ZETA - REMOTE AUTOLOCATOR / CONTROLLER

VERSION R1.30

GUIDE TO OPERATION

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DIRECTORY OF INSTRUCTION

Part ONE - Zeta-Remote Operation Guide

DIRECTORY OF INSTRUCTION continued.

Part Two - Zeta-Remote Application Guide

DIRECTORY OF INSTRUCTION continued.

DIRECTORY OF INSTRUCTION continued.

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This manual assumes the reader has a complete working knowledge of Zeta-Three operations.

Please review the main Zeta-Three manual as well as the added manual sections for each of the software upgrades, 2.00, 3.00, 3.50 AND the MIDI operation.

It is very important that time is taken to learn about all the features of the Zeta-Three so that any problem or question during a studio session can be handled without having to dive into a corner with the manual to look up the answer.

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IMPORTANT *IMPORTANT* *IMPORTANT*

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WHEN CONNECTING THE ZETA-REMOTE AUTOLOCATOR/CONTROLLER TO THE ZETA-THREE, MAKE SURE POWER IS OFF BEFORE CONNECTING THE REMOTE CABLES.

THIS IS ALSO TRUE FOR TRANSPORT CONTROL CABLES, VIDEO AND TIME CODE CONNECTIONS ON THE ZETA-THREE REAR PANEL.

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This manual assumes the reader has a complete working knowledge of Zeta-Three operations.

PART ONE - ZETA-REMOTE AUTOLOCATOR CONTROLLER

OPERATION GUIDE

The Zeta-Remote Autolocator/Controller performs the same functions as the front panel of the Zeta-Three, plus adds many new and powerful features to Zeta-Three operation. Some of the new features are: a 100 point Autolocator, additional 100 point edit Memory, data keypad, six Function keys, time code calculator, tempo beeper, direct transport control keys, two independent alphanumeric displays, multiple Zeta operation and a life-saving UNDO key.

The top half of the Remote looks similar to the front panel of the Zeta-Three, with the left half of the Zeta keys on the first row and the right half of the Zeta keys on the second row. Missing on the Remote is the blue Display key and added is the Level key.

The single Display key has been replaced by five green display keys, located on the lower left of the Remote, which now select the individual display groups. Pressing each specific display key either brings back the last item of the group (if previously at a different group) or the next item in the group.

For example, to view Z-GO (system go-to point) on the lower display, press the green ZETA display key until Z-GO appears. To view the MIDI beat map (bar/beat) on the upper display, hold down RECORD and press MIDI until the MIDI beat map display is shown on the upper display. Holding down RECORD and pressing a green display key forces the use of the upper display.

LEVEL KEY

The Level key is used to integrate multiple Zeta-Threes into the system, permitting multi-transport operation. The Remote is a window into a single Zeta operating environment at any one time. Additional Zeta-Threes may be added to the Remote system with an ADD ONE "Y" EXPANDER cable for each additional Zeta-Three, allowing the Remote to communicate to each additional Zeta-Three.

The level key acts as a toggle control between all of the Zeta-Threes in a system (0,1,2,3). Each time the level key is pressed, the Remote connects to the next level. Pressing SHIFT / LEVEL connects the Remote directly to level zero *(system "master" is level 0 or the lowest address-level Zeta connected to the Remote; if 1,2,3 then 1 is master.).*

IMPORTANT NOTE: *Each Zeta must have a unique system address for the Remote to communicate properly. In the Z-menu of each Zeta-Three, adjust the system address (SYS-ADDR=(0-3)) to be unique and ascending (0,1,2,3 or 1,2,3)*

The rest of the keys in the first two rows of the Remote operate identically to the equivalent keys on the Zeta-Three front panel.

DISPLAY SELECTION

The Remote has two displays, the lower (main) display and a new upper (secondary) display. The upper display allows a group item to be selected independently of the lower display. The upper display ONLY makes the display groups available for viewing. The menu system of the Zeta operates only in the lower display. The lower display is a copy of the Zeta front panel display while the upper display can only be seen at the Remote and is not viewable at the Zeta-Three front panel.

The lower display is selected by using the green keys and the Shifted versions of the green keys. The upper display is selected by holding down the RECORD key and using the green keys or the Shifted green keys.

To select the next / last item in the MIDI display group

press the MIDI display key

You may notice that there are special "speed" shifted display keys to get to important displays directly. These keys save time and get you to the display fast.

To select the slave offset in the lower display

press SHIFT / S-OFS

To select the slave offset in the upper display

press SHIFT, hold down RECORD and press S-OFS

In addition to the Display key being replaced by five Group display keys, the Remote has a number of totally new keys. The new keys are; the Transport control keys, the MEMORY key, the Data Entry keypad and the STORE, RECALL and LOCATE keys. Additionally, there is a piezo beeper inside the Remote which acts as a metronome by following the MIDI Tempo map, prompting the operator for Bar/Beat count in and as a tempo guide. (The Zeta also outputs a MIDI version of the metronome)

SHIFT / RECORD KEYS

**** NOTE ****

The Zeta-Remote's SHIFT key is a latched key which toggles on and off just as the Zeta-Three's SHIFT keys do. The RECORD key is only engaged while it is being held down.

Transport Record Arming and MIDI Learn Enable are activated on the Remote by holding down RECORD and pressing the Record / Learn Enable action desired. The new

Remote Transport Solo Modes are Enabled by pressing a SHIFT / Enable key.

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TRANSPORT CONTROLS - PLAY, STOP, FAST FWD, REWIND, RECORD

To use the transport control keys at the bottom of the Zeta-Remote, one or more of the blue Enable keys must be selected. The transport control keys issue commands to the Zeta system (the combination of transports currently Enabled).

All of the system commands are issued to the current system master (the left-most blue Enable key lit). Thus, to Start, Stop, Fast Forward or Rewind the current Zeta system (all blue Enable keys which have amber LEDs lit), press the transport key to achieve the desired action. The exception to this rule is when a transport or MIDI device is solo Enabled, (Shift Enabled with amber LED blinking), the transport controls then go directly to the soloed device and do not affect the remainder of the system.

For example, to play the entire Zeta system, have Master, Slave and MIDI amber Enable LEDs on solid and press PLAY. To Rewind only the slave transport and MIDI, disable the Master and press REWIND. Only the slave transport and MIDI will respond. Then, to position the slave transport and MIDI back to where the master transport is, press MASTER ENABLE (the amber MASTER ENABLE LED turns on solid) and both the slave transport and MIDI will chase to the master transport.

Solo Modes

Using the Solo modes (Shift / Enable), individual transports may be assigned to the Remote transport controls. For example, if Master, Slave and MIDI are Enabled, playing and locked, pressing (SHIFT / SLAVE ENABLE) will allow the slave to be moved around independently of the Master and MIDI. Press Slave ENABLE again to make the slave part of the Zeta-Three system again.

Soloing a device (Shift / Enable) is a quick way to redirect the Remote transport controls without disturbing the current Enable pattern. When finished moving the soloed transport independently, pressing the ENABLE key again for the soloed transport returns the transport its original Enabled status.

For example, to Rewind only the slave while the Master and MIDI keep playing, press SHIFT SLAVE ENABLE (amber SLAVE ENABLE LED blinks), and press REWIND. Then, to Rewind the entire system, press Slave ENABLE again (amber Slave ENABLE LED on solid) and press REWIND.

Slave Record

There is a special mode to allow transport control (Play, FF, Rew, Stop) of the master and to redirect only the Record command to the slave transport, using the Zeta menu RMT REC'D=SLAVE. This mode is perfect for video post production where the video is the master and the slave is used to build audio tracks. If REC'D=SLAVE is not selected the record command will always be directed to the Master transport unless the Slave transport is soloed, (SHIFT/SLAVE ENABLE) redirecting the transport controls before the Record command is issued.

Multiple Zeta-Three Control

If you are using multiple Zeta-Threes, the best way to think of the Remote is as a window into a Zeta-Three. When you change levels, the remote only displays information from the addressed Zeta. Transport commands are issued to the Zeta-Three at address zero ("master Zeta") unless you redirect the commands. To issue independent commands to any transport, you must first use the level key to address the Zeta-Three that the transport is connected to and then solo-Enable (SHIFT / ENABLE) the transport you wish to move (Solo-Enabling redirects the commands to the soloed transport). If the Zeta is slaved to another Zeta-Three, you can disable the time-code-only master on the second Zeta to have local control of the Slave / MIDI combination. Remote transport commands are issued to the addressed Zeta-Three when it is not Time-Code-Linked to the system master Zeta-Three.

Transport commands are normally issued to the lowest level Zeta connected to the Remote (unless a transport is soloed). However, for each additional Zeta-Three to actually see the master move you must connect your Zeta time code generator in a special way, as follows:

Each Zeta must have a unique system address for the Remote to communicate properly. In the Z-menu of each Zeta-Three, adjust the system address (SYS-ADDR=(0-3)) to be unique and ascending (0,1,2,3 or 1,2,3)

The generator output of the first Zeta-Three goes to the master time code input of the second Zeta-Three as a time-code-only master.

Generator menu is set to COPY MODE = XFER and TC COPY = ZETATIME.

Zeta menu is set to ZETATIME = MASTER

Run each generator in Copy mode (SHIFT / COPY) and connect Gen Out level N to MTC IN on level N+1.

(If you forget this step the additional Zeta-Three will not see motion).

Use Zeta menu ZETA TC COPY=ON to force the generator to XFER mode and prevent the user from accidentally turning the Copy mode off. All Zetas in a system should have the TC COPY mode set except the last (highest) level so that one Time Code Generator is free to use to generate, regenerate or copy time code.

VARI-SPEED CONTROL

An isolated slave transport may have its play speed adjusted by pressing VARI (SHIFT / PLAY) and then using SHIFT / FF and SHIFT / REW to adjust the amount of varispeed. Any transport command will cancel the varispeed operation. To return to the last used varispeed, press SHIFT / PLAY and the most recently used varispeed will be shown in the upper display.

ZETA-REMOTE MEMORY SYSTEM

One of the most powerful features of the Remote is the Memory system. There are two types of Memory in the Remote, the Autolocator Memory and the Edit Memory. Both types of Memory have 100 independent storage positions. The Autolocator Memory can store a list of 100 time code or MIDI bar/beat locations while the Edit Memory stores a list of seven parameters, Z-IN, Z-OUT, Z-GO, Z-END, S-OFS, D-OFS and the MIDI song number, in each of the 100 Edit Memories.

Autolocator Memory

To view the information (a time code or bar/beat address) in any Autolocator Memory storage position, press MEMORY and then enter the two-digit Memory position to be viewed (00 through 99). Pressing MEMORY at any time allows a new Memory position to be entered. After a two-digit Memory position has been entered (including leading zeros from 00 to 09), the Autolocator Memory display cursor moves to the frames / subframe position and is ready for keypad data entry or a Captured entry from the upper display. The cursor and index keys may also be used to increment to a Memory location and for data entry.

Autolocator Memory example:

To view Autolocator Memory location #04:

press MEMORY

press key pad #0 (remember the leading zero)

press key pad #4

Then, to enter data into the Autolocator Memory, one can:

use the keypad to enter a value;

use the index and cursor keys to enter or adjust a value/position;

Capture the value from the upper display;

press Clear (SHIFT / CAPTURE) to erase the value in the Memory position), and then key in data; or

press SHIFT / MEMORY to permit bar/beat data entry.

Capture Data into Memory

When a Memory position is being viewed, the CAPTURE key will transfer the contents of the upper display into the current Memory position. This is a convenient way to enter data into the Memory without having to key in the value. *The CAPTURE key normally (i.e., when the Memory is not being accessed) loads the current master time code position into the lower display.*

SUBFRAME TIME CODE VALUES IN MEMORY

The Memory default mode is with subframe operations disabled. To use subframes in Memory, hold down RECORD and press Cursor and subframes will appear in the Memory display. Pressing CLEAR (SHIFT / CAPTURE) will erase the current Memory value).

