

Owner's Manual



Deva IV & Deva V

High Resolution Digital Audio Recorder

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230 West Parkway, Unit 9, Pompton Plains, NJ 07444 USA
Tel: 973.835.5000 Fax: 973.835.6633

Change History

2007-08

- ❑ Added EQ Section
- ❑ Updated sections to include new features offered by the firmware.

2005-04-14

- ❑ Corrected references to status button going to home screen.
- ❑ Other misc typographical corrections made.
- ❑ Added Chapter 7.

2005-04-03

- ❑ Corrected various sections throughout the manual.

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Introduction

Welcome to DEVA IV and DEVA V (DEVA 4 and DEVA 5)! Included in your DEVA IV or DEVA V box you have the following items:

- DEVA V or DEVA IV unit
- AES Digital Input cable
- AES Digital output cable
- CD-ROM containing Owner's Manual in PDF format
- A/C Power Connector

Note: The size of the installed removable hard drive varies depending on what you ordered.

Options Available

Contact Zaxcom for ordering details

- DVD-RAM Option
- Porta-Brace Case
- 6 Channel analog output cable
- 80GB hard drive in caddy
- empty caddy

Overview

Both the DEVA IV and DEVA V are identical in operation. There are some slight differences between the two and these are called out in this manual. For this reason, the DEVA V is used throughout the manual when describing a function or feature. Unless noted, this also applies to the DEVA IV recorder.

DEVA IV, DEVA V Differences

	DEVA IV	DEVA V	Notes
Maximum Channels	8	10	The DEVA V has only 8 physical inputs. However, two additional channels are available for mix-downs.
Maximum Sampling Rate	96 KHz	192 KHz	
Soundfield Monitor Option	No	Yes	

Continuing in the tradition of the DEVA II recorder and the Cameo mixer, the DEVA V combines incredible capabilities with ease of use and a short learning curve. It is easy to setup and adapt to the changing environment around you. Whether it is an on the cart's recorder for motion picture use, an 'over the shoulder' recorder for a documentary, or a master recorder for a live orchestral concert, the DEVA V enables you to record up to 10 audio tracks with 24 bit resolution at sampling rates up to 192 kHz.

Note: The DEVA IV allows 8 audio tracks with 24-bit resolution at a sampling rate up to 96 kHz.

The DEVA V also offers unparalleled security, in terms of password protection for the hardware and data protection for the audio. Only DEVA V allows you to record simultaneously to an internal hard drive, which can be swapped out with another drive in the field; an internal DVD- RAM drive (optional); and an external fire wire device. You can write different formats to different devices and can even mirror a previous day's work to one drive while recording the current days work to another.

Coming Soon

- Password Security will be available in a future software update.
 - Mirroring while recording will be available in a future software update.
 - DVD-R/-RW are not recording options available at this time.
-

DEVA V was designed as a field recorder, so whenever a choice had to be made in the design process among features to include, the preference was always made to maximize the recording capabilities and minimize size and power consumption. So, while the DEVA V has 16 inputs (8 Analog and 8 Digital) and records to an impressive 10 tracks, outputs are limited to 6 Analog and 8 Digital outputs. However, any of the 10 tracks can be routed to any combination of outputs.

Features

- 24-bit 10 track 192 kHz location recording DEVA V
 - 24-bit 8 track 96 kHz location recording DEVA IV
- 16 Channel digital audio mixer
- 10 Second Pre-Record Buffer (48 kHz and below)
- Sample rate conversion via Zaxfile utility
- Zaxcom mission critical operation system (MARF)
- Eight (8) analog inputs
- Eight (8) AES digital inputs
- Six (6) analog outputs
- Eight (8) AES digital outputs
- SoundField Encoder (DEVA V only)
- Frequency Response: 20 Hz - 22 KHz
- Internal matrix: 16 in 10 out
- Slate mic
- Analog dynamic range: 120dB
- size: 3.2" x 10.6" x 7.7"
- size with internal DVD drive: 4.0" x 10.6" x 7.7"
- weight: 5 lbs no battery
- Analog inputs XLR balanced +4dB to -60dB
- Mic power +48v Phantom
- IEEE 1394 (FireWire) external disk interface
- 12 to 20 dB selectable head room
- Internal DVD-RAM Drive (optional)

Coming Soon

- Simultaneous multi-disk multi-format recording
- Multi-sample rate recordings

Direct to hard disk recording with backup to DVD is the most reliable way to record location audio. The DEVA recording system gives you peace of mind knowing that temperature, humidity, motion and environmental contamination have no effect on the recordings you will make to a sealed hard disk recorder.

- DEVA allows you to keep your recorded audio on the set, allowing production to instantly reference previous recordings. Disputes with post regarding recording issues can be immediately cleared up and extra copies of recorded audio can be produced in case of lost, damaged or stolen material.
- Output 4 types of AES-31 Broadcast Wave files to post.
- DEVA offers direct Avid and Pro-Tools compatibility. This saves a tremendous amount of time loading files in post production.
- Scene, Take, Note and roll number Metadata can be entered into the DEVA using the touch screen display, Cameo mixer or external keyboard. This data goes directly into the Avid post production system. All metadata can be easily edited on the DEVA to assure post gets the correct information for each take.
- The DEVA supports FAT32 and UDF disk formats. So, DVD-RAM disks and FireWire hard drives created by the DEVA are directly readable on Macintosh and Window computers without using third party software drivers.
- A color touch screen display is a highlight of the new DEVA. This intuitive control system is the most direct and flexible method of control. New software features can be added to the DEVA creating new buttons and controls on the touch screen.

Hints on Using Your Deva

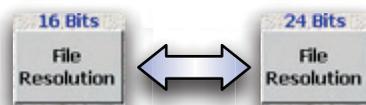
The DEVA uses a high resolution PDA-style touch screen to access software functions. In most cases you can use your finger to make selections, or use any brand of PDA stylus.

