

V DAT

What is a VDAT

Using the VDAT Manual

Front Panel Controls

Control border

Display

Track section

Locator section

Transport Controls

Working with VDAT

Loading VDAT

Using multiple VDATs

Connections

Connecting External ADAT
Devices

V DAT as Slave to ADATs

V DAT/VRC-128 as Master for
ADAT Slaves

Your First Recording

Input Monitoring

Recording

Playing back the Recording

Using the Locators

Setting and Clearing locate
points

Editing locate points

Special locator points: loops
and punching

Automated punch-in/punch-out
recording

Automated recording simulation:
Rehearse

Bouncing Tracks

ADAT and VDAT

V DAT as Slave to ADATs

Transferring from ADAT Tapes



What is a VDAT

VDAT is a virtual 8-track digital tape recorder that operates identically to the ADAT* multitrack digital audio recorder conceived and manufactured by Alesis. Each VDAT can play or record up to 8 audio tracks at a time. As with the ADAT, VDATs can be cascaded—up to 16 VDATs can be cascaded to provide a theoretical maximum of 128 tracks.

Just as several ADAT machines can be controlled by a BRC* (Alesis' Big Remote Control) the VDATunits can be controlled by our VRC (Virtual Remote Control).

But, better yet, it's even possible to combine our software modules with the genuine hardware. You can control both ADATs and VDATs with either the BRC or the VRC in a single hardware/software configuration. And transferring audio from tape to disk or back is entirely lossless, thanks to the ADAT ports on the DSP card.

Replace your ADAT devices with VDATs to take advantage of the capabilities software has to offer. Or combine the systems. Use the ADATs to complete certain production stages (i.e. live recording) while resuming production later in the computer using VDATs (i.e. mixing).

Using the VDAT Manual

The first part of the manual describes all the control elements on the VDAT's virtual front panel. Those of you unfamiliar with ADAT devices, or first-time users of VDAT, can use this section to quickly find answers to questions that may come up regarding the operation of the various VDAT front panel controls.

Next, we discuss the basics of working with VDATs. Everything is covered, from loading the module and setting up the initial connections, to automated punch in/out recording and loop operations.

For information on more sophisticated operations, such as using several VDAT modules, or configuring VDATs, ADATs and the VRC in a single work environment, refer to the tutorials or the VRC-128 section in the manual.

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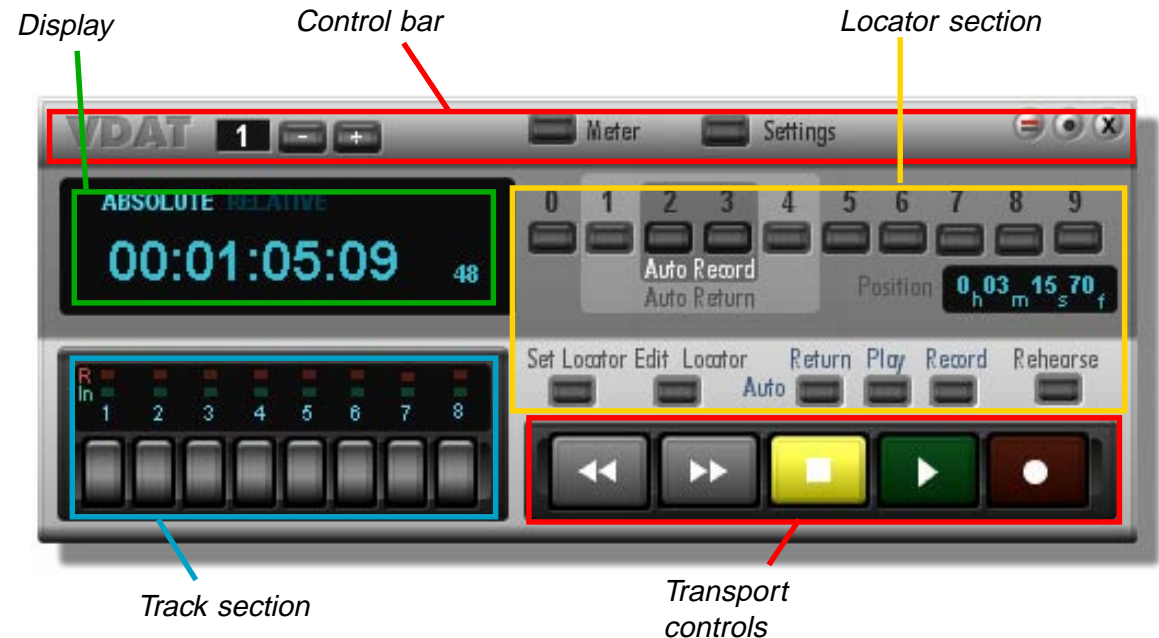
Front Panel Controls

