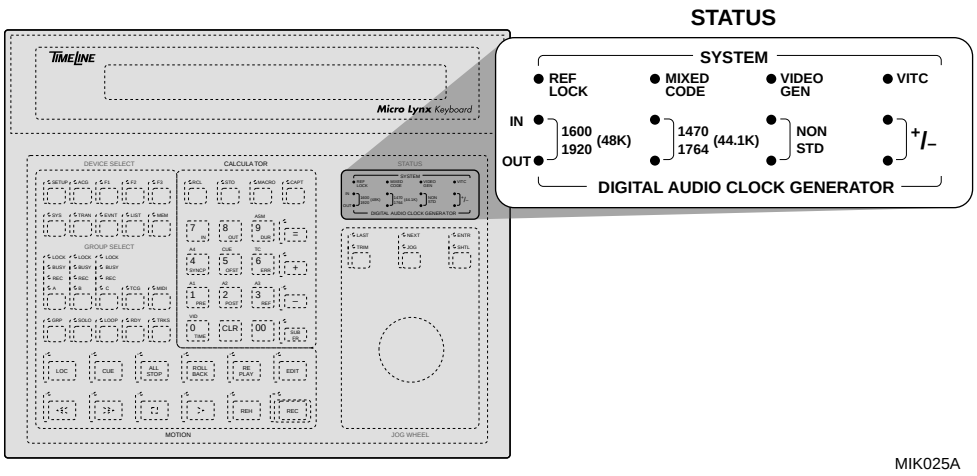


Figure Chapter 8 -10. Status Indicator

System

REF LOCK LED This LED indicates the system speed reference status. If the LED is on then the system reference is present and the System Unit (SU) is locked.

If the LED is flashing it indicates that the reference selected is not present or that the system unit is unable to lock to the reference. For example, the REF LOCK LED would flash if ExtVid was selected as a system reference and an external feed of video sync was not present.

MIXED CODE LED This LED indicates that the system has detected mixed time code formats. If the LED is on it indicates that mixed and compatible types of time code have been detected. For example, 30 frame and drop frame code are different and yet compatible.

The LED will flash if the Micro Lynx time code generator is set to generate a time code type that is incompatible with the incoming reader time codes. For example, if the generator is set to 25 frame, but the machine time code readers are reading 30-frame code. The generator will then be automatically switched to the reference time code type. The LED will remain flashing if machine A, B or C reader time code types are incompatible. (Time code for A, B, C, TCG and MIDI must all be compatible.)

VIDEO GEN LED This LED indicates VSG option card status. If the LED is off, a VSG card is not installed in the system unit or the VSG is selected to off.

If the LED is on, the VSG is selected on and is ON (for instructions on how to select the VSG card see TCG options, item 6 in the Setup menu).

If the LED is flashing this indicates one of four VSG or system error states.

1. The VSG is selected on in the Setup menu, but the card is not installed.
2. The VSG is selected on and the system reference is set to ExtVID.
3. The VSG is selected on and the system frame rate is 24 Frame.
4. The VSG is selected off, the system reference is not set to ExtVid, and there is a released transport type in the group (a VTR or DTR).

Procedure

VIDEO GEN LED flashing

Verify system reference setup.

1. [SETUP] + [TCG] + [0]

```
    Setup:  TCG options
Selection:  System Ref:  IntVar
```

Enter the TCG options menu.

2. [+]

```
    Setup:  TCG options
Selection:  System Ref:  ExtVid
```

Press [+] or [–] until ExtVid is selected.

3. [SETUP]

VIDEO GEN LED turns off

VITC LED This LED indicates VITC reader card status. If the LED is on, the reader is detecting valid VITC data (matching line pair), from the selected video machine.

Digital Audio Clock Generator LEDs

The Digital Audio Clock Generator LEDs indicate the status of the ACG card. The LEDs directly reflect the parameters that have been set in the ACG options under the Setup menu. There are two rows of LEDs the upper row is for ACG inputs and the lower row is for ACG outputs.