There are two ways to navigate from menu to menu. One is to push the menu button on the front panel. The other is to touch the status display in any screen. The status display, in the upper right corner of the touch screen, shows whether DEVA is in stop, play or record mode.

Note: *Touching the status button or pushing the menu button does not change the mode the DEVA is currently using. It is safe to make either selection while recording.*

Throughout this manual the following conventions are used:

- Toggle is used when the selection rotates through a number of possible selections. For example, File Resolution toggles between 16 Bits and 24 Bits.



Getting to know your DEVA recorder

This section describes the physical features and location of items on the DEVA recorder.

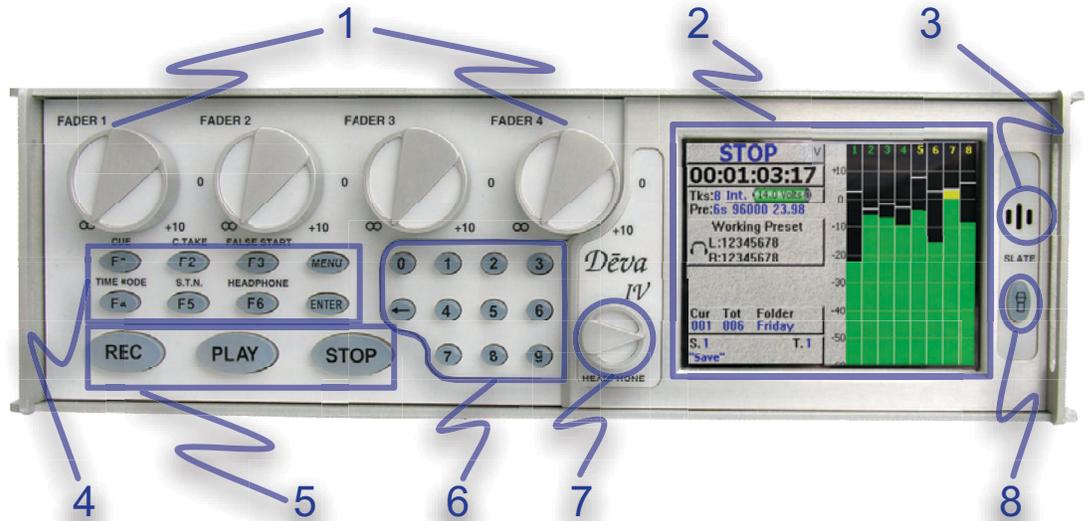


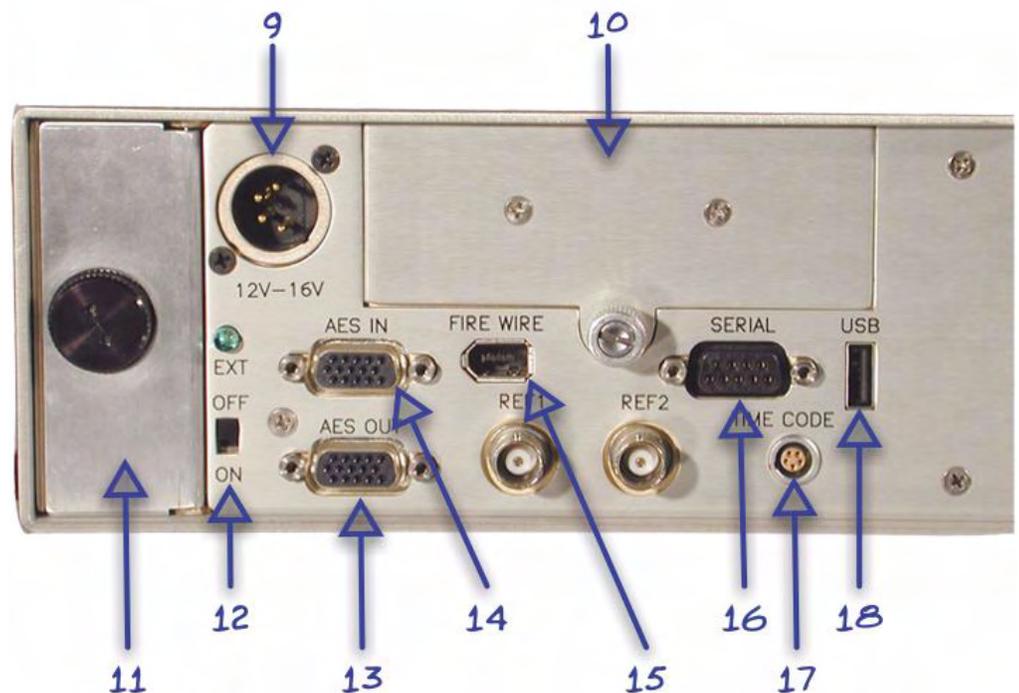
Figure 1-1 DEVA Front panel

Front Panel Descriptions

1. Faders 1, 2, 3 and 4
There are four hardware faders. They can be assigned to any channel or combination of channels in your DEVA. Software faders are available for channels not assigned to the hardware faders.
2. Touch Screen Display
The touch screen display is the main interface of the DEVA. Most selections are made and displayed using it. You can use either a PDA stylus or your finger to make selections.
3. Slate Mic
4. Function Buttons F1, F2, F3, F4, F5, F6, MENU, and ENTER
 - F1 —CUE
Displays the 'Cue' or Playback Menu on the touch screen.
 - F2 —C.TAKE
Marks a take as a 'Circled Take' in the Meta Data file. This button can be pushed either during record or after the take has been recorded but before the next take has started.
 - F3 —FALSE START
Marks a take as a 'False Start' in the Meta Data file. When this is done, the segment number does not increment when placed into the record mode the next time. This button can be pushed either during or right after the false start record.
 - F4 —TIME CODE
Displays the Time Code menu on the touch screen.
 - F5 —S.T.N.
Displays the SCENE TAKE NOTE menu.