Control border

VDAT Selector: A single VDAT graphical control interface (front panel) is used to control the VDAT modules loaded into the Routing Window. This field indicates which module the panel currently controls. To select another VDAT, you can a) use the <+/-> buttons next to the display field, b) enter the desired value from the computer keyboard, or c) click on the numeric field and drag the mouse up or down to adjust the VDAT number. The track displays adjust automatically according to the newly selected VDAT.

Meter: This button opens or closes the section on the left of the front panel containing the LED meter chains.

Settings: Opens the Settings dialog.



Display

Relative/Absolute: These controls switch the time display between absolute time (or 'tape' time—the current position of the virtual tape) and relative time (the current position relative to Locator 0).

Sample rate indicator (32, 44.1, 48, 96): Indicates the sample rate in use as configured in the current Project.

Master/Slave indicator: Displays the current VDAT configuration. VDAT is slave if it is controlled by another device (VRC, ADATs, or BRC). Otherwise VDAT is master.



Track section

Record-enable buttons 1-8: Each button enables or disables an individual track for recording (known as record-enabled, record-ready, or armed). When a track is record-ready, a red LED flashes in the 'R' display line. Now when the VDAT is engaged to record (by clicking on the Record button in the transport, or by a punch-in operation) audio is recorded to that track and the 'R' status indicator remains continuously lit.

Track section display

R: When a track is record-enabled the respective red LED in the R display flashes. During actual recording, the LED remains continuously lit.

In: The green LED above the track number indicates that the input signal (source) for that track, rather than the signal from tape (tape) is being passed through to the output for monitoring.



Locator section

Locator 0-9: Use these buttons to set or quickly move to up to 10 time positions (locate points). Some of the locate points have special functions:

In relative mode, locator 0 assumes the current position as it's locate position and sets the display to 0:00:00.00.

Locator points 1 and 4 are used for auto return and loop play (auto return/auto play).

Locators 2 and 3 are used to set punch-in and punch-out locations for automated punch recording (auto record).

Position: Displays the positions stored in the respective locators (0 - 9) in the format *hh:mm:ss:ff*, where *h* = hours, *m* = minutes, *s* = seconds and *f* = frames (0 - 29). The displayed position is the absolute tape position (in absolute mode) or the position relative to locator 0 (relative mode).



Set Locator: Press this button and then one of the locator buttons (0 - 9) to store the current 'tape' position as a locate point. Locate points can be set on-the-fly while playing back or recording, or while stopped.

Edit Locator: To edit the time position from the computer keyboard, first press the Edit Locator button and then the desired locator button. Simply overwrite the values in the position display.

Auto Return: When this feature is enabled playback stops at the position stored in locator 4 and the 'tape' rewinds to locate point 1.

Auto Play: This option sets the VDAT to resume playback or recording after any locate function has completed. Using Auto Return and Auto Play together implements loop play.

Auto Record: This function implements automated punch-in/punch-out recording. When playback is engaged and the position reaches locator 2, the VDAT enters record mode (punch-in). Recording stops when the position reaches locator 3 (punch-out).

Rehearse: This button sets the VDAT to simulate automated punch recording without actually recording anything. When the position reaches locator 2, the output signals of all record-enabled tracks will switch from tape to source. At locator 3 the signal switches back to tape. This allows you to adjust your punch points without affecting the existing recording.

Transport Controls

Rewind: Rewind moves the virtual tape position quickly back, simulating a tape machine's physical rewind function. If rewind is engaged during playback, the track signals are audible (cueing). This helps greatly when you're looking for specific passages.

Fast Forward: Fast-forward moves the virtual tape position quickly ahead, simulating a tape machine's physical fast-forward function. As above, if fast forward is engaged during playback, the track signals are audible (cueing) to help you find specific passages quickly.

Stop: Stops playback or recording.

Play: Starts playback from the current position.