MIDI BAR/BEAT VALUES IN MEMORY

While Memory is being accessed, a MIDI bar/beat value may be entered by Capturing a MIDI value from the upper display or by pressing TC/BB (SHIFT / MEMORY) and entering the bar/beat value directly. Pressing TC/BB (SHIFT / MEMORY) at any time while in the Memory will reset the current Memory display to the factory default bar/beat value of zero.

ALTERNATIVE MEMORY DATA ENTRY METHODS

Store in Memory

Time code or MIDI bar/beat values may be Stored into Memory without actually looking at the Memory position by pressing STORE and entering a two-digit Memory position. The act of pressing STORE Captures the value in the lower display and places the value at the specified Memory location.

For example, to Capture and store the current lower display into Memory position #23;

press STORE (data is Captured internally)

press keypad #2

press keypad #3 (data is now Stored at MEM23)

Recall from Memory

Memory values can be loaded directly into the lower time code displays without actually viewing the value at a specific Memory position. Data can be Recalled from Memory into the current lower display by pressing RECALL and a two-digit Memory position. The value stored at the keyed-in Memory position is then directly loaded into the lower display.

For example, to Recall data from Memory #23 into the current lower display:

press RECALL

press keypad #2

press keypad #3 (value is now loaded to current lower display)

Applications of Upper and Lower Displays

The lower display is the primary display used by the Zeta-Remote Autolocator Controller. The lower display corresponds to the display on the front panel of the Zeta-Three and follows the same conventions for viewing menus and using the cursor/index keys. The lower display is also the only display where data can be entered or modified with the keypad. The lower display values can be stored and Recalled directly from Memory with the STORE and RECALL keys.

The upper display is used for viewing only. Data entry and access to the menus are not available on the upper display. It is often convenient to Capture numbers from the upper display into the Memory from the upper display.

MEMORY DECIMAL POINT IDENTIFIERS

The Memory does not use decimal points to separate subframes from frames in a time code value because decimal points are used in Memory to identify which transport the data in Memory was Captured from. In other words, decimal points are used to specify the source of Captured time code data stored in Memory. When no identifying decimal points are shown, the number is assumed to be a Master time code value.

For example, if M-TC is in the upper display, and the lower display is at MEM00, pressing CAPTURE will enter the master timecode value from the upper display into Memory #00, and a decimal point will be seen above the MASTER ENABLE key. The decimal point above the MASTER ENABLE key signifies that the timecode number at the current Memory position is a master time code number. In the same way, if the number is Captured from the S-TC display, the decimal point will be over the SLAVE ENABLE key, and if the data is Captured from the D-TC display, the identifying decimal point will be over the MIDI ENABLE key. If MIDI bar/beat data is entered at the current Memory position, however, no special decimal point identifier is needed, because there is only one MIDI display.

Knowing where the time code or MIDI value originated is very important. If an offset exists between any transports in the system, the Zeta-Remote will automatically compensate for the offset for any combination of ENABLE keys and Memory data Recalled into any Group display. For example, if it is desired to punch the slave transport into Record at bar 35, beat 2, but the correct slave time code value is not known, the value can simply be Recalled or entered into a Memory position in terms of MIDI bar/beat information. Then the MIDI data may be Recalled to the Z-IN display. The Zeta will automatically calculate the equivalent time code value. This same principle is true between any combination of devices in the system using time code or MIDI bar/beat data.

There is no decimal point identifier used if the number is typed in manually or is Captured from a non-offset-related source. When no identifier is found, and the value is loaded to an offset-related display (such as Z-IN, Z-OUT, Z-GO, Z-END or Events) the value is assumed to be expressed in terms of a current Master time code value.

USING THE ZETA-REMOTE AUTOLOCATOR

Any of the time code or MIDI values stored in the Remote Autolocator Memory may be used as an address to which to Locate the system of transports currently Enabled.

For example, to Locate the system to Memory #04;

> Press LOCATE
> Press Keypad #0
> Press Keypad #4 (system will now Locate to the equivalent address specified by the Memory value)

Remember that an address from any one of the transports or MIDI devices in the system is a valid place to which to Locate any other transport or MIDI device in the system because the Zeta-Remote keeps track of which transport the original value in Memory came from. Thus, using internal offset adjustments, the Zeta-Remote loads the offset adjusted position to the specified transport.

For example, if the master tape begins at 01:00:00:00 and the slave tape begins at 02:00:00:00, the slave offset is 01:00:00:00 (slave offset = STC minus MTC). During the recording studio session, both the master and slave transports have been in the system all day, (Master and Slave ENABLE amber LEDs on solid), and all of the Locate points stored in Memory happen to be Master time code numbers. However, if the master transport is now disabled because it is desired to use only the slave transport, (only SLAVE ENABLE amber LED on), the slave time code values are offset one hour from the master numbers you have been using. You can still use all of the same master time code Memory values to Locate the slave transport, however, because the Zeta-Remote will automatically adjust the Memory values by the 01:00:00:00 slave offset. This offset compensation takes place for any combination of Enabled transports for both the Autolocator and Edit Memory.

Remember that the Zeta-Remote's Memory keeps track of where the time code values came from and identifies the source of the time code value in each Memory position by the location of the decimal point identifier (except for MIDI Bar/Beat values which are unique-looking and are clearly MIDI related valued).

If you press LOCATE by accident and LOCATE TO MEMORY ->** is shown in the upper display, the Locate action can be canceled by:

> *Holding down RECORD and pressing LOCATE.*

Sneaky GO-TO Locate Command *(LOCATE, LOCATE)*

The Z-GO position is used to provide a single Locate position on the Zeta-Three front panel and as a starting position for the cycle modes. The Zeta-Remote, however, has a 100-position Autolocator Memory which is normally used to Autolocate the Zeta system. However, very often, the Z-GO point is the address to which the system is to be Located to. The traditional SHIFT/GOTO key combination (as on the front panel of the Zeta-Three) could be used, but the *GOTO Locate* is faster to key in. Pressing the LOCATE key twice Autolocates the Zeta-Three system to the Z-GO position. The result is that you Autolocate (to the Z-GO point) by pressing fewer keys *(only LOCATE, LOCATE vs LOCATE, #, # or SHIFT/GOTO)* and avoid using a place in Memory to store the Z-GO data.

Even Sneakier Locate to Last Memory Used by Autolocator *(LOCATE, MEMORY)*

Another useful key command is Locate - Memory, which sends the system to the last Memory position used and then Locates to the address in that two-digit Memory position. For example, if Memory #47 was used to Locate, ten minutes ago, but the session engineer, with nothing else on his/her mind, has forgotten which Memory number was last used to locate to, then, pressing Locate - Memory (the Zeta - Remote remembers the last memory used) will send the system to the last used Autolocator Memory and remind the user with a message in the upper display corresponding to the Autolocator Memory number last used.

COMMON SESSION ACTIONS - Capturing Locate Points

A good technique for entering useful Locate points into the Remote is to start with Memory #00 in the lower display and either MTC, STC or MIDI BAR/BEAT in the upper display. Then, while reviewing material, simply Capture the data into the current Memory and index up the Memory position for the next cue point. This same technique may also be used to Capture a series of edit locations.

For convenience of operation, it is sometimes faster to Recall a Memory into the Z-GO display and use the Locate, Locate command instead of pressing LOCATE, #, #, or LOCATE, MEMORY *(Locate to last Memory Located to)*.

SETTING PREROLL VALUES

Another helpful feature is the PREROLL setting in the Zeta menu. Setting a value of approximately 06.00 (6 seconds, 0 frames) causes the Zeta to actually Locate to 6 seconds before the specified Locate point, to allow time for the system to synchronize and for performers to acclimate to the tempo of the music, and so on. Six seconds work nicely with MIDI devices since it turns out to give the performer about 2 bars to get into the performance.

Another benefit of PREROLL is using the Memory as actual edit points and letting the PREROLL value allow enough space to Locate and lock before an edit. *(This is very similar to using the Auto Edit mode).*

USING THE EDIT MEMORY

The Remote allows the user to Store and Recall up to 100 individual Edits. An Edit comprises a list of seven specific display values required to recreate the Record In and Out points plus the relative positions of the tape machines and MIDI devices at any given time during the Edit. The edit values necessary are; Z-IN, Z-OUT, Z-GO, Z-END, S-OFS, D-OFS, and the MIDI song number.

All of these values are stored for each edit, as is the source of the edit information (using the system address value in the Z-menu). The edit list format allows the user to quickly swap the critical offset positioning and Record In/Out information of the system without manually re-entering the time code values. This is useful when several versions of an edit exist but the final version has not yet been chosen. Simply save each version as an edit and when the best "take" is decided on, the exact time code values may be Stored and Recalled without error or manual listing on paper.

EDIT STORE / EDIT RECALL

To *save* an *edit* press STO-ED (SHIFT / STORE) and a two digit location.

> The lower display will show * *STORE EDIT OK* *
> to confirm the *edit* has been *saved*

To *Recall* an *edit* press RCL-ED (SHIFT / RECALL) and a two digit location.

> The lower display will show * *PLEASE WAIT* *
> while the *edit* values are *Recalled.*
>
> If there is no edit data to Recall, the lower display
> will show *NO EDIT DATA STORED*

When you Recall an edit, the Z-GO, Z-IN, Z-OUT, Z-END, S-OFS, D-OFS AND MIDI Song Number are over-written with the new values. It is not possible to look at the values of an edit Memory without Recalling the edit and replacing the old values. However, one may freely swap edit list formats in and out to review the edit data.

(Remember to Store the edit you are working on before Recalling another edit)

The Zeta-Remote also remembers which Zeta level an edit format came from (necessary for offsets) when using multiple Zeta-Threes. The Remote will automatically switch to the Zeta from which the edit data was obtained and then reload the edit list format. (it is suggested that Z-ECHO be used with multiple Zeta-Three setups)

MEMORY INITIALIZATION

To ERASE *the entire contents of* ALL Memory*:*

Look at MEM99, (Press MEMORY, Keypad #9, Keypad#9) and then press shift, hold down RECORD and press MEMORY. This will cause all AUTOLOCATOR and EDIT Memory to be ERASED.

USING UNDO

It often takes considerable effort to find some time code values, such as offsets and Record In/Out points. If a mistake is made when entering data, and an important value such as an offset or a Record In/Out point is lost, the UNDO key will restore the previous value at the display which last used the CAPTURE key, CLEAR key or the Data Entry keypad. It is important to use UNDO immediately after an accidental Capture/Clear or faulty keypad entry lest the user become confused. When using Undo, the Zeta-Remote's lower display type and data will switch back to the last display type that used the keypad, Capture or Clear. *(Capture, Clear and the Data Entry Keypad are the only three Undo-able actions)*

USING THE TIME CODE CALCULATOR

The sum or difference between two time code values may be found by using the Zeta-Remote's calculator functions. The Zeta-Remote's time code calculator is just like a regular calculator except that it works with hours, minutes, seconds and frames.

To add/subtract two time code values, place the first value in the lower display and press + or - (MINUS), (SHIFT/#9 or SHIFT/#7) *(this is the number to add/subtract to/from).* Then, place the second value in the lower display and press = (SHIFT/#8) *(this is the number to be added/subtracted to/from the first number; display the result).* The calculation result will appear in the upper display. The calculation result may be thrown away by pressing CLEAR (SHIFT / CAPTURE), or loaded into another display or Memory position by placing the desired destination in the lower display and pressing the CAPTURE key. Pressing the CAPTURE key transfers the calculation result into the lower display and turns off the calculator mode. Pressing the CLEAR key will erase the calculation result and turn off the calculator mode.

The calculator result MUST be either CAPTURED into a lower display or CLEARED (discarded or thrown away) to turn off the calculator mode.