- ❑ F6 —HEADPHONE
Displays the HEADPHONE matrix menu.
 - ❑ MENU
Advances the screen to the next menu. This is the same as touching the status button in any menu.
 - ❑ ENTER
Confirms data entry.
5. Transport Control Buttons
These three buttons provide the Record, Play, and Stop functions.
 6. Numeric Keypad and Backspace Buttons
These provide an alternative means of entering numeric data such as Time Code and Meta-Data.
 7. Headphone Volume Control
 8. Slate Mic Activation
This button requires you to push and hold it to activate the slate mic. All routing for the slate mic is performed in the Disk Mix menu.

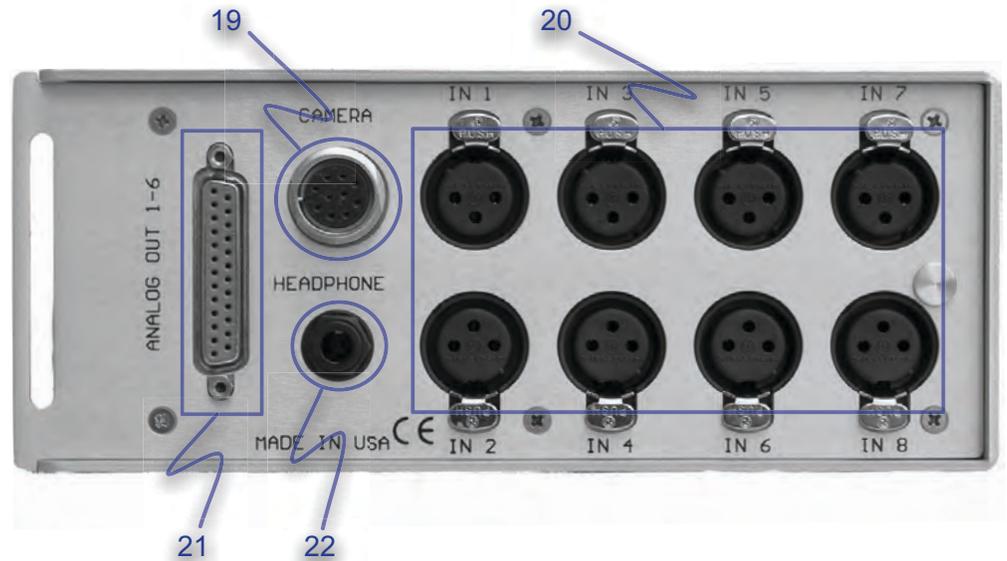
Left Side Panel Descriptions



9. Power Input Connector
Standard 4-pin XLR connector for 9.5V-18VDC 1 Amp input
10. Hard Drive Compartment
11. Battery Compartment
The black knob rotates to lock the battery compartment door. Use NPI type batteries with the DEVA. You can safely use Li-ion and NiMH NPI batteries in the DEVA as long as their maximum voltage does not exceed 18 VDC.
12. Power Switch

13. AES Digital Output Connector
Connect the supplied AES Digital output cable to this is a 15-pin mini Sub-D connector. The cable provides four pairs of AES digital output.
14. AES Digital Input Connector
Connect the supplied AES Digital input cable to this 15 pin mini sub-D connector. The cable provides four pairs of AES inputs.
15. IEEE 1394 (FireWire) connector
This port can be used with FireWire hard drives, CD, and DVD-RAM drives. If the external FireWire device requires power, it can be turned on from the My DEVA menu. (see My DEVA Menu on page 45).
16. Serial / RS422 connector
This 9-pin connector is used for controlling the DEVA using an external device such as the Zaxcom Deva MIX-12 mixer.
17. Time Code Connector
This is the standard 5 pin Lemo connector used for Time Code I/O (Lemo part number: EGG.OB.305.CLL)
18. USB Port
This port is designed for connecting Zaxcom approved keyboards.

Right Side Panel Description



19. Camera Connector
This is a standard 10-pin Hirose ENG type camera connector. It outputs Channels 5 and 6 to the camera and returns the monitor feed from the camera.

Note: *The two monitor feeds are summed to mono.*

20. Mic / Line Inputs 1 through 8
Each balanced input is internally padded to handle either mic or line level signals. The signal level is selected using the Input Control screen. (Line Input Impedance is 4 K Ω).
21. Analog Outputs 1- 6 - 25 pin connector outputs 6 channels of line level audio. Menu selectable to output either channels 1 through 6 or 5 through 10.
22. Headphone Output - 1/4-in. Stereo Jack, optimal 100 Ω impedance.

Note: *Lower headphone impedances result in louder headphone output levels.*

Chapter 2

Setting Up the Connections

This section describes how to connect external microphones, line devices and the proper settings on the DEVA required to make these connections work.

DEVA V has factory default presets so you can power up the machine and start recording. When you power on the DEVA, it takes 3-5 seconds to start-up. The default setting has the home screen appear once the DEVA has finished its startup sequence, however you can change this using the User Interface Settings.

Power

An external A/C power supply comes with the unit, if you are going to use the DEVA in a situation where there is no power, an internal or external battery can be used. The internal battery is a standard NP-1 style battery. The DEVA V can use any NP-1 style battery that supplies the proper voltage of 9.5-18 VDC.

Note: The DEVA does not charge the NP-1 battery when a battery is installed and external power is used.

Current Draw

The DEVA draws approximately 900 mA while recording. This current increases if powering an external FireWire drive or when mirroring to the optional internal DVD-RAM drive.