Record: Engages recording. The Play button is automatically engaged when you press the Record button. Actual recording takes place only if at least one track is record-enabled. If this is the case, the button is continuously illuminated red. Otherwise, it flashes red.



Working with VDAT

Loading VDAT

Load a VDAT module for use in a project by dragging it from the File Browser (/ Devices/VDAT directory) into the Routing Window.

Using multiple VDATs

You can use up to 16 VDATs in a project, corresponding to 128 tracks. Unlike other modules, however, you don't have to drag separate VDAT modules into the Routing Window from the File Browser. Load a single VDAT, and then adjust the number of VDATs to use (1 - 16) in the VDAT Settings dialog. The button to call the Settings dialog is located in the upper control border area on the VDAT's front panel. When you change this value, the



inputs and outputs on the project module surface adjust themselves accordingly (to between 8 and 128 inputs and outputs).

This lets you use a single VDAT control panel to operate any of the up to 16 VDAT units. The VDAT control panel always controls the currently assigned unit.

You can also use the VRC-128 to control several VDAT units simultaneously.

Connections

The VDAT module surface in the Routing Window has individual inputs and outputs for each audio channel. The actual number of channels varies depending on the number of VDATs registered for use. In addition to the channel inputs and outputs each VDAT also has a clock input (ClkI) and clock output (ClkO).

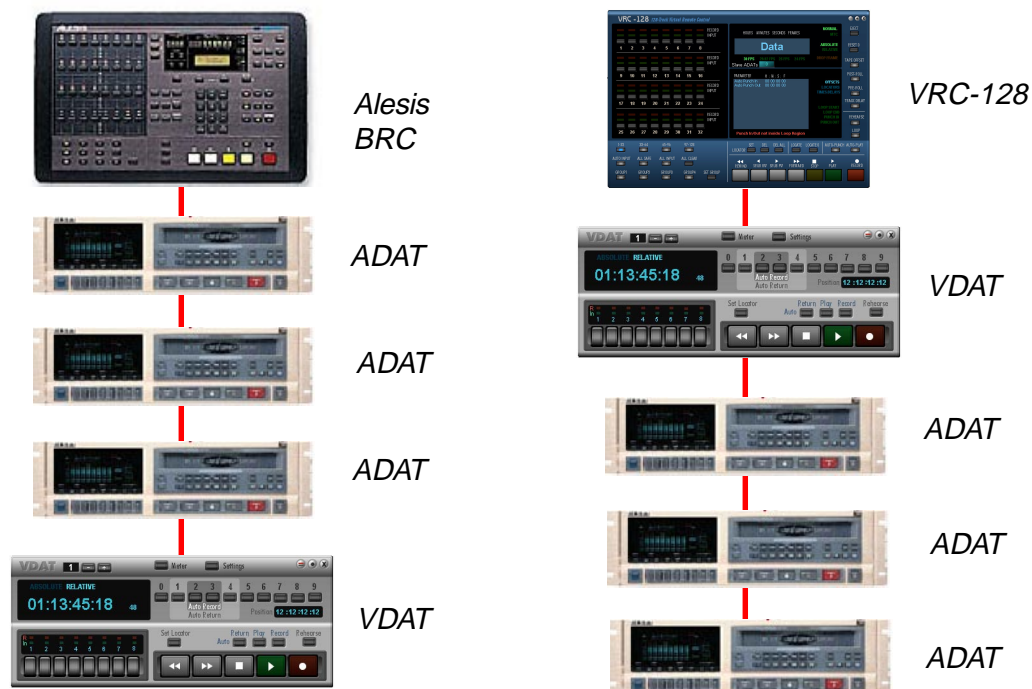
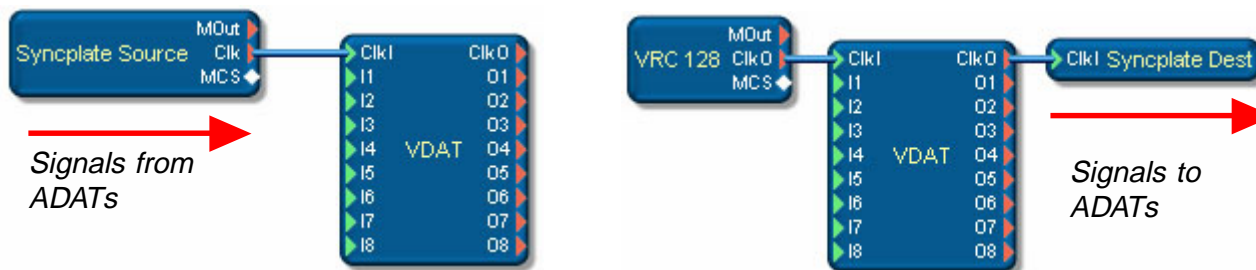
The clock connections carry synchronization and control signals such as those from a BRC or the VRC-128. Signals received at the ClkI input can be passed through ClkO to VDAT, external ADAT, VRC-128, or external BRC devices. A VDAT alone cannot produce clock signals—for this, use the VRC-128.