Only two time code values may be worked on at a time. If multiple values are to be operated on, the Memory or other display must be used to store the result after each calculator operation.

Quick example: to subtract 12 frames from Z-IN;

Place Z-IN in the lower display; press MINUS (SHIFT/#7); press CLEAR (SHIFT CAPTURE); enter 12 frames; press = (SHIFT/#8); press CAPTURE. Z-IN now has the original value less 12 frames.

**** NOTE ****

THE ZETA-REMOTE WILL REMIND YOU WITH A DISPLAY PROMPT IF YOU FORGET TO CAPTURE OR CLEAR THE CALCULATOR RESULT DISPLAY

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BASIC FUNCTION KEY OPERATION

A Function is a sequence of key strokes that can be executed by pressing a single Function key, F1 through F6 (SHIFT #1 through SHIFT #6 on the Data Entry keypad). Function keys are very helpful by simplifying repetitive key operations used consistently during a session.

The Zeta-Remote's six Function keys can "play back" a user-programmed sequence of up to 120 key strokes, including other Function keys. This allows either very simple or very complex functions to be executed without key stroke errors. The user should carefully think through the order of key operations stored in a Function key list.

RECORDING A FUNCTION

To OPEN a FUNCTION list for RECORDING key strokes:

hold down RECORD and press F#(1-6) (SHIFT / Keypad #).

THE NEXT 120 KEY STROKES ENTERED WILL BE SAVED IN THE FUNCTION KEY.

To CLOSE a FUNCTION list and STOP RECORDING the key list.

hold down RECORD and press F#(1-6) (SHIFT / Keypad #) AGAIN.

**** NOTE ****

THE ZETA-REMOTE WILL REMIND YOU WITH A DISPLAY PROMPT IF YOU FORGET THAT YOU ARE IN THE MIDDLE OF A FUNCTION RECORD AND DO NOT PRESS ANY KEYS FOR ABOUT TEN SECONDS.

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FUNCTION EDITING

The Zeta-Remote allows each Function key list to be reviewed by single steps forward and backward through the Function key list for and editing and to confirm the contents of a Function key list. While a Function key is open for recording, pressing F# (SHIFT / Keypad #) will advance one step into the Function key list sequence (displaying the key stroke name in the upper display), and holding down RECORD and pressing keypad#(1-6) will back up one step in the Function key list sequence (the upper display will show the key name backed over in the Function key list).

The end of a Function is determined by where in the key list the Function record process is turned off. *(ie: closing the Function with Record/Shift/F#)*

WHEN A FUNCTION KEY IS REVIEWED OR EDITED, THE FUNCTION MUST BE REVIEWED ALL THE WAY TO THE "END OF FUNCTION" MESSAGE TO KEEP THE ENTIRE EXISTING FUNCTION SEQUENCE INTACT.

The End of Function mark will be entered whenever the Function key is closed, and all key actions previously in the key list beyond the end of function mark are lost. Likewise, new keystrokes can be added to the Function key list at any time while reviewing (editing) the Function key list. However, keys added during edit review *OVERWRITE AND REPLACE* any key strokes which existed at that position in the Function key previously.

It is suggested that the last review action used before adding new keystrokes be a forward step, obtained by pressing F#(1-6) (SHIFT / Keypad #), since this will display the last key still entered in the key list (ie; the next key pressed will be added after the displayed key type) while the reverse review (RECORD / keypad#(1-6)) will tell you the key type which would be replaced (ie; key erased when next key is pressed) if a new key is pressed (both methods are valid, however)

SPECIAL FUNCTION ACTIONS

In addition to the normal key actions on the Zeta-Remote, there are five special keystrokes which can be used only while recording a Function key list. When inserted at appropriate positions within the Function key list sequence, these special actions can make the Function key lists very powerful tools .

The special Function key actions are:

FORCE THE LOWER DISPLAY (including cursor position and index)

FORCE THE UPPER DISPLAY

FORCE THE ENABLE STATUS

FUNCTION PAUSE

WAIT FOR SYSTEM PARK (STOP) (conditional function pause)

WAIT FOR TIME CODE EVENT (E1-10) (conditional Function pause)

Because there are many possible displays and system setups in the Zeta-Remote, it is very useful to be able to FORCE the system to a particular KNOWN STATE. When any of the FORCE type special functions are executed in a Function key, that part of the Zeta system returns to the status that existed when the key was saved in the Function key list.

FORCE THE LOWER DISPLAY

Any GROUP display or MENU display may be forced (Recalled) to the lower display during function execution. To invoke Force the Lower Display while recording a Function key list, hold down RECORD and press RECALL. The identity of the lower display will be saved in the key list as well as the cursor and index position. When the Function key is played back, the lower display will be forced to the saved display when the Function key executes the Force the Lower Display action.

Note: Forcing the Lower Display actually takes up two key strokes in the Function key list (each Function key holds 120 keystrokes) because the cursor position and index location of a display are remembered in addition to the display type. This is transparent to the execution of the Function key except during Function Review, when the message "second 1/2 of save low display" will be seen.

FORCE THE UPPER DISPLAY

ANY display shown on the upper display may be forced from a Function key. To invoke Force the Lower Display while recording a Function key list, press SHIFT, hold down RECORD and press RECALL. The identity of the upper display will be saved in the key list. When the Function key is played back, the upper display will be forced to the saved display when the Function key executes the Force the Upper Display action.

FORCE ENABLE STATUS

Any combination of Master, Slave, or MIDI Enable, Solo or Record status may be forced onto the system. To invoke Force Enable Status while recording a Function key list, hold down RECORD and press STORE. The Enable status will be saved in the key list. When the Function key is played back, the Enable pattern will be forced (to the Enable pattern which was in effect when the Function key list was recorded) when the Function key executes the Force Enable Status action.

FUNCTION PAUSE

The execution of a Function key may be suspended by placing a Function Pause in the key list. Function Pause is used to suspend Function key execution, allowing the user to Capture or enter a time code value or to make a judgement before continuing with the Function key list execution. Function Pause may be used many times in a function.

To enter a Function Pause press PAUSE (SHIFT / STOP).

When an executing Function key list comes to a Function Pause, the Function execution will Halt UNTIL:

CAPTURE or CLEAR are pressed

OR

The SAME Function key is pressed AGAIN. (SHIFT/F#)

**** NOTE ****

THE ZETA-REMOTE WILL REMIND YOU WITH A DISPLAY PROMPT IF YOU FORGET THAT YOU ARE IN THE MIDDLE OF A *FUNCTION PAUSE* DURING FUNCTION KEY EXECUTION.

****

WAIT FOR SYSTEM PARK (STOP) (Conditional Function Pause)

This special action is identical to Function Pause with the additional effect of automatically halting a Function key sequence until the Zeta system Parks or Stops. Once a Park or Stop status is received, the Function key sequence resumes operation. *(The STOP LED must be on, Chase LED and GOTO/LOCATE LEDs must be off).*

To enter a Wait For System Park in a Function key list;

hold down RECORD and press LOCATE

The Wait for System Park action is very helpful when performing Function keys that require transports to Locate somewhere before an action can take place.

For example: it is desired that the Function key Locate to a point *and then* (only after the system has stopped), Capture a MIDI bar/beat value *and then* Play the system. A Wait for System Park in the Function key list, after the Locate command and before the Capture command, would cause the function to wait for the system to Park *and then* Capture the MIDI bar/beat value.

WAIT FOR EVENT (1-10) (Conditional Function pause)

This special action is identical to Function Pause with the additional effect of automatically halting a Function key sequence until a Zeta system EVENT (1-10) is triggered. The events on the Zeta are armed as normal and the event number is entered into the Function key when recorded. When the Function key is executed, the function will pause at the Wait for Event (1-10) flag until the event trigger status is received, and then resume. *(Remember to arm EV_(1-10)=REMOTE FN, in the Event menu).*

To enter a WAIT FOR EVENT (1-10) in a Function key list;

press SHIFT, hold down RECORD and press EVENT
ENTER 2 DIGIT EVENT CODE (1-10)

The wait for event (1-10) action is very helpful when performing Function keys that require specific action sequences to happen at predetermined times.

(The Remote must be connected to the level from which event triggers are being fired)

For example, if it is desired that the Function key control a multi-media presentation, actions may be programmed to happen based on time code from a video tape, master audio track or even the Zeta-Three time code generator.

** NOTE **

THE ZETA-REMOTE WILL REMIND YOU WITH A DISPLAY PROMPT IF YOU FORGET THAT YOU ARE IN THE MIDDLE OF A *FUNCTION PAUSE* OR *WAIT FOR SYSTEM PARK* OR *WAIT FOR EVENT (1-10)*, DURING FUNCTION KEY EXECUTION.

** IMPORTANT REMINDER **

TO EXIT FUNCTION PAUSE, (after data entry or other action);
PRESS F# (SHIFT / Keypad #) OR CAPTURE / CLEAR.
(Function will then continue executing).

TO EXIT WAIT FOR SYSTEM PARK or WAIT FOR EVENT 1-10;
PRESS STOP OR PRESS F# (SHIFT / Keypad #) OR CAPTURE / CLEAR.
(Function will then continue executing).

** SPECIAL NOTE **

IF A FUNCTION KEY IS BEING EXECUTED, AND IT HAS BEEN FORGOTTEN WHAT TO DO NEXT *OR* IF ONE HAS BECOME CONFUSED AS TO THE CONTENTS OF A FUNCTION *OR* JUST GENERALLY CONFUSED, THEN...

FUNCTION ABORT

Because a Function key can be paused, and because it is possible to forget what keys are stored in a function, sometimes the best thing to do is ABORT the function execution so that the contents of the Function key can be reviewed.

EXECUTION OF A FUNCTION KEY LIST MAY BE ABORTED AT ANY TIME BY PRESSING SHIFT, HOLDING DOWN RECORD AND PRESSING STOP.

*** MIDI SESSION SETUP REMINDER ***

For a typical sequencer setup the master keyboard's MIDI OUT is connected to the Zeta-Three's MIDI IN and the Zeta-Three's MIDI OUT is connected to MIDI IN of the sequencer. Also set MIDI menu MERGE=ALL and select the appropriate sync modes on both the Zeta-Three and the sequencer. This setup will allow both sync and performance data on a single MIDI cable.

Some sequencers do not like to see several types of sync information at the same time so it is usually good practice to turn off the type of sync from the Zeta not being used. For example, if using MIDI TIME CODE, turn the song pointer MIDI output off; and if using MIDI song pointer, turn MIDI TIME CODE to off.

PART TWO - ZETA - REMOTE AUTOLOCATOR APPLICATION GUIDE

Typical Studio Setups for a Zeta-Three and a Zeta- Remote Autolocator System

AUDIO/MIDI - basic musician's work studio

Multi-track audio Master (typical 8/16/24 track).
MIDI sequencing system (sequencer,samplers,etc...).

AUDIO/AUDIO/MIDI - dual audio multi-track studio

Multi-track audio Master (typical 32-48 track system).
Multi-track audio Slave (2nd multi-track or effects source transport).
MIDI sequencing system (sequencer,samplers,etc...).

VIDEO/AUDIO/MIDI - basic audio-for-video post production

U-Matic 3/4" video (or VHS, Beta or 1" C-type) Master.
Multi-track audio Slave.
MIDI sequencing system (sequencer,samplers,etc...).

TIME CODE ONLY MASTER/AUDIO/MIDI - video editor or VHS transport

Time code only Master (non-controllable home type VHS
video machine or professional video editing system).
Multi-track audio Slave (typical 8/16/24 track).
MIDI sequencing system (sequencer,samplers,etc...).

VIDEO/AUDIO/MIDI/AUDIO/MIDI/AUDIO/MIDI - large video post room

Double or Triple Zeta-Three system with Zeta-Remote

U-Matic 3/4" video (or VHS Beta or 1" C-type) Master.
2 Multi-track audio Slave (typical 32/48 track system).
Multi-track audio Slave sound effect source.
MIDI sequencing system (sequencer, multiple samplers, etc...).