Battery Display

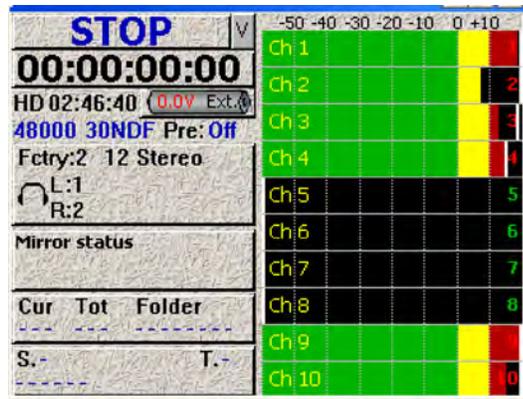


Figure 2-1 Home Screen

The home screen displays the source of power and voltage. When the voltage of any internal or external power source drops below the customdefined threshold, the battery indicator changes to red. When the voltage of the power source drops below 9.5 volts the DEVA powers itself off.

Warning: When the DEVA shuts itself off due to power loss or insufficient power. The audio tracks are left in the “open” state. When the unit is turned back on, it automatically scans these files and close them. However, this process can take several minutes.

Setting the Battery Threshold

The Battery Menu is accessed by pressing the battery indicator on the Home screen.

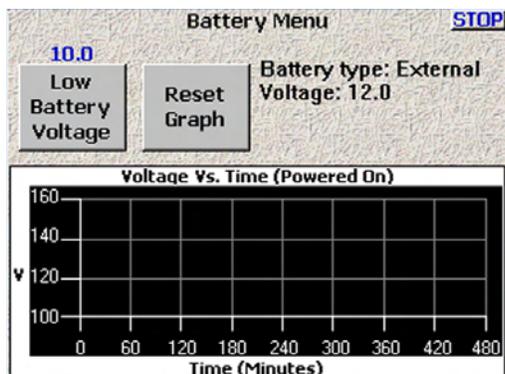


Figure 2-2 Battery Menu

The graph shown in the Battery Menu displays the voltage and how long the battery has been used. The curve is unique for each type of battery used (LiON, NiMH). To change the threshold when the battery indicator changes to red on the Home screen, do the following:

1. Press the Low Battery Voltage button.
2. Using the keypad, enter the threshold voltage
3. Either Press the Low Battery Voltage button again, or Press the Enter key on the keypad.
4. Press Stop to return to Home screen.

Hint: If you need to run on battery power for an extended period of time, and need to record during this time, connect an external battery to DEVA when the internal battery is low. When an external power source is used, the DEVA automatically switches to this power source. This enables you to continue recording while you switch out the internal battery.

Microphone/Analog Line Input

There are eight microphone/analog line input connections on the right side of the DEVA. These can be used with either microphones or with a line level analog input.

Caution: Prior to connecting any analog input to the DEVA, you should ensure the Microphone/Analog Line Input Connectors are setup correctly in the Analog Input Control. When Connecting microphones, you should always power off the DEVA.

Selecting the Analog Input

The input control menu contains the settings for

- toggling the connectors input options: line and microphone.
- toggling the connectors power options: 48 VDC and None

- Toggling the High Pass Filter
options: On and off
- Adjust Delay of any available channel
- Adjust trim of any available channel.

The Analog Input Control menu can be found by going to:
Main Menu > Input Control

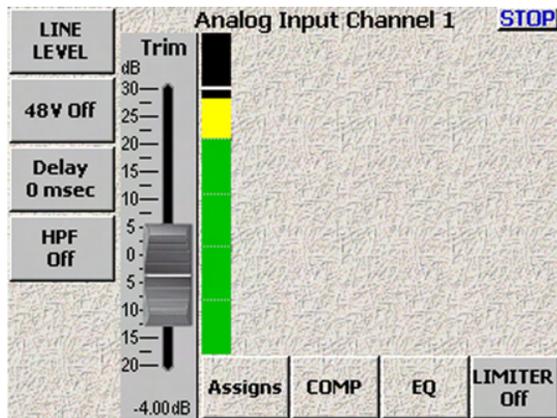


Figure 2-1 Analog Input Control Screen

Pressing the Stop button in the upper right corner or menu key on the keypad brings you back to the main menu.

Pressing any of the channel buttons without pressing any mode change, opens the Digital/Analog Input Screen for a single channel. All functions can be adjusted for that specific channel from the Digital/Analog Input screen.

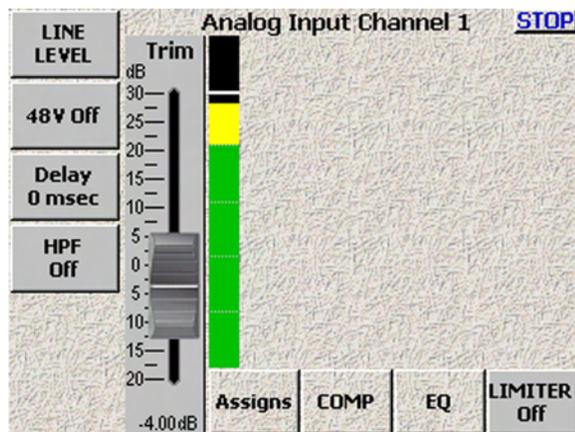


Figure 2-2 Single Channel Analog Input Screen

Toggling Microphone and Line Input

1. Press the Mic/Line button on the screen.
The red LED on the Mic/Line button flashes red indicating it is active.
2. Press the button on the screen for channel you want change.
The channel button displays the current mic/line setting

You can continue toggling the Mic/Line option to each channel as required without pressing the Mic/Line Level button each time, simply press the channel you want power applied to while the LED flashes on the Mic/Line Level button

Toggling Phantom Power (48 VDC)

1. Press the 48 Volts button.
The red LED on the 48V button flashes red indicating it is active.
2. Press the channel you want phantom power applied to.
48 V on the button turns red and changes to 48 V On to indicate 48 VDC is applied to that channel.

You can continue toggling the power option to each channel as required without pressing the 48 Volt button each time, simply press the channel you want power applied to while the LED flashes on the 48 Volts button.