Connecting External ADAT Devices

VDAT can operate as a slave to external ADAT devices—it will follow control signals sent by an ADAT or a BRC. To configure the ADATs as slave devices, however, the VRC-128 is required, as the VDAT itself does not generate any control signals.

VDAT as Slave to ADATs

The synchronization and control signals from external ADAT or Alesis BRC devices are connected at the 9-pin connector on the SyncPlate. Several ADATs can be connected, as usual, in a serial chain. The VDAT must be the *last* device in the chain, and, if it is used, the BRC must be the first device in the chain. The signals entering the SyncPlate are available at the Clk output of the SyncPlate source module. Connect this output to the VDAT ClkI input.

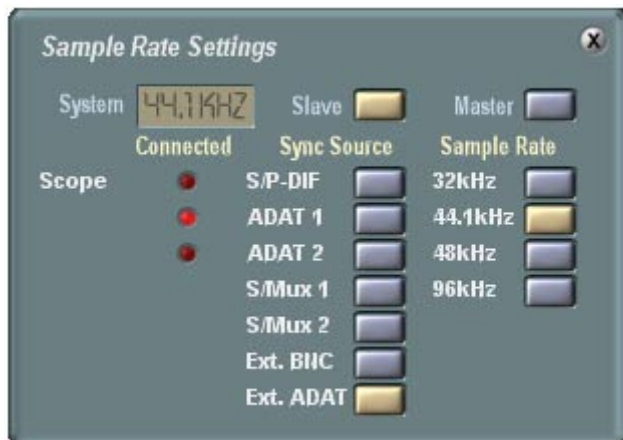


VDAT will operate trouble-free when integrated into a group of ADAT devices. The entire group can then be controlled either by the Alesis BRC (left) or by the VRC-128 (right).

The outputs on SyncPlate source module can be used for other synchronization purposes as well. MOut can be used to synchronize a sequencer. The Clk output can be used with the ASIO2 modules. Or the Clk and MCS outputs can be connected to the tripleDAT source module. All you have to do to send the same signal to multiple destinations is tap the output several times.

Wordclock Settings

When operating in slave mode, **Slave** must be selected in the SFP Samplerate Settings dialog with **Ext ADAT** selected as the synchronization source. This tells the VDAT to use the timecode from the ADATs for synchronization.



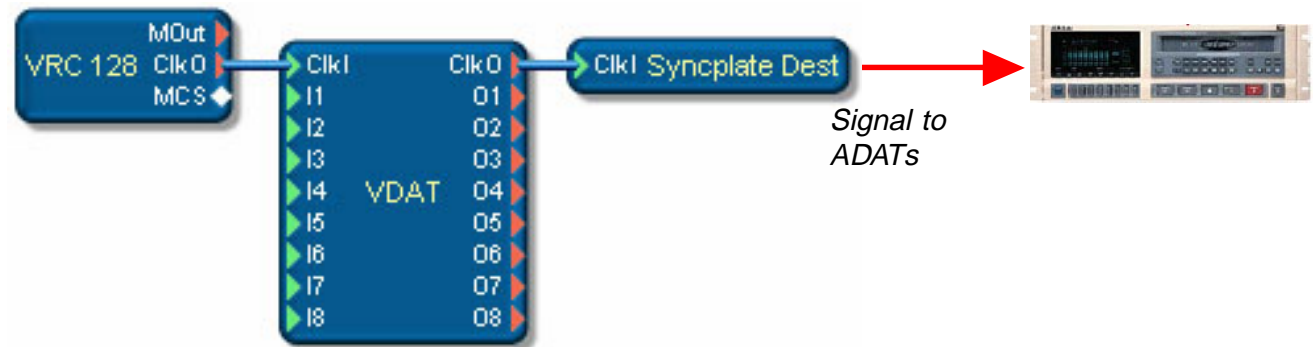
VDAT/VRC-128 as Master for ADAT Slaves

The VRC-128 Virtual Remote Control is located in the VDAT directory. Connect the VRC-128 ClkO output to the ClkI input on the VDAT.