OVERVIEW OF MIDI TEMPO MAPS AND TIME CODE

In the Zeta-Three system, MIDI sequencers are controlled by Song Position Pointer or by MIDI TIME CODE. The most common method of controlling a sequencer is with Song Position Pointer. To relate a sequence to time code with Song Position Pointer, the Zetas need a time code START time and a tempo map (where all the tempo changes in the song occur). Given this information, there exists a mathematical relationship between tempo, bar, beat and the start time code value which can be calculated for any position in the song.

The Zeta uses the beat map to mathematically translate the current bar/beat position to an equivalent D-TC value (an internal time code generator dedicated to MIDI). It is the D-TC value which allows the MIDI system to be linked to tape machines and actually perform like a virtual tape transport. Thus, the MIDI system has many of the same type of capabilities as a tape machine, such as locating, vari-speed, offset and slewing.

A complete Tempo Map contains all tempo changes in the song as well as all time signature changes. The tempo map and a master time code start time is all the Zeta-Three needs control a sequencer with Song Position Pointer.

AUDIO/MIDI SESSION SETUP

If starting a session with a time-code-striped tape and a sequencer beat map, a good place to start recording material is at a convenient start time like 01:00:00:00; the sequencer is then used to block out the song and tempo adjustments.

ONCE THERE IS RELATED MATERIAL ON BOTH THE SEQUENCER AND THE TAPE MACHINE, THE TEMPO MAP SHOULD NOT BE CHANGED.

Once the sequence Tempo Map has been blocked out and the recording of analog tracks has started, any changes to the Tempo Map will cause a time shift of all the MIDI performance material after the tempo adjustment position.

If MIDI time code is being used, the Zeta does not need a start time or a Tempo Map. Using MIDI TIME CODE shifts the burden of tempo map adjustment to the MIDI sequencing device and bypasses many of the MIDI related features in the Zeta-Three. MIDI TIME CODE and Song Position Pointer may be used at the same time if you have devices which use both as they operate independently inside the Zeta-Three.

In a typical sequencer configuration, the master keyboard's MIDI OUT is connected to the Zeta-Three's MIDI IN, and the Zeta-Three's MIDI OUT is connected to MIDI IN of the sequencer. Also set MIDI menu MERGE=ALL and select the appropriate sync modes on both the Zeta-Three and sequencer. This setup will allow both sync and performance data on a single MIDI cable.

**** IMPORTANT NOTE ****

PLEASE READ AND REVIEW THE ZETA-THREE MIDI SECTION AGAIN AND BECOME VERY FAMILIAR WITH THE TEMPO MAP EDITING TECHNIQUES.

****

IF YOU KNOW MIDI WILL BE USED IN YOUR SYSTEM, DETERMINE THE MIDI TEMPO MAP BEFORE RECORDING PERFORMANCE MATERIAL ON THE TAPE MACHINES.

The best way to work with tape machines and MIDI is to define the performance tempo map BEFORE putting any material on a tape machine. The performance data can always be changed, but the relationship between the MIDI tempo map and time code must remain the same. The tempo map can be very complex--have tempo changes on every sixteenth note and time signature changes on every bar--but once related performance material has been placed on the tape machine, any changes to the tempo map will shift the MIDI performance material in relation to the tape machine performance material.

ENTERING THE TEMPO MAP INTO THE ZETA

Once time code has been recorded on tape (suggestion: record time code from 00:59:00:00 as this will allow one minute before the song, for unknown situations), there are several methods of entering the beat map into the Zeta.

If the song is not complicated (in terms of tempo changes), simply cut and paste the tempo map directly, using the quick edit mode. (Set up tempo overide in the BPM part of the beat map display, and mark (Capture) two positions (adjusting the bar/beat song location) between which the new tempo exists).

If the sequence has so many subtle changes in tempo that it would be difficult to enter manually, then use the MIDI LEARN mode to enter the tempo map in real time from the sequencer.

Connect the sequencer's MIDI OUT to the ZETA-THREE'S MIDI IN

Set the Zeta's bar beat display to 0001/01.1

Select MIDI LEARN mode in the MIDI menu

Learn Enable MIDI (hold down RECORD and Press LEARN [SHIFT MIDI])

Start the sequencer (must be in XMIT MIDI clock mode)

When the sequence finishes playing examine the tempo map by adjusting the bar position of the beat map display (up or down) and note the tempo changes (if any) which the Zeta learned from the sequence.

** NOTE **

The Zeta-Three MIDI system must be stopped to perform MIDI Tempo Map Editing.

****

HUMANIZING DRUM MACHINE PATTERN WITH TEMPO CHANGES

Exact Capture Tap Method

If you are using a drum machine playing fixed patterns, and the drum patterns feel too rigid, the Zeta-Three Tempo Map learning modes may be used to adjust the Tempo Map in subtle--or not so subtle--ways.

You can humanize any part of the Zeta-Three tempo map by using the Exact Capture Tap method of Tempo Map learning. (in the Exact Capture Tap learn mode, tempo adjustments are made for every beat in a song, according to the tempo "tapped" in on the CAPTURE key).

Position the song to where tempo learning is to begin.

Enter exact Capture tap mode in the MIDI menu.

Press LEARN (SHIFT MIDI) to invoke Learn Enable MIDI.

Tap in the new tempo for the duration desired.

The typical application of humanizing occurs after a song has been written and recorded using a drum machine: often the tempo feels too rigid. The tempo map can be humanized by tapping along with the analog performance material on the tape machine, to make the MIDI performance sound more natural.

(The beat value to be tapped into the song can be selected with the count CXX variable part of the beat map. The default count is one beat = quarter note value).

Learning from Audio

The Zeta-Three can also learn Tempo Maps from actual audio signals if an appropriate audio signal is fed into the Zeta's Aux In connector (optional Audio Learn Level Adaptor is required). One can humanize a tempo map by performing a basic click track on tape (or using existing material), selecting the Audio in Adaptor Learn mode, and using the same learning techniques as the Capture Tap Learn modes.

Without the Audio Learn Adaptor, extremely high audio signal levels may be required to trigger the Aux Input, which was not originally designed for audio signals.

HELPFUL HINTS WHEN USING THE REMOTE

AUTOLOCATING WITH THE ZETA-REMOTE

Timecode or MIDI bar/beat values from any transport in the system, stored in the remote Memory, may be used as a Locate point for the Zeta system. When entering a series of Locate points into the Memory, it is good practice to add the Locate points sequentially (lower Memory numbers have Locate points earlier in the song) and/or use groups of Memory for each song (Memory 00-09 for song #1, Memory 10-19 for song #2, etc ...).

AUTOMATIC LOOPING SETUP

If practicing or repeating a section of material, choose appropriate Z-GO and Z-END points and use the CYCLE, AUTO REWIND or AUTO STOP options in the Zeta menu.

USING ZETA TC LINK

As a convenience feature, Zeta TC Link forces the setup required to make the time code generator of Zeta N be the time-code-only master of Zeta N+1, and will not allow the user to accidentally turn the Zeta N+1's generator off (which would cause confusion as to why the transport connected to the Zeta N+1 stopped responding). When multiple Zeta-Threes are being used, it is suggested that *ZETA TC LINK = ON* (this mode also forces the copy mode to be set to xfer and tc copy=zetatime).

USING AUTO EDIT

Use the Zeta-Three Auto Edit mode to automatically calculate Z-GO and Z-END positions when you Capture Z-IN and Z-OUT.

Remember, if it is desired to set a different Z-GO or Z-END, it must be done *after* IN / OUT points are Captured, or new GO / END points will be calculated and automatically entered.

(When multiple Zeta-Threes are in use, it is suggested that Z-ECHO=ON and ZETA TC LINK=ON for most efficient operation).

USING Z-ECHO

When multiple Zeta-Threes and a Zeta-Remote are being used, another convenient feature is the automatic sharing of information between the Z-IN, Z-OUT, Z-GO and Z-END registers when Z-ECHO = ON. Each Zeta is capable of storing Z-values independently; however, it is usually much more convenient to be able to Capture an edit point on any Zeta and have the value valid for the entire system. The Zeta-Remote monitors any changes done to the Z-registers via the Remote and echos the new data to all other Zeta-Threes with *Z-ECHO=ON*.

USING SYSTEM ADDRESS LEVEL ASSIGNMENT

The LEVEL key is used to integrate multiple Zeta-Threes into the system, allowing for multi-transport operation. The Zeta-Remote becomes a window into a single Zeta operating environment at any one time. Additional Zeta-Threes may be added to the Remote system, with an ADD ONE "Y" cable for each additional Zeta-Three to allow the Remote to communicate to each additional Zeta-Three.

The LEVEL key acts as a toggle control between all of the Zeta-Threes in a system (0,1,2,3). Each time the LEVEL key is pressed, the Remote connects to the next level. Pressing SHIFT / LEVEL connects the Remote directly to Level zero *(system "master" is Level 0 or the lowest address level Zeta connected to the Remote; if 1,2,3 then 1 is master).*

The LEVEL key will toggle access to any one of the multiple Zeta-Threes in a system. LEVEL toggles between system addresses zero, one, two and three and will only attempt to connect to a Zeta-Three if it is on line and its system address is set properly.

If multiple Zeta-Threes are used then each system address must be unique and in an ascending order. The LEVEL key will automatically sequence to the next Zeta in line when pressed: 0,1,2,3,0 for a four-Zeta system and 0,1,0,1,0 for a two Zeta system (or 1,2,1,2 if using levels 1 and 2).

Pressing SHIFT / LEVEL forces the Zeta- Remote to be connected to Level zero. Using SHIFT/LEVEL gives a method of guarantying which Zeta-Three the Zeta-Remote is connected to, and is very useful when programming Function keys.

USING SLAVE RECORD COMMAND REDIRECTION

In both single and multiple Zeta-Three systems, a video transport is most often the master of a system, and a multi-track tape machine is usually the slave on the first (only) Zeta-Three. When using the Zeta-Remote, all commands are issued to the master transport on the first Zeta and all the other transports in the system follow the master. This method of directing commands can get in the way when a manual punch-in on the slave multi-track is required. The user must tell the Zeta-Remote (it can not quite read the user's mind--yet) to redirect the transport control keys on the Remote to the multi-track by Soloing (SHIFT/Enabling) the slave multi-track, punching in/out and then turning Solo off (pressing SLAVE Enable while Soloed). The manual Solo command redirection works quite well, but can be an awkward way to work.

Instead of manual Solo commands, it is often more convenient to set

RMT REC'D=SLAVE, **which causes only the Record command to be automatically issued (redirected) to the slave without Soloing.** *(The Play, Stop, Fast Forward and Rewind commands are still issued to the system master.)*

The solo mode is still very useful to manually Locate machines independently, for effect spotting or performance review, while other transports are locked and busy doing other work.

Using MIDI Bar/Beat Values instead of Time Code Numbers

If you are working with musical scores, it is often more convenient to specify Locate, Record-in, and Record-out points in terms of the bar/beat position in the song. When one is using MIDI in the system, the existing Tempo Map can be used to specify positions in the song.

TO USE BAR/BEAT VALUES IN THE SYSTEM, A TEMPO MAP THAT MATCHES THE MATERIAL MUST BE ENTERED INTO THE ZETA-THREE.

REMEMBER - You can still use bar/beat position in the song, even without a real MIDI sequencing system connected, by entering an equivalent Tempo Map with the Exact Capture Tap Learn mode *(just tap along in time with the song).* If no new Tempo Map is entered, the Zeta will use either the last map entered or, if no Tempo Map has been entered, the default Tempo Map of 120 BPM in 4/4 for 500 bars.