Note: *To protect equipment from damage, the DEVA will not allow you to apply power to any channel set as a Line input.*

Toggling the High Pass Filter (HPF)

1. Press the High Pass Filter button.
2. Press the channel you want the High Pass Filter applied to.
HPF indicator on the button changes to last HPF frequency used.
3. **Press High Pass Frequency button to change the frequency at which the HPF should be applied.**
A dialog appears requesting the high pass frequency.
4. Enter the HPF using the numeric keys.
The valid frequency range is 30 Hz to 240 Hz. Any value outside this range is place closest to most valid number with this range.
5. Press the enter key on the front of the DEVA to finish entering the HPF cutoff.

You can continue toggling the High Pass Filter option to each channel as required without pressing the High Pass Filter button each time, simply press the channel you want HPF applied to while the LED flashes on the High Pass Filter button. The last frequency used, is used for the new channel. You can change this by repeating steps 3 through 5.

Adjusting the Trim

1. Press the Adjust Trim button.
The Analog Trim Screen appears.
2. Press Trim above the channel you want to adjust.
When a channel is activated, Trim changes from black to Blue.
3. Either Less gain or More gain to adjust a channel.
A range of -20 dB to +25 dB can be applied to any channel including the Slate Mic.

Repeat steps 1 through 3 for each channel.

All Trim settings can be reset to 0 dB by pressing the Clear Trim button. A dialog appears after pressing the Clear Trim button requesting confirmation that you want to clear all the trim settings.

Note: *If all channels are going to be set at the same level, you can save time by changing them at the same time. Press the Select All button, then any change made to the levels are applied to all channels at the same time.*

Pressing either the STOP button in the upper right corner of the screen or using the Menu key on the keypad exits the Adjust Analog Trim screen and brings you back to the Analog Input Control screen.

Adjusting The Delay

1. Press the Adjust Delay button.
The Adjust Delay Screen Appears. You can adjust delay on both Analog and Digital inputs.
2. Press the Channel you want to add delay into.
The button changes to white.
3. Press More delay to add delay.
If Delay has been added to a channel, the Less Delay button is active and can be used to reduce the amount of delay.
A maximum of 40 ms of delay can be added to each channel.

Repeat Steps 1 through 3 for each channel as required.

As an alternative to pressing the More Delay or Less Delay buttons, you can press the Enter Delay and manually enter the delay using the keypad.

Hint: Wireless microphones typically require 3 ms of delay to avoid phasing associated with them.

Pressing either the STOP button in the upper right corner of the screen or using the Menu key on the keypad exits the Adjust Delay screen and brings you back to the Analog Input Control screen.

Digital Inputs

The DEVA comes with an AES Digital Input cable. This cable gets connected on the left side of the DEVA, see Left Side Panel Descriptions on page 5 for the location of this connector.

The AES cable fans out to 8 separate XLR style inputs. You can use any combination of these inputs with your DEVA. The input number is written on each cable. You can assign these inputs to any channel or combinations of channels.

No special settings other than delay is available for digital inputs. See "Adjusting The Delay".to learn how to adjust the delay.

Settings for Recording

Once the input cables are connected, there are many setup decisions to be made. This section describes those settings and where they are found in the menus. There is no one way to setup a DEVA correctly, nor do any of the settings described here have to be done in any certain order.

Storing the Data

The size of the hard drive determines how much data can be stored.

Selecting a partition

Main Menu > My DEVA > Internal Hard Drive > Current Folder

Depending on the size of your hard drive, the number of folders or partitions varies. To select a partition do the following:

1. Press the My DEVA button on the Main Menu screen.
The My DEVA Screen appears.
2. Press the Internal Hard Drive button.
The Internal Disk Utilities screen appears.
3. Press the Current Folder button.
the Internal Disk Folders screen appears.
4. Press the folder name you want to record on.
The folder's button turns white.

The Internal Disk Folders screen also allows you to erase the contents within a section, rename the folder, and change the view order of the folders.

Selecting the Sample Rate

Main Menu > DEVA Setup > Internal Sample Rate

The DEVA V and VI can record with sampling rates of 44100 Hz, 47952 Hz, 48000 Hz, 48048 Hz, 88200 Hz, 96000, 96096 Hz. In addition, the Deva V can record at 19200 Hz.

1. Press the DEVA Setup button on the Main Menu screen.
The DEVA Setup Screen appears.
2. Press the Internal Sample Rate button.
The Internal Sample Rate screen appears. All currently supported sampling rates can be selected from this screen,
3. Press sampling rate you want to record with.
The selected sample rate button turns white.

Note: After changing sampling rates timecode may need to be re-jammed.

About 19200 Hz Recording

Recording at 19200 Hz requires a lot of processing power from the Deva V. When recording at this high sample rate, you need to disable any mixer cross points that are not needed. Usually you will need to limit the number of individual tracks to eight. Before any performing any recording at this sampling rate, you

need to perform some recording test to ensure the hard drive in the Deva can write at this high sampling rate.

To improve the mirroring speed, you should switch the sampling rate back to 48 kHz.

Coming Soon

- The Custom Sample Rate will be available at a later date.
-

Selecting the Number of channels to Record

Main Menu > DEVA Setup > Record Channels > Record Track Select

Before you can record, you have to set the number of tracks you want to record. If you use a different number of channels often, this step is critical since it's possible to record blank tracks, or worse not enough (although you are given a visual clue on the home screen when this happens).

Note: Channels which have been selected to mix to internal hard drive are shown in the Record Track Select window in blue.

1. Press the DEVA Setup button on the Main Menu screen.
The DEVA Setup Screen appears.
2. Press the Record Channels button
The Record Track Select screen appears.
 - Four presets are available; two track, four track, tracks mixed to, and all tracks. Two, Four and All tracks are self-explanatory. Tracks mixed to sets the DEVA to only record those tracks which are being mixed to the internal hard drive. Using Tracks mixed to allows you to always have the proper number of record channels available.