For detailed instructions on the use of the VRC-128 see the VRC-128 manual.

To use the VRC-128 to send control signals to external ADAT devices (which must lie upstream of the VDAT in the control chain) connect the VRC-128 ClkO to the ClkI of the SyncPlate destination module. This provides the appropriate signal to the SyncPlate's 9-pin output.

The VDAT virtual front panel cannot be used to control external ADATs. For this you must use the VRC-128.



Your First Recording

To keep things simple for this example recording we'll use only the VDAT—no VRC-128. Before recording, you must specify a directory in which the audio is to be stored. Open the Settings dialog (the Settings button in the VDAT control border area) and click on the Create button. This opens your operating system's standard file selector dialog. Select or create a directory, and type in a name for the virtual tape.

The Settings dialog is also where you set the bit resolution for recording. To select from the possible settings (16, 24 and 32) either click on the **Bit Resolution** field and drag the mouse up or down, or click on the field and select the desired value with the <Page up> and <Page down> keys on the computer keyboard.



Tape Length 10 min

Note that using 24 or 32 bit recording formats increases the requirements for disk space, DSP resources, and general computing power due to the increased data flow throughout the system.

Click on the **Create** button. This opens your operating system's standard file selector dialog. Type in a name to identify the virtual tape.

Like an ADAT tape, each VDAT virtual tape contains 8 audio tracks per unit. However, when using multiple VDAT units, all units record to a single virtual tape in chunks of 8 tracks each. The tape also stores various administrative data such as locate points and other settings.

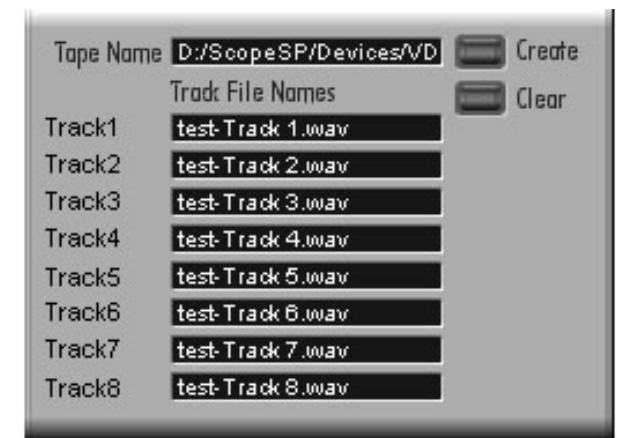
To adjust the length of the virtual tape, click on the **Tape length** field and move the mouse up or down while holding the mouse button. Avoid creating unnecessarily long tapes as these result in very large files.

After you close the file selector, the tape name and various filepaths are indicated in the Settings dialog.

During recording, the audio for each track is stored under the filenames indicated. You can edit the names by clicking on the text field and overwriting them.

Use the Clear button to remove the tape.

When you record the first track, its initial length corresponds to the recording time. As the first track is recorded, files are also created for all other tracks, even though they may be empty. Make sure you have sufficient hard drive space to fully record all tracks concurrently.



Connect the audio sources (for example, the outputs from a hardware source module) to the respective VDAT inputs. In this example we'll use the VDAT to record two tracks of audio from an external source. The source is connected to the analog inputs of the DSP card (or, in the 24 ADAT version, to two channels of a converter and into one of the ADAT input ports). The ADAT machine is connected to an ADAT optical input on the DSP card. These signals appear at the outputs of the Scope Analog Source module in the Routing Window. From there, they are connected to the VDAT inputs (In1 and In2). The outputs of the VDAT (O1 to O8) are connected to a mixer for playback and input monitoring.

Ensure that the settings in the Sample Rate dialog are correct. The wordclock source should be set to the respective ADAT input port.