Using MIDI Tempo Maps for Musical Editing WITH NO MIDI EQUIPMENT IN THE SYSTEM

It may be of great use to use bar/beat numbers during an audio/video session when no MIDI sequencers are needed. If there is a complete rhythm blocked out on tape, a Tempo Map can be created by tapping the beats of the entire song once into the Zeta while in the Exact Capture Tap Learn mode.

To create a virtual Tempo Map with out a real MIDI system connected *(or with one)*:

Select Exact Capture Tap Learn mode from the MIDI menu.

Position the MIDI bar/beat display at 0001 / 01.1.
(start time will not be Captured unless beat map display is at 0001 / 01.1).
(use the CURSOR and INDEX keys).

Position the audio tape machine *before* the song.

Select Slave Enable *(or master Enable or both).*
(tape machines must be in system to hear music to tap along with).

Select MIDI Learn Enable.
(hold down RECORD and press MIDI Enable).

Play the audio/video tape machine and accurately tap along with the song.

If a mistake is made, it is always possible to back up and tap the Tempo Map in again or "edit" the Tempo Map by starting the Capture tap at any position in the song (follow the above procedure; the Tempo Map will update from where tapping along starts, and will stop when tapping along stops).

MIDI TEMPO LEARNING TIMING REFERENCE

You must have a time code reference for the Zeta-Three to learn and map MIDI bar/beat values. This usually means playing one of the tape machines in the system, but the Zeta-Three's internal time code generator can also be used.

RECOMMENDED TIME CODE PRACTICE

In general, time code provides an absolute position and speed reference to allow synchronizing, locating and to allow events (punch-in and punch-out plus auxiliary triggers) to be triggered. Practically any speed (frame rate) of time code can be used to provide the information as long as the same rate is used throughout the entire system.

Time code was originally created for video tape editing. Thus, if one had to choose a single frame rate to be used in a studio, a video-rate time code is probably the best choice. The modern video rates are:

NTSC = U.S.A 29.97 frames/second (Drop and non-Drop Frame)

PAL = EUROPE 25.00 frames/second

In this way, any audio material may be used in a video tape application with the least amount of confusion. This means that a studio that is strictly audio may wish to use a video rate time code in order that material created in their studio may some day be used for video.

To select a video rate system reference, go to the Zeta menu list and choose the appropriate rate.

Press Zeta-Three's DISPLAY key.
Press MENU.
Use INDEX UP/DOWN to find FRAMES=XX.XX.
Use CURSOR and UP/DOWN to select system frame rate.

Document Your System Setup

Before every session ends, it is *VERY IMPORTANT* that the entire system set-up be documented. This means saving all of the critical positioning information such as Slave and MIDI offsets and/or start times, MIDI Tempo Map data and any unusual information about the system set-up, such as modified transport constants.

IT IS VERY IMPORTANT TO WRITE THIS INFORMATION DOWN !

Users should not rely on their Memorys!

Save the information with the tape reels *(maybe in the tape box)*, as well as storing the information in several other creative ways *(as desired)*.

IF YOU HAVE A COMPLICATED TEMPO MAP, SAVE THE MIDI TEMPO MAP AT THE END OF YOUR TAPE (MIDI MENU - MAP LOAD/SAVE) **AND** *AS A SYSTEM EXCLUSIVE ON YOUR SEQUENCER* **AND** *WRITE DOWN AT LEAST THE MIDI START TIME IF NOT THE ENTIRE TEMPO MAP.*

OTHER TIME CODE TIPS

Always record time code on the entire tape, not just part of it for convenience (some day, the partial striping will be confusing).

Record time code between -10 and -3 dB

Start your time code generator at whole hour/minute numbers like 00:59:00:00. Leave a minute of time code at the head of the tape to allow for locating and unknown additions to the start of the material.

Start recording time code as close as possible to the head of the tape.

Choose whole numbers to start songs at, such as 01:00:00:00 or 01:08:00:00 or 05:10:00:00 to keep all your setups simple and repeatable. (if all tapes start at 00:59:00:00, and all songs start on minute boundaries, session setup and operation is greatly simplified!)

Never dub time code from one tape machine to another; always regenerate the time code through the Zeta-Three generator's XFER COPY or JAM COPY modes.

Audio transports MUST be on INTERNAL or FIXED speed when time code is being recorded (no Enable buttons lit on the Zeta-Three, plus any INT/EXT-type switch on the transport properly set to Internal).

When recording time code on a video tape machine, resolve (lock to video sync) both the time code generator and the video transports to the same video reference.

To record video rate time code, in the absence of a video sync reference, an audio-only studio need only select a video frame rate reference, and the Zeta time code generator will automatically reference the output time code to the internal video crystal.

To resolve the Zeta to video, loop video sync through the Zeta and set the Zeta menu resolve=video (when resolved, the amber XREF LED should be on solid; a blinking LED means the Zeta-Three is not locked to an external reference and when the LED is off, the Zeta is on Internal crystal reference.)

USE THE EDIT MEMORY AS A QUICK SETUP TOOL

The Zeta-Remote Edit Memory can be used in a variety of helpful ways. Some of the applications, for example, are: saving system offsets for sessions which may use the same room on a regular basis; saving groups of sync points for a sound effects library; or saving multiple record-in/record-out locations when experimenting with versions of takes.

If multiple engineers use the room, each one can be given a range of Edit Memory to work with (Eddie uses Edits 00-49 and Rocko uses Edits 50-99). This way, information can be built up over several days of session work, and the chances of data corruption will be minimized.

USING THE ZETA-REMOTE AS A TACHOMETER-ONLY AUTOLOCATOR

(NO TIME CODE ON TAPE)

When sychronization is not needed, and it is impossible to get time code on tape, you can still control and Locate your tape machines and MIDI system with the Zeta-Remote using the tachometer and direction signals from your transport (these signals are connected to the Zeta-Three with the control cable).

NOTE: *It is always better to have time code recorded on the entire tape to Locate and automatically punch-in/punch-out a transport. Having time code on the entire tape also keeps the tape prepared for synchronization when the tape requires material to be added before or after the original performance.*

The wide-band time code readers on the on the Zeta-Three always switch automatically to tachometer updating when time code is not being read. The switch-over cannot take place unless the time code reader has a value to update (the reader defaults to a blank value "-- -- -- --" on initial power up). Both the master and slave time code readers may be loaded with the preset value stored in the respective master or slave time code preset menus. The master and slave preset load operation is the same as loading the generator preset time code start number. To load a time code reader preset, look at the lower master/slave time code display and press CAPTURE. The master/slave preset value is then loaded into the time code reader as if it had actually been read from tape, and then any tachometer pulses received by the Zeta will be used to update the default time code value (which has been chosen as a convenient starting value to make the session easier).

It is good practice to set the master or slave preset value to a number like 01:00:00:00, and to then Capture the preset at the very beginning of a tape reel or song in order to keep the use of simulated (tachometer updated) timecode values used for autolocating consistent with real timecode operation and practice.

<u>* SYNCHRONIZING IS NOT POSSIBLE WHEN IN TACHOMETER MODE *</u>

TIME CODE MUST BE USED WHEN TRANSPORT SYNCHRONIZING IS REQUIRED.

IT IS SUGGESTED THAT TIME CODE ALWAYS BE RECORDED ON THE ENTIRE TAPE WHENEVER POSSIBLE.

TO AUTOLOCATE WITH TACHOMETER ONLY, THE USER MUST HAVE A TRANSPORT CONTROL CABLE CONNECTED BETWEEN THE ZETA-THREE AND THE TRANSPORT.

REMEMBER TO TURN THE ZETA-THREE'S POWER OFF WHEN CONNECTING THE ZETA-THREE TO THE ZETA-REMOTE CONTROLLER, TO TAPE MACHINES, OR TO ANY OTHER EQUIPMENT.

FUNCTION KEY APPLICATION EXAMPLE

A Function Key Setup for Fast Editing

Reaction time compensation - If trying to Capture time code points for each gun shot while watching a Rambo movie (a large task), and then attempting to trigger digital gunshot sounds into the sound track, one would find that all of the gunshots are late. They are late because of human reaction time between hearing the gunshot and pressing the Capture key. Some people can guess right and press the Capture key early to get the right position except that it may be easier to react naturally and let the Zeta-Remote compensate automatically with a Function key when Capturing the time code values.

Here is a Function key list example for placing a sound effect into a video with an average reaction time error of 5 frames, and an effect duration of 3 seconds. This function uses Memory locations to hold the reaction time adjustments, and adjusts the In point values Captured, making them closer to the actual edit point. The function will be stored in F1:

Place the time code value 00:00:00:05 in Memory #21.

Place the time code of 00:00:03:00 in Memory #22.

Press ZETA Display until lower display is at Z-IN.

Open function with SHIFT/RECORD/FUNCTION #1 (F1).

Force lower display to be at Z-IN (RECORD/RECALL).

Function Pause (SHIFT/Stop) (wait for CAPTURE key).

SHIFT/MINUS(-) (tell calculator to use Z-IN as operand).

Press MEMORY, Press Keypad #2, Press Keypad #1

SHIFT/EQUAL(=) (tell calculator to subtract Memory #21 then show result).

Press ZETA Display key. (look at Z-IN again)

Press CAPTURE (calculator result is loaded to Z-IN).

SHIFT/PLUS(+) (tell calculator to use Z-IN as operand).

Press MEMORY, Press Keypad #2, Press Keypad #2.

SHIFT/EQUAL(=) (tell calculator to add MEM #22 to Z-IN then show result).

Press ZETA display key TWICE (should be at Z-OUT).

Press CAPTURE (Record out value now in Z-OUT).

Close Function (SHIFT/RECORD/FUNCTION #1) (F1).

Function Key Applications Continued

After the above Function key list is programmed, pressing F1 (SHIFT /#1), the Zeta-Remote will put Z-IN into the lower display, and then the Remote will wait in a Function Pause mode until CAPTURE is pressed. When CAPTURE is pressed, the Zeta-Remote Captures the current Master time code number and subtracts five frames, and then stores the result into Z-IN (reaction time compensation). Next, the Z-OUT display is loaded with a time code value three seconds later than the Z-IN time (from the known effect duration).

The previous Function key example can be made even more powerful by using the Auto Edit mode, which will automatically calculate Z-GO and Z-END from the Z-IN and Z-OUT. This set-up provides a way to lay in sound effects with a minimum of key-punching effort. The important part of designing efficient Function Keys is thinking through common studio operations and using the Function keys as a tool to make operations easier.

When a Function key list is recorded, it is good practice to try the Function several times to confirm that the key sequence is correct and contains no ambiguities. If errors are found, the entire Function key can be redone, or parts of the key list modified, using Function key editing techniques..

** FUNCTION KEY SPECIAL ACTION DISPLAY REMINDER **

THE ZETA-REMOTE WILL REMIND YOU WITH DISPLAY MESSAGES OF SPECIAL MODES ENCOUNTERED IN THE EXECUTION OF A FUNCTION KEY, IF YOU FAIL TO TAKE THE REQUIRED ACTION WITHIN APPROXIMATELY TEN SECONDS.

TO EXIT FUNCTION PAUSE, PRESS F# (SHIFT / Keypad #) OR CAPTURE / CLEAR.

TO EXIT WAIT FOR SYSTEM PARK OR WAIT FOR EVENT (1-10),
PRESS STOP OR PRESS F# (SHIFT / Keypad #) OR CAPTURE / CLEAR.

FUNCTION ABORT

IF ONE IS EXECUTING A FUNCTION KEY AND FORGETS WHAT ONE IS SUPPOSED TO DO NEXT, OR IF ONE BECOMES CONFUSED AS TO THE CONTENTS OF A FUNCTION OR JUST GENERALLY CONFUSED, THEN:

THE FUNCTION KEY LIST WHICH IS BEING EXECUTED CAN BE ABORTED BY HOLDING DOWN RECORD AND PRESSING SHIFT/STOP.