Hint: Pressing the backspace button on the DEVA keypad while pressing the appropriate meter on the Home Screen toggles the recording of that channel.

3. Either press one of the preset buttons, or press the button under the channels.
An X in the button indicated that is a channel which will be recorded.

Selecting the Prerecord Time

Main Menu > DEVA Setup > Pre-Record Time

The DEVA V and VI when powered on, are always processing data. Any sound coming in from any input is always being processed. One of the benefits to doing this, is with a sampling rate of 48 kHz and below a portion of the audio is buffered and it allows you to press Record, and have that buffered portion of the audio placed at the beginning of the segment. You have an option of having from 1 to 10 seconds of audio buffered.

1. Press the DEVA Setup button on the Main Menu screen.
The DEVA Setup Screen appears.
2. Press the Pre-Record Time.
Each time you press the button, the time is increased one second from none (off) to the maximum of 10 seconds. The amount of prerecord time is shown in blue just above the Pre-Record Time button.

Important: The Prerecord buffer is discarded after any of the following settings are changed:

- Sample Rate Reference
- Internal Sample Rate
- Timecode
- Userbits
- Frame Rate
- Timecode Run Mode

The Mix

This section discusses setup the mix. You can have different mixes between the internal hard drive and any audio you pass through the analog or digital output ports.

Setting the Internal Mix

Main Menu > Disk Mix

The Disk Channel Mix screen is setup in a grid fashion. This allows you to quickly set the proper input and output channels.

Setting the channel

There are two options when recording to the internal hard drive, you can either record the audio prior to faders, or post faders. When you use pre-faders, the audio that comes in to the analog channel is what gets recorded regardless of any fader adjustments you make.

Options to set Prior to Recording

Selecting the Tone Level

Main Menu > DEVA Setup > Tone Level

Usually it is customary to put a tone at the beginning of a segment, which is later used by the post-production facility to ensure all the levels are correct. It is also a good way to verify any equipment which is receiving an audio feed from the DEVA has the correct metering on their equipment. You can select a tone level of -12 dB, -14 dB, -16 dB, -18 dB, and -20 dB.

1. Press the DEVA Setup button on the Main Menu screen.
The DEVA Setup Screen appears.
2. Press the Tone Level button.
Each time you press the button, the tone is increased 2 dB, from it's previous setting. The tone level is shown in blue just above the Tone Level button.

Setting the number of meters on the Home Screen

Main Menu > DEVA Setup > Meters > Number of Home Screen Meters

You can have from 4 to 10 meters on your home screen (8 meters for the DEVA IV). Any meter shown on the home screen that is not being mixed to the internal hard drive is shown on the home screen with a line through it.

Important: Make sure to have at least the same number of channels displayed on the home screen as you are mixing. It is possible if you are not careful to record and mix channels which will have no meter shown on the home screen.

1. Press the DEVA Setup button on the Main Menu screen.
The DEVA Setup Screen appears.
Pressing the 'v' button on the screen toggles between different home screen styles.
2. Press the Meters button
The Meters Menu screen appears.
3. Press Number of Home Screen Meters to change the number of meters that appear on the home screen.
The number of channels that appear on the home screen changes. The actual number of channels appears in blue above the Number of Home Screen Meters button.

Setting the Meter Labels

Main Menu > DEVA Setup > Meters > Meter Labels

You can change the label of any meter. This label is placed into the meta-data of the sound files. Labeling your meters can be very helpful to the post production house.

A maximum of 16 characters can be used for labels. When this limit has been reached, any additional character is placed in the 16th character slot.

1. Press the DEVA Setup button on the Main Menu screen.
The DEVA Setup Screen appears.
2. Press the Meters button
The Meters Menu screen appears.
3. Press the Meter Labels button.
The Meter Labels Menu appears.
4. Press the Meter number button that you want to label.
A keyboard layout appears.
5. Press the letters to enter the label.
If you press the backspace key (Bsp) characters are removed from the label.

Hint: Using a PDA stylus with the keyboard or using an external keyboard may increase your accuracy. The Deva MIX-12 has a built-in keyboard that also increases accuracy and speed entering labels.

Time Code

The DEVA provides several time code options, all options are available from the Time Code window.

To get to the Time Code screen, either press the Time Code button on the Main Menu screen, or press the time code in the home screen.

Setting Time Code Options

The READER T.C. displays Time code from any External source coming into the DEVA. READER U.B. displays external User Bits. GENERATOR T.C. and GENERATOR U.B. displays Time Code and User Bits being

generated by DEVA. The Reader T.C. field displays the estimated frame rate of timecode entering the DEVA.

Time Code Out

Time Code Out toggles between Generator and Disk. Generator outputs TC from the internal generator. Disk outputs time code from the hard drive, or the disk which is selected for playback.

Time Code Run Mode

Time Code Run Mode toggles between Free Run, Record Run, C. JAM ALL, C. JAM T.C., and C. JAM U.B. modes.

Free Run

In the Free Run mode, time code runs continuously from either 00:00:00:00: or whatever valid time code number you enter, since you can also jam time code from the DEVA's 'Time of Day' clock.

Record Run

In the Record Run mode, time code starts and stops as you Record and Stop.

C. JAM ALL

The C. JAM All mode continuously Jams Time code and User Bits from an External Source.

C. JAM T.C.

The C. JAM T.C. mode continuously jams only the time code. The user bits can be set independently.

C. JAM. U.B.

The C. JAM U.B. mode continuously jams the User Bits, while the time code FREE RUNS independently. This mode allows a second time code to be input as user bits from an external source.

Frame Rate

The Frame Rate button toggles the between all available time code frame rates. Available frame rates include: 30 NDF (Non Drop Frame), 30 DF, 23.98, 24, 25, 29.97 NDF, and 29.97 DF.

Time Code Reference

The Time Code Reference button toggles between XTAL and AES reference sources for the time code generator.