If it isn't open already, open the meter drawer by clicking on the Meter button in the control border. Next, enable the desired tracks for recording using the record-enable switches 1-8 (located under the time display). The red R LED flashes for each track enabled for recording. Also, the green LEDs light to indicate that the input signals are passed through to the respective track outputs for monitoring.

The LED meters for the record-enabled tracks should show some activity now (if an input signal is present). The maximum signal level reached so far (Margin) is indicated over each meter. Reset the margin using the Reset button if necessary. Input signals for the various record-enabled tracks should now be audible over the mixer.

Input Monitoring

You can control the monitoring of input source signals during recording. Two options control which source signals pass through to the outputs and when:

Auto Input: Enable this mode with the Auto button in the meter drawer. When Auto Input is enabled, a record-enabled track's recorded audio (track) is sent to the track's output during playback. When the system enters record mode, as with punch-in recording, the signal passed to the output switches to the source, or input signal. This mode is most often used in live or automated punch-in/punch-out recording where a portion of the existing track is to be replaced with a new take.

All Input: Enable this option with the All button in the meter drawer. This option sets all tracks to pass their source signals to the outputs for monitoring. All, when enabled, overrides the Auto setting.

Recording

The VDAT records to all record-enabled tracks when the Record button in the transport control group is pressed, or when the punch-in location is reached (see below). Both the red R LEDs and the record button shine continuously during recording. Recording stops when the record button is pressed again. Or, it stops for an individual track when the track-enable button is pressed (if the track was in record).

Playing back the Recording

Rewind the recording using the Rewind button in the transport control group, and start playback by pressing the Play button. Make sure that the All Input mode is disabled or you'll hear only the input source signals for each channel. Stop playback with the Stop button. If you're not happy with any part of the recording, you can record over an existing track or tracks to overwrite the original.

Using the Locators

Setting and Clearing locate points

V DAT lets you set up to 10 locate points, or 'tape' timings, used to jump quickly to specific locations in the recording. You can set a locate point on-the-fly, or during playback or recording. Click first on the Set Locator button and then on the desired Locator button (0 - 9). The time position current when you pressed the locator button is stored and displayed in the Position field. Now when you press the locator button, its timing appears in the Position field and the V DAT immediately positions itself to it.



Editing locate points

You can edit the locate points to adjust them more precisely, or to change the order. Click on the Edit Locator button and then the desired Locator button (0 - 9). The locator's stored time position appears in the Position display. Edit the values for hours, minutes, seconds and frames by clicking on the appropriate value and typing in the number. Confirm the change by striking the <Enter> key.

Special locator points: loops and punching

Locator 0: This point marks the base reference for relative timings. In relative mode, this will always be displayed as 0:00:00:00.

Locators 1 & 4: These locate points can be used to serve as the beginning and end points for the playback of a section of 'tape'. When Auto Return is enabled, the V DAT jumps back to locate point 1 immediately when it reaches locate point 4. If Auto Play is also enabled, the section will loop until the Stop button is pressed.