ERASING A FUNCTION KEY LIST

The best way to erase a single Function key is to open the function and then close it without pressing any other keys. This will cause the function beginning and ending to be at the same position and thus be empty. The message *FUNCTION -X- EMPTY* will be seen if an empty function is executed.

A DAY IN THE LIFE OF A ZETA-REMOTE AUTOLOCATOR CONTROLLER

A check list of items for typical audio/video/MIDI sessions

Session Type - Audio/MIDI Song Performance

A typical session is using a multi-track tape recorder with a MIDI system to expand a recording system. There are two basic approaches;

1) Create MIDI material first - then take the following steps:

Choose a whole number MIDI START TIME such as whole number hour and minute values from the master transport's time code.

Let the Zeta-Three learn any tempo changes in song (or simply enter the changes manually and enter in any time signature changes. The default Tempo Map in the Zeta-Three is 500 bars of 4/4 at 120 BPM.

Place the sequencer in external MIDI SYNC mode and connect the Zeta-Three's MIDI OUT to the sequencer's MIDI IN. It may be convenient to connect the master keyboard upstream of the Zeta-Three and use the MIDI merge on the Zeta-Three to merge the MIDI SYNC and new performance data, to add MIDI material while the sequencer is locked to the tape machine.

Add performance material to the multi-track by listening to the MIDI performance and playing along (note that the Zeta-Remote's beeper modes may help in starting your performance)

2) Add MIDI material to existing multi-track material (more difficult):

The key to adding MIDI material is capturing a MIDI START TIME on the Zeta-Three. Position the tape machine several seconds before the song begins and look at the MIDI START TIME menu (in song setup, you can use the offset display as an alternative display, since they are actually the same number). Now press the CAPTURE key when the song begins. This action will enter a start time close to the beginning of the tape machine performance.

It is usually necessary to modify this value to match the real beginning of the song by using the SLEW feature (Slew offset) or by manual adjustment of the MIDI START TIME.

The procedure for capturing a MIDI START TIME described above can be simplified by using the Exact Capture Learn mode and tapping in the Tempo Map of the entire song while listening to the tape machine performance material. The Tempo Map position should be at 0001/01.1, and the Zeta-Three will automatically Capture a start time on the first pressing of Capture.

**** IMPORTANT NOTE ****

PLEASE READ AND REVIEW THE ZETA-THREE MIDI SECTION AGAIN AND BECOME VERY FAMILIAR WITH THE TEMPO MAP EDITING TECHNIQUES.

A DAY IN THE LIFE OF A ZETA-REMOTE AUTOLOCATOR Continued

Audio/Video Sweetening Setup

A typical situation for an audio-for-video post production session starts with having requested a 3/4" or 1/2" video tape with time code on both the address track (3rd time code channel) and on audio channel two, if possible, and the same time code "burned into" the picture. This gives the audio-for-video studio the most flexibility in editing, system setup and video play-back time code recovery/compatibility.

The first thing to be done is to copy the time code numbers from the video tape machine to the audio tape machine. One should regenerate and record on the audio tape the exact time code numbers from the video tape, using the Zeta-Three copy modes (typically xfer copy mode if not resolved, and jam copy mode if system is resolved).

The regeneration of time code is important to keep all time code first generation (dubbing of time code is not recommended), and to keep the time code offsets at zero for simpler system setup.

Remember that the audio tape transport should be on Internal or Fixed speed when recording time code, and on External when synchronizing is desired. Also, remember to select the correct time code frame rate in the Z-menu before recording time code.

Next, add performance or sound effect material to your audio transport by using the automatic Record in/out of the Zeta-Three or by manual editing. In addition, a MIDI system can be added to the audio-for-video system for even more creative flexibility.

When using a video system, it is best to resolve the entire system to house sync if possible (connect composite sync signal to both the Zeta and the VCR, and place both the Zeta and VCR in external sync mode).

**** IMPORTANT NOTE ****

When generating time code to be recorded on a VCR, the time code generator must be locked to the same video sync source as the VCR, or the video and time code will not correlate, one frame of video for one frame of time code. In other words, the video and time code will drift apart because they are not locked to the same video sync timing reference.

To resolve the Zeta to video, loop video sync through the Zeta's 2 video connectors, and set Zeta menu RESOLVE=VIDEO. When resolved, the amber XREF LED should be on solid; a blinking LED means the Zeta-Three is not locked to the external reference; and when the LED is off, the Zeta is referenced to its Internal crystal.

MULTIPLE ZETA-THREE APPLICATIONS

Zeta-Threes can be linked together in a system with the XFER/COPY method. The XFER/COPY method uses the generator of the "master" Zeta-Three as a system time code reference for the "slave" Zeta-Three. Connect the "master" Zeta-Three generator to the master reader In on the "slave" Zeta-Three. Each additional Zeta becomes the "master" to the next "slave" Zeta-Three's generator in the XFER/COPY interconnection scheme. The generator menu must be set to COPY MODE = XFER and TC COPY = ZETATIME. Then the generator time code output remains as a consistent number stream regardless of the current system Master/Slave/MIDI offsets.

The Zeta menu should be set to ZETATIME=MASTER to automatically offset the generator output to appear as a non-offset number stream regardless of what combination of Enables or offsets exist in the system. If the Zeta and Generator menus are not set correctly, the generator will switch to outputting offset slave time code numbers if the master is disabled. If an offset exists between master and slave, the additional Zeta will think that the original master has moved by the system offset value. Using the ZETATIME feature automatically adjusts the generator output to appear as though the generator was the master for the entire system.

The generator, in XFER/COPY mode, will also output code updated from tachometer, allowing the current position of the system master always to be passed throughout the entire system even when locating. This is very important, because additional Zeta-Threes are used as time-code-only masters, and each additional "slave" Zeta-Three sees only the time code from the "virtual master" generator upstream.

Each additional Zeta-Three is set up normally except for there being no master transport to select or connect, merely a Mic cable from the "Master Zeta-Three" Generator out to the "Slave Zeta-Three" Master time code in.

Connecting Multiple Zeta-Threes for Remote Control

The Zeta-Remote can be connected to multiple Zeta-Threes by using an "ADD ONE "Y" cable with each additional Zeta-Three. To use more than one Zeta-Three with a Zeta-Remote you must adjust the System Address of the slave Zeta-Three (System Address is found in the Z-MENU); this is how the Zeta-Remote can see who it is speaking to. For a two Zeta-Three system, the Master Zeta-Three has SYSTEM ADDRESS = 0 (Level 0) and the Slave Zeta-Three has SYSTEM ADDRESS = 1 (Level 1). *(Some users prefer to use levels 1 and 2, with the LEVEL key alternating between its green and red LEDs instead of the off/green sequence observed with levels 0 and 1).*

The ADD ONE "Y" cable must be used to interconnect the Remote to both of the Zeta-Threes. The Master end of the "Y" connects to the Zeta-Three with the lower system address (N), and the Slave end of the "Y" connects to the Zeta-Three with the next higher system address (N+1) The third end of the "Y" connects to the Zeta-Remote cable.

**** NOTE ****

Extension cables are available for the Zeta-Remote Autolocator/Controller and can be combined to allow the Zeta-Remote to operate up to 120 feet away from the Zeta-Three.

"HIDDEN" KEY COMBINATIONS OF INTEREST

The Zeta-Remote has several "back door" operations which only the particularly intelligent users who read this manual will know about. These key combinations are:

HOLD DOWN SHIFT/RECORD/CAPTURE	RESTART ZETA-REMOTE (SAME AS NORMAL POWER UP)
HOLD DOWN SHIFT/CURSOR/CAPTURE	DO THIS DURING REAL POWER UP AND ALL MEMORY AND FUNCTION KEY LISTS ARE ERASED AND THE ZETA REMOTE BRAIN IS RESET FACTORY FRESH.
HOLD DOWN SHIFT/RECORD/SLAVE Enable	REMOTE SOFTWARE VERSION IS DISPLAYED AS R#.##
HOLD DOWN SHIFT/RECORD/MIDI Enable	KEY SELF TEST: PRESS ANY KEY TO TEST OPERATION; USE SAME PATTERN TO EXIT OR KEY IN RESTART.
HOLD DOWN SHIFT/RECORD/MEMORY	WHILE AT MEMORY #99 WILL ERASE ALL MEMORY POSITIONS.
HOLD DOWN SHIFT/RECORD	ALLOWS SERIAL COMMUNICATION ERRORS TO BE DISPLAYED *(IF PRESENT).* ONLY VALID WHILE HELD DOWN.

**** NOTE ****

There are other "hidden" key combinations which are used only in factory testing of the Zeta-Remote. If the user become confused or discover himself inadvertently stuck in a special hidden key combination, use the restart key combination (SHIFT / RECORD / CAPTURE) or *power down the Zeta-Three, wait 5 seconds and then power Zeta-Three up again.*

SPECIAL SITUATIONS - OOPS! I DIDN'T MEAN TO DO THAT

Cancel Memory Store/Recall

There are ways to terminate Zeta-Remote multi-key stroke actions should they be inadvertently initiated.

Store in Autolocator Memory, Recall from Autolocator Memory, Store Edit and Recall Edit can all be terminated by pressing the action key again. For example:

If RECALL is pressed, and it is then decided not to Recall a value from Memory, press RECALL again and the Recall action is turned off. This is true of the Memory I/0 keys (Store, Recall, Edit Store and Edit Recall).

Cancel Locate

If the LOCATE key is pressed accidentally:

The Locate command can be terminated by holding down RECORD and pressing LOCATE again *(LOCATE, LOCATE will cause the Remote to use the Z-GO position as a Locate position).*

FUNCTION KEY TERMINATIONS

To exit Function Pause, press F# (SHIFT / Keypad #) OR CAPTURE/CLEAR.

To exit WAIT FOR SYSTEM PARK OR WAIT FOR EVENT (1-10)
Press STOP OR press F# (SHIFT/Keypad #) OR CAPTURE / CLEAR.

IF A FUNCTION KEY IS BEING EXECUTED AND ONE FORGETS WHAT TO DO NEXT, OR BECOMES CONFUSED AS TO THE CONTENTS OF A FUNCTION OR JUST GENERALLY CONFUSED. ... THEN:

THE FUNCTION KEY LIST BEING EXECUTED CAN BE ABORTED BY HOLDING DOWN RECORD AND PRESSING SHIFT/STOP.

UNDO ADVICE AND SPECIAL CASE

USE THE UNDO KEY AS THE NEXT KEY STROKE AFTER A MISTAKE.
You can undo the last use of CAPTURE, CLEAR, or DATA KEYPAD. A special case of UNDO is the MEMORY TC/BB key: this key not only acts as a data type toggle key, it also performs a Memory clear for which the UNDO capability can be useful.

DATA KEYPAD

Only time code parameter displays can be updated with the data entry keypad. Displays not updatable by the keypad are M-TC, S-TC, and D-TC which may only be set through the preset register found in their respective menus.

Special Situations Continued.

Entering Negative Offsets

To manually enter a negative value in an Offset display (Slave or MIDI), move the cursor to the hours' MSD (most significant digit, the 2 in 24 hours) and press *SHIFT / INDEX* DOWN. A minus sign will appear to the left of the hours. To make the value positive again press *INDEX UP* or *SHIFT/CLEAR* to start again.

Using the LEVEL Key

The LEVEL key will toggle access to multiple Zeta-Threes in a system. The LEVEL key toggles between system addresses zero, one, two and three, and will only attempt to connect to a Zeta-Three if the Zeta-Three is on line and its system address is set properly.

If multiple Zeta-Threes are used then each system address must be unique and in an ascending order. The LEVEL key will automatically sequence to the next Zeta in line when pressed: 0,1,2,3,0 for four Zeta-Threes; and 0,1,0,1,0 for a two Zeta-Three system.