XTAL

Use the XTAL option when you want to use the Internal Crystal.

AES

AES for external reference from a digital source.

Important: This button has no effect. For recording leave this setting at XTAL, even if you are recording from an external AES source such as Cameo. Timecode is always referenced to the internal DEVA sample rate clock which may be locked to the DEVA's internal oscillator or an external AES reference.

Toggle Time Code Type

This button toggles the settings for entering and jamming data between Time code and User bits. This selection changes the display on the 2 buttons to its right. JAM TIMECODE becomes JAM USER BITS and JAM TIME OF DAY and ENTER TIMECODE becomes ENTER USER BITS and ENTER TIME OF DAY.

JAM TIMECODE (USER BITS)

This button manually jams an external Time code or User bits into the internal generator. When set to JAM TIME OF DAY it will jam the time code clock to the time of day entered in the DEVA SETUP / CLOCK menu.

ENTER TIMECODE (or USER BITS).

This button opens a window that allows you to input Time Code or User bit data. ENTER TIME OF DAY brings you to the CLOCK setup menu in DEVA SETUP.

INC USER BITS ON/OFF.

This button toggles between incrementing user bits On and Off. When ON, the DEVA increments the last digit in the USER BITS each time you go into record.

DUAL RATE TIME CODE

A new feature allows the DEVA to sync to one Time code frame rate and record another. For instance, you can input 23.98 time code from an HD camera and record 29.97 time code derived from it. The 2 frame rates will be in perfect sync matching up at frame one of each second. DEVA will hold perfect time code sync even when cycling power. Many other time code clocks can gain or lose a frame each time power is cycled.

Chapter 4

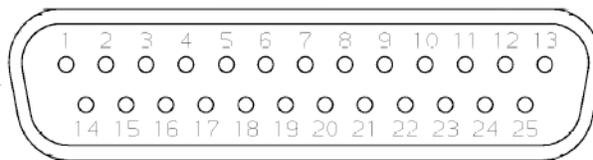
Pinouts

This section provides the pinouts for the connectors on the Deva. The mating cable connector part number is also provided for the less common connectors.

Analog Out, DB25

This is a standard DB-25 connector available at most electronic part stores.

	Signal Description	Pin	Signal Description
1	1 +	14	2 -
2	Ground	15	3 +
3	4 -	16	Ground
4	5 +	17	6 -
5	Ground	18	Ground
6	Ground	19	Ground
7	1 -	20	Ground
8	2 +	21	3 -
9	Ground	22	4 +
10	5 -	23	Ground
11	6 +	24	Ground
12	Ground	25	Ground
13	Ground		



When building an analog cable, use the balanced XLR signals

	Signal Description	Pin	Signal Description
1	Ground	2	In Phase (+) / HOT
3	Out Phase (-) / Cold		

Camera Connector, 10 Pin

Balanced analog outputs channels 5 and 6 on pins 1-4. Camera returns 1 and 2 on pins 5 and 7, these are summed to mono in the Deva.

	Signal Description
1	Channel 5
2	
3	Channel 6
4	
5	Camera return 1
6	N/C
7	Camera return 7
8	N/C
9	N/C
10	N/C

Power Connector

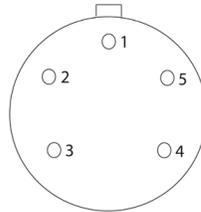
The Power Connector on the Deva is a standard 4 pin XLR connector (A4F) available at most electronic stores. The Deva requires a power source of 9.5 to 18 VDC, 1 A.

Pin	Signal Description
1	-9.5 to -18 VDC (-)
2	N/C
3	N/C
4	+9.5 to +18 VDC (+)

Time Code Connector

The Time Code connector on the Deva is a Lemo 5 pin connector. The LEMO part number is EGG.OB.305.CLL.

Pin	Signal Description
1	Ground
2	Time Code In
3	N/C
4	N/C
5	Time Code Out



Software Guide

The Deva is a very sophisticated recording device. The heart of the system is the software used to operate the device. This section of the manual describes each screen on the Deva and the functions within each screen.

Home Screen

This section describes the Home Screen. The Home screen is where you spend most of your time when working on the Deva. It contains the timecode, headphone status, scene, take, note information, the status of the device, battery levels, and signal levels.

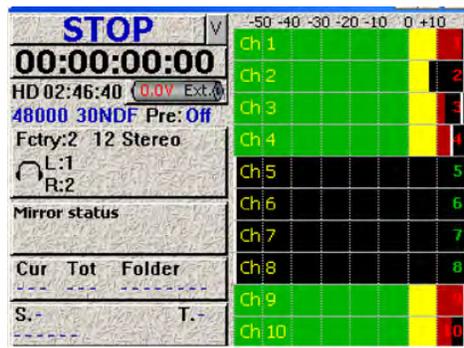


Figure 5-1 Home Screen

The Status bar on the top of the screen displays Run, Stop and Play. Pushing this button from the Home Screen takes you to the next menu. From any other menu, pressing the Status button takes you back one menu or level within a menu or screen. Pressing the Menu button on the front panel performs the same function.

Note: Pushing the status button does **not** change the state of the DEVA. It only brings you back one menu or level with a menu or screen. It also displays the current status.

The HOME SCREEN is an active screen. Touching any of the following buttons with your finger or a stylus takes you to its corresponding menu.

TIME CODE Button

(Figure 5-1 displays 00:00:00:00) takes you to the TIMECODE menu.

Headphone Button

The button with the Headphone icon takes you to the headphone menu. This area of the home screen shows tracks are being monitored in the headphones.

Note: Individual tracks can be monitored in a solo mode by touching and holding the meter display for that track.

Mirror Status

The Mirror Status button takes you to the My DEVA menu.

CUR Total Folder

The CUR TOTAL FOLDER button opens the INTERNAL DISK FOLDERS menu providing access to the disk directory and labeling functions.