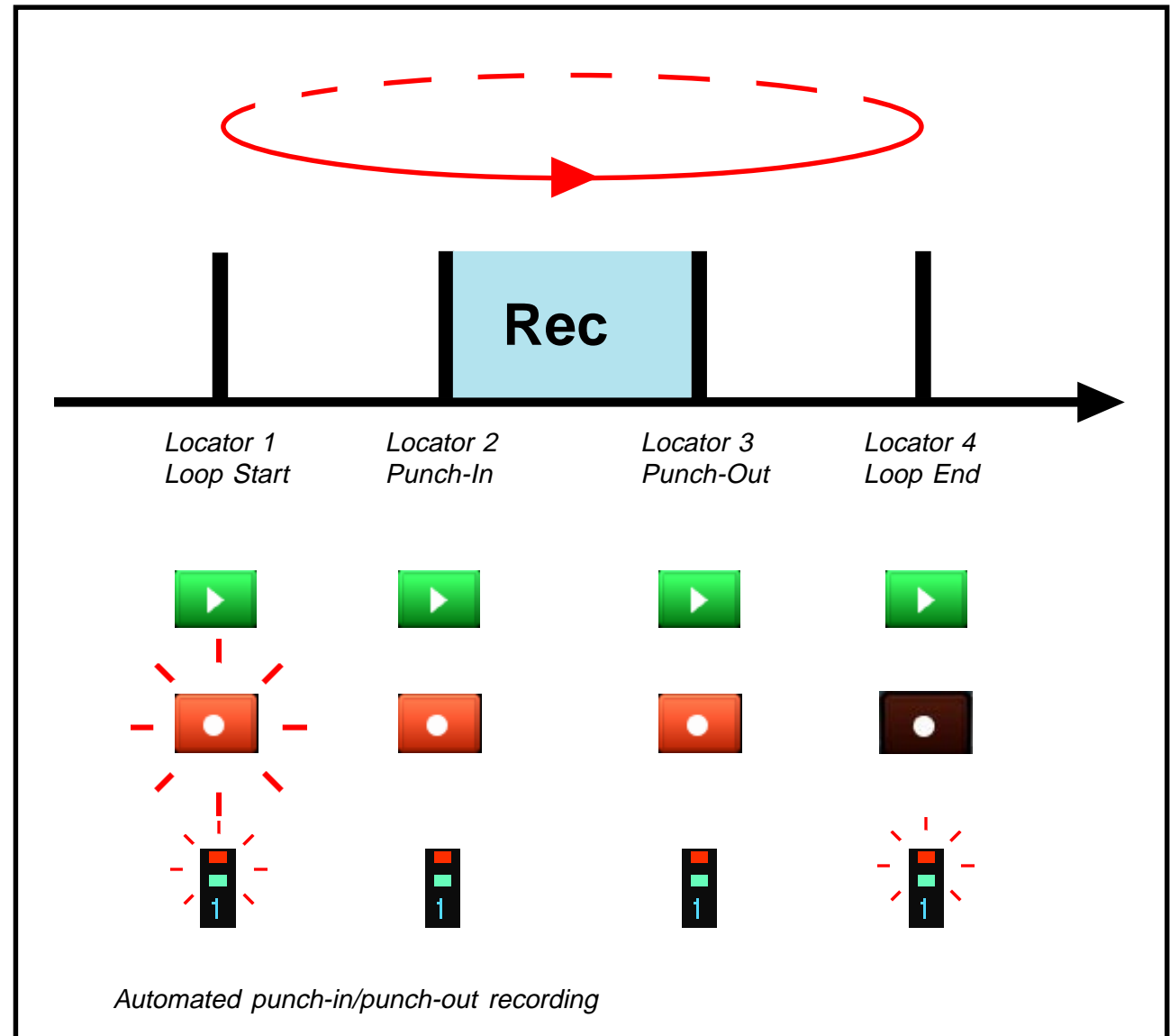
Locators 2 & 3: These locate points are used for automated punch recording as described below.

Automated punch-in/punch-out recording

Enable automated punch recording by clicking on the Auto Record button. Locators 2 and 3 must be set to the desired punch-in (locator 2) and punch-out (locator 3) locations (naturally, the punch-in point must precede the punch-out). Also, at least one track must be record-enabled.

Position the VDAT to some point comfortably ahead of locator 2. Click on the Record button to start the VDAT. The Record button blinks red. When the position reaches locate point 2, recording begins, and the Record button and the associated track R LEDs remain continuously lit. When the position reaches locate point 3, recording ends, and the Record button and LEDs begin blinking again.

You can combine automated recording with the loop function (locator points 1 and 4 and the Auto Return and Auto Play functions). For this to work, locate point 1 must precede locate point 2, and locate point 4 must follow locate point 3. Each time through the loop the VDAT goes in and out of record at the punch points. The



previous take is overwritten. When you are happy with a take click on the Stop

button (before the VDAT reaches the punch-in point).

Automated recording simulation: Rehearse

You can simulate automated recording without actually recording or overwriting anything. Click on the Rehearse button and then proceed as described above. No actual recording takes place, but the VDAT behaves in every other respect as if it is recording—monitoring switches from tape to source and back at the punch-in and punch-out points. This lets you practice the punch with a performer or adjust the punch points without actually recording over an existing take.

Bouncing Tracks

With VDAT you can transfer a track, or part of a track, to another track entirely loss free.

For more complex track copying—for example, to copy a chorus section to a later position on a tape, you should use the VRC-128. For additional information consult the VRC-128 manual.

All that's required is to connect the appropriate output to the appropriate input and enter record mode.

As an example, let's say you want to bounce a section from track 7 to track 13. Connect output O7 to input I13. Record-enable track 13, and locate to a position a little before the section you want to transfer. When you go into record, track 7 will be transferred over to track 13. For more precise transfer of a section of audio, use the punch-in/punch-out automated recording feature.