You can force the Zeta-Remote to be at Level zero by pressing SHIFT/LEVEL. SHIFT/LEVEL provides a method of guarantying which Zeta-Three the Zeta-Remote is connected to, and is very useful when programming function keys.

Multiple Zeta-Three Transport Control

Transport commands are issued to the Zeta the lowest address (Level) no matter which level you are currently connected to. To control any one slave machine independent of the system, you must SOLO Enable (SHIFT/ENABLE) the transport to redirect the Remote transport controls. Another alternative is to disable the time-code-only master, which unlinks the Zeta-Three from the system and directs the transport controls to the currently addressed Zeta-Three.

Remember, when linking Zeta-Threes together with the xfer copy mode:

> The generator output of the first Zeta-Three goes to the master time code input of the second Zeta-Three as a time-code-only master.
>
> Generator menu is set to COPY MODE = XFER and TC COPY = ZETATIME.
>
> Zeta menu is set to ZETATIME = MASTER.
>
> Run each generator in copy mode (SHIFT / COPY) and connect Gen Out Level N to MTC IN on Level N+1.
>
> *(If you forget this step the additional Zeta-Three will not see motion).*
>
> *USE Zeta menu ZETA TC COPY=ON to force the generator to xfer mode and prevent the user from accidentally turning the copy mode off. All Zetas in a system should have the tc copy mode set except the last (highest) level so that one Time Code Generator is free to use to generate/regenerate/copy time code.*

Autolocating with Multiple Zeta-Threes

When using multiple slave transports, the best situation is to have no offset between all of the transports. The Zeta-Remote will Autolocate the system master and use the slave and MIDI offsets stored at the lowest level if a translation is required. When all offsets are zero, any value stored in Autolocator Memory is always valid to Autolocate to.

Care should be taken when slave time code addresses are taken from multiple slave transports and entered as Autolocator Memory values. Each slave may have a unique offset to the time-code-only master. Thus, incorrect autolocation will result if the slave value stored in Memory was not offset by the same value as the system master's slave (the slave at Level zero). When multiple slave offsets are necessary, it is best to save Autolocator values directly from the time-code-only master on each Zeta-Three to avoid any offset related confusion (ZETATIME makes all M-TC values the same in each linked Zeta-Three). When the Locate command is issued, the Zeta-Remote will treat all slave-related Autolocator Memory values as having the offset contained in the "master" Zeta-Three (Level zero).

MIDI METRONOME AND REMOTE BEEPER

A click track may be set up to follow the tempo map of the Zeta-Three for use as a performance metronome or talent cue count-in. The click can be set to run all the time or only for a selectable number of bars before the START TIME of the song. *SONG START is in the MIDI menu. The default bar count in setting is 2 bars, but this parameter can be adjusted in MIDI Constants).* The MIDI metronome has assignable channel and note number constant parameters.

The down-beat of the MIDI metronome will be slightly louder, aiding the performer to find beat one of any given measure. The Zeta-Remote's beeper uses a slightly different tone to designate beat one and to discern between pre- and post-tempo map position.

*** NOTE ***

The MIDI Tempo Map may ALWAYS be used to generate a metronome headphone click. A simple setup would have the Zeta trigger a drum machine with a MIDI metronome click guide track and for a headphone tempo reference, allowing the sound source and volume to be adjusted to suit the application.

*** MIDI SETUP REMINDER ***

For a typical sequencer setup, the master keyboard's MIDI OUT is connected to the Zeta-Three's MIDI IN, and the Zeta-Three's MIDI OUT is connected to the MIDI IN of the sequencer. In addition, set MIDI menu MERGE=ALL and select the appropriate sync modes on both the Zeta-Three and the sequencer. This setup will allow both sync and performance data on a single MIDI cable.

Some sequencers do not like to see several types of sync information at the same time. It is usually good practice, therefore, to turn off the type of sync from the Zeta not being used. For example if you are using MIDI TIME CODE, then turn the song pointer MIDI output off; if using MIDI song pointer, turn MIDI TIME CODE off.

*** APPLICATIONS REVIEW***

Review of several session-simplification features

GO-TO Locate Command *(LOCATE, LOCATE)*

The Z-GO position is used to provide a single Locate position on the Zeta-Three front panel, and as a starting position for the cycle modes. The Zeta-Remote has a 100 position Autolocator Memory which is normally used to Autolocate the Zeta system. However, very often, the Z-GO point is the place where it is desired that the system Locate to. Thus, an alternative to storing the Z-GO time code value in Memory is to automatically load the Z-GO position to the Autolocator with a *GOTO LOCATE*. The traditional SHIFT/GOTO key combination, as on the front panel of the Zeta-Three, could be used, but the *GOTO LOCATE* is faster. Pressing the LOCATE key twice Autolocates the Zeta-Three system to the Z-GO position. The result is Autolocation (to the Z-GO point) with fewer keystrokes *(only LOCATE, LOCATE vs LOCATE, #, #)* and avoidance of the necessity of using a place in Memory to store the Z-GO data.

Locate to Last Memory Used as Locate Point.*(LOCATE MEMORY)*

Another useful key command is LOCATE - MEMORY which sends the system to the last Memory position the value of which was Located to. For example, if the value in Memory 47 was used to Locate to ten minutes ago, but now which Memory position that was has been forgotten, LOCATE MEMORY will remind the user what Memory position was used last, and will send the system there.

Locating with Preroll Values

The PREROLL setting in the Zeta menu can be used to automatically allow time for the system to lock up, or to allow time for a performer/editor to recognize material. Another benefit of PREROLL is that it allows the values in Memory to be used as actual edit points, with the PREROLL value creating enough space to Locate and lock before an edit *(this is very similar to using the Auto Edit mode)*. Setting a PREROLL value of approximately 06.00 *(6 seconds, 0 frames)* causes the Zeta to actually Locate to slightly before the specified Locate point, to allow time for the system to lock up, and for performers to acclimate to the tempo of the music, etc.. A six seconds PREROLL value works nicely with MIDI devices, since it turns out to give the performer about 3 bars to get into the performance.

Automatic Punch-In

For anyone who has tried to replace a short segment in the middle of a song, and has accidentally punched in or out early or late, the automatic Record function is very helpful. Set Z-IN to the Record-in time and Z-OUT to the Record-out time, and then hold down RECORD and press SLAVE Record Enable. Now, when the slave transport plays past the Z-IN time, it will punch into Record; and at the Z-OUT time, it will punch out of Record.

ZETA TC LINK

As a convenience feature, the Zeta TC Link forces the setup required to make the generator of Zeta N be the time-code-only master of Zeta N+1, and prevents the user from accidentally turning the generator off, causing confusion as to why the transport connected to the Zeta N+1 has stopped responding. When running multiple Zeta-Threes, it is suggested that *ZETA TC LINK = ON* (this mode also forces the copy mode to be set to xfer and tc copy=zetatime).

Z-ECHO

Another convenience feature when using multiple Zeta-Threes and the Zeta-Remote is the automatic sharing of information between the Z-IN, Z-OUT, Z-GO and Z-END registers when Z-ECHO = ON. Each Zeta is capable of storing Z-values independently; however, it is usually much more convenient to be able to Capture an edit point on any Zeta and have the value valid for the entire system. The Remote monitors any changes done to the Z-registers and echos the same data to all other Zeta-Threes with *Z-ECHO=ON*.

SLAVE RECORD DEFAULT

In both single and multiple Zeta-Three systems, a video transport is most often the master of a system and a multi-track tape machine is usually the slave on the first (only) Zeta-Three. When using the Zeta-Remote, all commands are issued to the master transport on the first Zeta, and all the other transports in the system follow the master. This method of directing commands gets in the way when a manual punch-in on the multi-track is required. The user must tell the remote (it can not--quite-- read the user's mind yet) to redirect the transport control keys on the Remote to the multi-track by Soloing (SHIFT/Enabling) the slave multi-track, punching in/out, and then turning Solo off (pressing SLAVE Enable while Soloed). The manual solo command redirection works well, but it can be an awkward way to work. Setting *RMT REC'D=SLAVE* causes the record command to be automatically issued (redirected) to the slave without soloing.

The solo mode is still very useful for manually Locating machines independently, for effect spotting or performance review, while other transports are locked and busy doing other work.

VARI-SPEED OPERATION

A slave transport may have its play speed adjusted by pressing SHIFT/PLAY (Vari) and then using SHIFT/FF and SHIFT/REW to adjust the amount of vari-speed. Any transport command will cancel the Vari-speed operation. To return to the last used Vari-speed, press SHIFT/PLAY, and the last used Vari-speed will be shown in the upper display.

AUDIO LEARNING

An audio signal may be fed to the Aux In 1/4" connector on the rear of the Zeta-Three, and used as a tempo learning source. The Aux In circuit was designed for drum machine TTL type clocks, but if a sufficiently large audio signal is used (the optional Audio Learn Level Adaptor is often very helpful) to trigger the Aux In when Learn from Audio is selected in the Learn menu. A ground-closing foot switch may also be used to tap in a tempo map (bass drum-type technique).

To calibrate the learning operation, insert the audio into the optional Audio Learn Level Adaptor in line with the 1/4" Aux In audio jack. Place the Zeta in Audio Learn mode (Capture Audio Learn display), and set the lower Zeta display to the Tempo map. Hold down RECORD and press MIDI Learn Enable and start the Audio Learn source (tape machine, drum machine, etc.). Then, while watching the beat position of the display, slowly adjust the signal level fed to the Zeta-Three until the beats count consistently (without the Audio Learn Level Adaptor, the required level will be very high). If the MIDI Learn Enable LED goes off during calibration, merely re-Enable the Learn mode.

LEVEL ASSIGNMENT

The LEVEL key is used to integrate multiple Zeta-Threes into the system, allowing for multi-transport operation. The Zeta-Remote becomes a window into a single Zeta operating environment at any one time. Additional Zeta-Threes may be added to the Zeta-Remote system with an ADD ONE "Y" cable for each additional Zeta-Three, to allow the Remote to communicate to each additional Zeta-Three.

The LEVEL key acts as a toggle control between all of the Zeta-Threes in a system (0,1,2,3).
Each time the LEVEL key is pressed, the Remote connects to the next level. Pressing SHIFT / LEVEL connects the Remote directly to Level zero. The *system "master" is Level 0 or the lowest address level Zeta connected to the Remote (if 1,2,3, then 1 is master).*

The LEVEL key will toggle access to multiple Zeta-Threes in a system. The LEVEL key toggles between system addresses zero, one, two and three and will only attempt to connect to a Zeta-Three if it is on line and its system address is set properly.

If multiple Zeta-Threes are used then each system address must be unique and in an ascending order. The LEVEL key will automatically sequence to the next Zeta in line when pressed: (0,1,2,3,0 ... for a four Zeta system; and 0,1,0,1,0 ... for a two Zeta system (or 1,2,1,2 ... if using levels 1 and 2).

You can force the Zeta-Remote to be connected to Level zero by pressing SHIFT / LEVEL. Using SHIFT/LEVEL provides a method of guarantying which Zeta-Three the Zeta-Remote is connected to, and is very useful when programming function keys.

*** IMPORTANT NOTE: ***

Each Zeta must have a unique system address for the Remote to communicate properly. Adjust the SYS-ADDR=(0-3) on each Zeta to be unique and ascending (0,1,2,3 or 1,2,3).

FUNCTION KEY APPLICATIONS

MULTI-MEDIA PRESENTATIONS

One of the overlooked applications of the Zeta-Three and Zeta-Remote Autolocator system is their systems ability, using Function keys, to automatically sequence through many transport actions from time code event triggers and other status. Creative multi-media presentations can be put together using special Function Pause actions (Wait for Event (1-10) and Wait for System Park). The entire system can slave to a master time code generator, or to time code from a video tape, and make other tape machines start or stop, synchronize, play or trigger MIDI devices, advance slide projectors, etc.. The only limit is one's imagination and creativity. One Function key can call another, or can modify data in the system to be acted on by a third Function key--almost like a small programming language!