IN 1600/1920 This LED indicates that an ACG input sample rate ratio of either 1600 samples-per-frame at 30 Hz or 1920 samples-per-frame at 25 Hz has been set. This is a nominal sample rate of 48,000 Ks/s. This LED should be read in conjunction with the NON STD and +/– LEDs. If this LED flashes, it indicates that the ACG Card has not locked to the incoming signal.

OUT 1600/1920 This LED indicates that an ACG output sample rate ratio of either 1600 samples-per-frame at 30 Hz or 1920 samples-per-frame at 25 Hz has been set. It is a nominal sample rate of 48,000 Ks/s. This LED should be read in conjunction with the NON STD and +/– LEDs. If this LED flashes, it indicates that the ACG output is not locked.

IN 1470/1764 This LED indicates that an ACG input sample rate ratio of either 1470 samples-per-frame at 30 Hz or 1764 samples-per-frame at 25 Hz has been set. This is a nominal sample rate of 44,100 Ks/s. This LED should be read in conjunction with the NON STD and +/– LEDs. If this LED flashes, it indicates that the ACG Card has not locked to the incoming signal.

OUT 1470/1764 This LED indicates that an ACG output sample rate ratio of either 1470 samples-per-frame at 30 Hz or 1764 samples-per-frame at 25 Hz has been set. This is a nominal sample rate of 44,100 Ks/s. This LED should be read in conjunction with the NON STD and +/– LEDs. If this LED flashes, it indicates that the ACG output is not locked.

NON STD IN If only this LED is on, it indicates that an ACG input sample rate ratio of either 1066 2/3 samples-per-frame at 30 Hz or 1280 samples-per-frame at 25 Hz has been set. This is a nominal sample rate of 32,000 Ks/s. If this LED flashes, it indicates that the ACG Card has not locked to the incoming signal.

If the LED is on in combination with one of the previous two input LEDs, it indicates that the nominal sample rate ratio is being varied. If it is on with 1600/1920 for 48,000 Ks/s and with 1470/1764 for 44,100 Ks/s. There is no specific indication when a 32,000 Ks/s input is being varied.

NON STD OUT If only this LED is on it indicates that an ACG output sample rate ratio of either 1066 2/3 samples-per-frame at 30 Hz or 1280 samples-per-frame at 25 Hz has been set. This is a nominal sample rate of 32,000 Ks/s. If this LED flashes it indicates that the ACG output is not locked.

If the LED is on in combination with one of the previous two output LEDs, it indicates that the nominal sample rate ratio is being varied. If it is turned on with 1600/1920 for 48,000 Ks/s, and with 1470/1764 for 44,100 Ks/s. There is no specific indication when a 32,000 Ks/s output is being varied.

+/– IN This LED operates in combination with the previous input LEDs and indicates that the selected input sample rate ratio has been automatically pulled up or down by 0.1%; for example, from 48,000 to 47,952 or from 44.100 to 44,056.

When the nominal sample rate is selected, the ACG card will automatically adjust the sample rate ratio by +0.1% if the sample rate requested requires a pull up because the system frame rate is running at 29.97 Hz instead of 30/25/24 Hz. Or it will automatically adjust the sample rate ratio by -0.1% if the sample rate requires a pull down because the system frame rate is running at 30/25/24 Hz instead of 29.97 Hz.

+/– OUT This LED operates in combination with the previous output LEDs. It indicates that the selected output sample rate ratio has been automatically pulled up or down by 0.1%; for example from 48,000 to 47,952 or from 44.100 to 44,056.

When the nominal sample rate is selected, the ACG card will automatically adjust the sample rate ratio by +0.1% if the sample rate requested requires a pull up because the system frame rate is running at 29.97 Hz instead of 30/25/24 Hz. Or it will automatically adjust the sample rate ratio by -0.1% if the sample rate requires a pull down because the system frame rate is running at 30/25/24 Hz instead of 29.97 Hz.