ADAT and VDAT

The VDAT is an ideal addition to an ADAT system, and is easily integrated. The VDAT can operate as a slave to existing ADAT devices (i.e. the ADAT follows the ADATs and/or BRC in a serial chain) or it can serve as master. As master, it must be used along with the VRC-128, as the VDAT itself cannot generate control data for ADATs. For information on using the VDAT in master mode, consult the VDAT-128 manual.

VDAT as Slave to ADATs

In the project's Samplerate Settings dialog, **Slave** must be enabled, and **Ext. ADAT** selected as the Sync Source.

VDAT must be located at the end of the chain of ADAT/BRC devices. Connect the 9-pin control output from the last ADAT to the 9-pin input on the Syncplate. Next, in the Routing Window connect the ClkO output of the Syncplate source module (found in the Hardware IOs director) to the ClkI input of the VDAT (see the section on VDAT connections). The BRC and/or ADATs recognize the VDAT as one or more ADAT devices, and accept it in the group. The VDAT will follow all ADAT activity automatically. When you start an ADAT in play, the VDAT, too, will playback in sample-accurate sync. Since the VDAT behaves quite differently when rewinding or fast-forwarding, it waits until the other ADATs have finished and then starts along with them.

Transferring from ADAT Tapes

You can transfer tracks from your ADAT tapes to VDAT to process and mix your live recordings in the computer using the SCOPE Fusion Platform. Connect the appropriate ADAT digital audio outputs to the ADAT input ports on the DSP card. In the Routing Window, connect the outputs of the ADAT source module to the respective audio inputs on the VDAT module.

If it is necessary to maintain an exact timing correspondence between the physical tape and the virtual tape, then you must either configure the VDAT as a slave to the ADATs (see previous section) or use it along with the VRC-128 in master mode (refer to VRC-128 manual).

Now you can start playback of the ADATs, and record the tracks on the VDAT either manually or by using automated punch-in/punch-out recording.

If you have more ADAT devices than your SFP inputs can handle at one time, you can record the tracks in 'banks' successively (1-16, 17-32 etc). This requires synchronous recording (with VDAT as slave, or with the VRC-128) and you must switch both the optical ADAT cables and the virtual connections to accommodate the different machines connected at different stages.

Later, if you want to transfer the audio back to ADAT tape (perhaps for archiving purposes), then you must connect the outputs of the VDAT module to the inputs of the ADAT dest module, and the ADAT optical cables must be connected from the Syncplate output ports to the respective ADAT inputs.

The technique of bouncing a track with an added signal mixed in (sometimes known as sound-on-sound recording) is currently not supported over the digital bus with VDAT. You must always directly connect the output of the transmitting device to the input of the receiving device.

Index

Symbols

<+/-> buttons 3

A

Absolute 4
ADAT 2
Alesis 2
All Input 11
Auto Input 11
Auto Play 5
Auto Record 5
Auto Return 5
Automated punch-in/punch-out recording 14
Automated recording simulation: Rehearse 15

B

Big Remote Control 2
BRC 2

C

Clk output 9
Connections 7
Control border 3
control elements 2

D

Display 4

E

Edit Locator 5
Editing locate points 13

F

Fast Forward 6

First Recording 10
frames 5
front panel 2

I

Input Monitoring 11

L

live recording 2
Loading VDAT 7
Locator 0 13
Locator 0-9 5
Locator-Sektion 5
Locators 13
Locators 1 & 4 13
Locators 2 & 3 13
loops 13

M

Meter 3
mixing 2
MOut 9
multiple VDATs 7

P

Play 5
Playing back the Recording 12
Position 5
punch-in/punch-out recording 14
punching 13

R

Record 5
Record-enable buttons 1-8 4
Rehearse 5, 15
Relative 4

Return 5
Rewind 6

S

Sample rate indicator 4
Set Locator 5
Settings 3
Special locator points 13
Stop 6
SyncPlate source module 9

T

Track section 4
Track section display 4
Transport Controls 6

U

Using multiple VDATs 7
Using the Locators 13

V

VDAT Selector 3
Virtual Remote Control 2
VRC 2

W

What is a VDAT 2
Working with VDAT 7

Y

Your First Recording 10