Here is a list of several function keys that may be helpful. The Function keys are listed showing first what the Zeta should be set to when you open the function, and then the key strokes to press while recording the function. Please review how to record Function keys earlier in this manual. *These functions can be combined/modified to fit into your working environment.*

CAPTURE KEY REACTION TIME COMPENSATION

Assumes one is marking a punch-in point with the Capture key and wishes to adjust for human reaction time. Uses fixed value compensation of 3 frames).

Start with M-TC in the upper display and Z-IN in the lower display.

Open function, and press:

RECORD/RECALL (forces low display to be at Z-IN).
SHIFT/RECORD/RECALL (forces upper display to be at M-TC).
CAPTURE (Captures Z-IN).
SHIFT/Minus(-) (tells calculator to use Z-IN as operand for subtraction).
MEMORY (use Memory Position #99 as scratch pad).
Keypad #9.
Keypad #9.
SHIFT/Clear (clears Memory value.)
Keypad #3 (value to subtract as a reaction time).
SHIFT/Equals (=) (uses Memory #99 as value to subtract and gives result).
ZETA Display key (display goes back to Z-IN).
CAPTURE (places new calculated value into Z-IN).

Close function.

MIDI BAR/BEAT TO TIME CODE POSITION

Allows user to enter a bar/beat value into the lower tempo map display, load the Z-GO display, and then Locate the tape machines to the MIDI position without typing the bar/beat value into Memory. Converts the current MIDI bar/beat position to its equivalent time code value and Locates the Zeta system to the displayed bar/beat location.

Start with D-B120.00 type lower display.

Open function.

RECORD/RECALL (forces lower display to be at bar/beat display).
Store (stores value temporarily in Memory #98.
Keypad #9.
Keypad #8.
press ZETA display key until Z-GO is seen.
RECORD/RECALL (forces lower display to be at Z-GO).
RECALL (Recalls Memory #98 MIDI value into Z-GO display).
Keypad #9.
Keypad #8.
LOCATE.
LOCATE (Locates to Z-GO which has equivalent Bar/Beat position).

Close function.

PERFORM TIME CODE EDIT

This function Captures the Z-IN point and then switches display to Z-OUT and waits for user to Capture Z-OUT. Then system will Locate to new Z-GO point (calculated from Z-IN with AUTO EDIT=ON). Upper display is on M-TC to allow time code values to be watched, and lower display switches back to Z-IN to allow the editor to check timing. (If the transport in use supports a rehearse mode, then the punch-in can be heard before actually doing the edit by the selection of IN/OUT=REHEARSE.

Start with lower display at Z-IN and upper display at M-TC.

Open function.

RECORD/RECALL (forces lower display to be at Z-IN).
SHIFT/RECORD/RECALL (force upper display to be at M-TC).
CAPTURE (Captures Z-IN).
ZETA Display (switches lower display to Z-OUT.
RECORD/RECALL (forces lower display to be at Z-OUT).
SHIFT/Stop (function pause - waits for Z-OUT Capture).
LOCATE.
LOCATE. (sends system to Z-GO).
Play (plays system after Locate is complete).

Close function.

PERFORM EDITING ON MIDI BAR/BEAT BOUNDARIES *(MUSIC SCORING)*

By combining the concepts of the MIDI BAR/BEAT translation and the Time Code Edit Function keys (with a new twist using Memory), one can do automated music score editing (used with AUTO EDIT=ON). The user enters the MIDI BAR/BEAT punch-in point at Memory #98, and the punch-out point in Memory #99.

(Press MEMORY, #9, #8, SHIFT/MEMORY (MIDI mode) and type in the Record-in point).
(Press MEMORY, #9, #9, SHIFT/MEMORY (MIDI mode) and type in the Record-out point).

Start with Z-IN in the lower display and M-TC in the upper display.

Open function.

RECORD/RECALL (forces lower display to be at Z-IN).
SHIFT/RECORD/RECALL (forces upper display to be at M-TC).
RECALL (Recalls from Memory #98 for to Z-IN).
Keypad #9.
Keypad #8.
press ZETA Display key until Z-OUT is seen.
RECORD/RECALL (forces lower display to be at Z-OUT).
RECALL (Recalls Memory #99 MIDI value into Z-OUT).
Keypad #9.
Keypad #9.
LOCATE.
LOCATE.
MIDI Display key (press until D-B120 nnn.nn is seen).
RECORD/RECALL (forces lower display to be at Bar/Beat).

Close function.

SIMULTANEOUS MULTIPLE MACHINE PUNCH-IN

Situation - there are two 24-track transport, and it is desired to build tracks on both transports at the same time. Thus, it will be necessary to manually punch in and out both machines at the same time (using automatic punch-in is easy--just Record arm both machines and set Z-IN / Z-OUT). Two situations could occur: first, basic two-machine lock-up with one Zeta; second, the system is Video/Audio/Audio with two Zeta-Threes. The single Zeta system is described here. Similar principles may be used for the two-Zeta-Three system, with the addition of use of the LEVEL key to point the Remote to the second Zeta before Soloing the second slave.

Open function.

Hold down RECORD and press PLAY
SHIFT/SLAVE Enable (Solos slave to redirect commands).
Hold down RECORD and press PLAY
SLAVE Enable (exits solo mode and reenters chase).

Close function.

AUTOMATIC DIALOG REPLACEMENT TECHNIQUES (ADR BEEPS BEFORE PUNCH IN)

A very creative Function key uses the MIDI metronome capabilities of the Zeta-Three and the Zeta-Remote to provide count-in tones to cue talent voice-overs. Either MIDI or Time Code Edit techniques may be used, and the MIDI START TIME is loaded with the same time as the Z-IN Record-in point. Then, using the MIDI MENU parameter Beep=RMT+MIDI CNT, and placing the appropriate drum machine sound in the performer's headphone mix (triggered from the MIDI metronome), traditional ADR techniques (such as three beeps before a talent cue) may be simulated. Set the MIDI tempo map to 3/4 time, select a comfortable beep tempo rate, and set MIDI constant #53, count-in bars, to 01).

Add this to the end of either MIDI or Time Code Editing Function keys, or make it a separate Function key.

Start with lower display at Z-IN.

Open function.

RECORD/RECALL (forces lower display to be at Z-IN).
STORE (stores Z-IN data in Memory #97).
Keypad #9.
Keypad #7.
MIDI Display key (switches to any MIDI display - bar/beat is often convenient).
MENU.
Use INDEX UP/DOWN to find SONG SETUP MENU.
MENU.
RECORD/RECALL (forces lower display to be at start time).
RECALL (Recalls Memory #97 into START TIME).
Keypad #9.
Keypad #7.
MIDI Display key.
LOCATE.
LOCATE.

Close function.

LOADING MIDI EVENT TRIGGERS (Using Samplers for Sound Effects)

The objective of this Function key is to Capture a MIDI Event (1-10) trigger time, subtract one second (arbitrary value) to calculate Z-IN point (to allow transport time to punch in before sound effect is triggered), and then Capture or calculate a Z-OUT. (sampler uses fixed center note numbers as base for sound effect MIDI triggered sample and events 1-10 can be used with different note numbers to provide pitch attributes)

Start with lower display at E-01 and upper display at M-TC.

Open function.

RECORD/RECALL (forces lower display to be at Event.
SHIFT/RECORD/RECALL (forces upper display to be at M-TC).
CAPTURE (Captures Event trigger time).
SHIFT/MINUS (-) (one second will need to be subtracted from this value).
MEMORY (open Memory #96).
Keypad #9.
Keypad #6.
SHIFT/Clear (clears any value previously at Memory #96).
Keypad #1 (enters in 1 frame value).
SHIFT/Equals(=) (get result of math equation (EV-01 - 1 frame).
ZETA Display key (press until Z-IN is seen).
RECORD/RECALL (forced display to be at Z-IN).
CAPTURE (transfer calculator result to Z-IN).
LOCATE.
LOCATE (Locates system - with AUTO EDIT=ON calculates Z-GO/Z-END).

Close function.

*** NOTE ***

To any of the sample function keys listed, additional features may be added, such as forcing any Enable status (such as Master and MIDI only or Slave and MIDI only) or adding reaction time compensation to any Captured value. Using Function Pause, you can automate sequences of data entry for repetitive editing operations or data entry from an Edit Decision List. Imagination must be used.

Session Simplifiers and Reminders - *advanced operations found especially useful:*

Have memory open in the lower display and time code or MIDI bar/beat in the upper display while reviewing material for mixing. Capture points of interest into the memory from the upper display and then increment the memory pointer to the next available position. *(the data can be captured from the upper display manually or the operation action put in a function key list for automatic execution)*

Another way to enter points of interest into memory is to have the appropriate time code or MIDI bar/beat display in the lower display and press the Store *(in memory)* key and a two digit memory value. *(the value is temporarily saved the instant Store is pressed and then permanently saved when the two digit memory number is keyed in).* Users often forget about this method.

When running MIDI TIME CODE it is a good idea to turn off the MIDI CLOCK (song pointer) in the MIDI menu because many sequencer programs do not want to see both MIDI TIME CODE and Song Pointer/MIDI Sync data at the same time and the sequencer may become confused.

Choose whole numbers to start songs at, such as 01:00:00:00 or 01:08:00:00 or 05:10:00:00 to keep all your setups simple and repeatable. *(if all tapes start at 00:59:00:00, and all songs start on minute boundaries, session setup and operation is greatly simplified!)*

When using the function keys to mark edit points, leave the shift key on *(shift key pressed once with the red LED on, pre-arming the function action)* to make activating the function quicker.

When keying in values for function keys, key data into memory and then recall the value to the correct destination as this will speed up function execution. *(a simplified explanation is that the remote needs to communicate with the Zeta only once instead of once/keypad number pressed thus saving time during automatic function key list execution)*

Remember that the Zeta can locate and punch in/out on MIDI bar/beat values as well as time code. Use the Autolocator Memory to store the appropriate bar/beat values and either locate to the memory directly or Recall the Autolocator Memory value to another display *(such as Z-IN or Z-OUT).* NOTE: When the MIDI bar/beat value is Recalled, the value is automatically translated to the equivalent time code position.

REMINDER: one can locate, punch in/out with MIDI bar/beat values even if you do not have a MIDI system connected to the Zeta by tapping in the approximate tempo map of the musical material. (using the MIDI Learn modes)

Another Reminder: for the one man studio operations, bring the Zeta Remote with you right to the keyboards, drums, voice over room or wherever so you do not have to run back and forth to the control room. *(you can even get extension cables for the Zeta Remote for up to 120 feet)*

CHECK LIST FOR SYNCHRONIZING MIDI SYSTEMS *(what did I forget to do)*

1. Load song into sequencer.
2. Set sequencer in correct external sync mode.
3. Connect MIDI out of the Zeta-Three into the correct MIDI input port for receiving external MIDI sync.
4. When using Song Pointer or Direct Time Lock, MIDI Time Code should be turned off. *(some sequencers may be confused by MIDI time code)*
5. When using MIDI Time Code, Song Pointer and Direct Time Lock should be turned off. *(some sequencers do not like to see multiple types of MIDI sync data, however the Zeta-Three can put out both MIDI Time Code and Song Pointer or Direct Time Lock if required.)*
6. Select appropriate START time in the MIDI SONG SETUP menu.
7. Special setup mode for Performer sequencer using indirect lock;
   a. Cut and Paste tempo of 60 beats/minute.
   b. Set MIDI Constant #46 to value of 01.
8. Special setup for Mega Mix Automation; set MIDI Constant #51 to value of 10.
9. Select MERGE=ALL in MIDI menu to have master keyboard upstream of Zeta Three. (this merge mode combines new performance data with sync data)