Scene Take Notes

The bottom button opens the SCENE TAKE NOTES Meta Data Entry menu.

View ('V')

The 'V' button cycles between 4 different HOME SCREEN layouts. The four layouts for the home screen are shown below.



Figure 5-2 Home Screen Viewing Options

Meters

Depending on the model DEVA, either 8 or 10 tracks can be displayed. Tracks which are shown, but not being recorded to have a line through them on the display. Individual tracks can be shown or hidden using the Display # of Home screen Meters (**Main Menu > DEVA Setup > Internal Sample Rate**). Ballistics are Peak / Hold. The Peak Hold Bar remains for 5 seconds. The meter is calibrated in decibels.

Hint: Pressing the backspace button on the DEVA keypad while pressing the appropriate meter on the Home Screen toggles the recording of that channel.

Solo Mode

You can Solo any input channel by touching the meter display for the desired track. Touch and hold the desired track for 2 seconds. The display will enter 'solo' mode. Then, touching any other track instantly solos that track. To exit 'solo' mode touch and hold any track for 2 seconds.

Battery Display

The battery icon shows the current voltage of the power source (Int or Ext) that is powering DEVA at that moment. DEVA will auto switch. If external power is applied **and** a battery is inserted, The DEVA operates on the external power until it drops below 9.5v. It then automatically switches to the internal battery.

Important: The DEVA does not charge the internal battery.

PRE

PRE shows the selected amount of Pre-Record. In this case it is Off. DEVA has a memory buffer. If the unit is on and audio is coming in, DEVA will record up to 10 seconds of audio PRIOR to the record button being pushed.

Note: The Pre-Record buffer works only with a sampling rate of 48 kHz or less

Sampling Rate

Adjacent to PRE is the SAMPLING RATE selected for recording to the internal hard drive.

Time Code Frame Rate

Next is the TIME CODE FRAME RATE

Mirroring button

The Mirroring button displays the status of the internal and external mirror drives. Touching this button brings you to the My DEVA menu.

CUR

CUR shows the INDEX NUMBER of the current take (either the take being recorded or played back). This is also an active display button which takes you to the Internal Disk Folder.

Total

Total shows the total number of takes in the current FOLDER.

Folder

Folder is the name of the current folder. The Folder is the hard drive partition currently being recorded onto. Normally, a new partition would be set up for each Sound Roll, or each day's work. The Folder Number would then be the equivalent of the Sound Roll Number. You can also rename the folder without numbers, and that name appears on the home screen and the folder when mirrored to a DVD-RAM disc or

external hard drive. Currently a folder is set a 4 GB in size. Future firmware updates will allow a folder can be any size up to the maximum capacity of the hard drive.

MetaData

The bottom of the screen displays the User entered 'Meta Data'. This is information that can be entered regarding each take. This can include Scene and Take numbers, Wild Track numbers, and brief notes up to 16 Characters. This is an active display button which will take you to the SCENE TAKE NOTE menu.

Status Button

Select the STATUS button (STOP, PLAY, RECORD) to go to the next menu.

Main Menu

The MAIN MENU provides access to all the DEVA operating functions.



Figure 5-3 DEVA Main Menu

Disk Mix

DISK MIX selects the main routing menu. This Menu includes the MATRIX that routes the 8 Analog and 8 Digital Inputs, plus the Slate Mic and Tone Generator to the 10 Recording Tracks.

Output Mix

OUTPUT MIX selects the output routing menu. This Matrix routes the 8 Analog and 8 Digital Inputs to the 8 Main Outputs.

Faders

Displays the four touch faders and allows you to assign and lock the inputs to the faders. The touch faders operate the same way the hardware faders do. You can either use your finger or PDA stylus to move the faders on the screen.

Time Code

TIME CODE selects the Time Code feature window. This sets all time code and user bit settings.

DEVA Setup

DEVA SETUP sets the main operating parameters such as Sample Rate, number of channels, sync reference, etc.

Input Control

INPUT CONTROL sets the parameters of the Analog inputs. This includes Mic/Line level, High Pass Filtering, Mic Powering, Gain Trim and Digital Delay.

My DEVA

MY DEVA is similar to the Microsoft Windows convention, 'My Computer'. This menu sets the parameters for all the recording devices, including the internal hard disk, the optional internal DVD drive, and any external FireWire drives

Cue Mode

CUE MODE is the playback menu. This allows you to select takes by Segment (Index) number, Time Code, or to just Fast Forward or Fast Reverse. When you playback on DEVA you do not have to re-cue to where you were. You can hit record at anytime without fear of erasing a previously recorded take.

Tone On/Off

The TONE On/Off button toggles the Reference Tone On and Off.

Headphone

HEADPHONE selects the monitor matrix.

Scene Take Note

SCENE TAKE NOTE allows you to enter and edit Meta Data.

About DEVA

Shows the serial number, hardware revision, options installed, hours the DEVA has been powered on, and current software version.

Disk Mix Menu

The DISK CHANNEL MIX matrix routes the 16 inputs, the Slate Mic and the Reference Tone to the 10 recording tracks.

Note: *The DEVA IV only provides 8 recording tracks.*

This matrix provides a great amount of flexibility for recording.

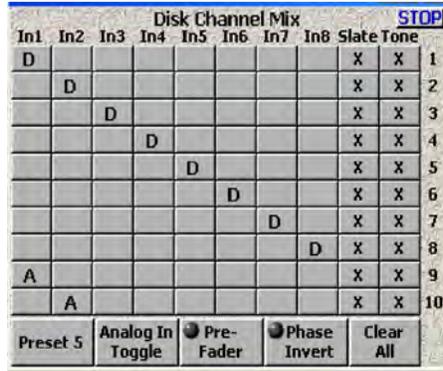


Figure 5-4 Disk Channel Mix Screen

In the disk channel mix screen, the top line shows all your Input Channels plus the slate mic and the reference tone generator. The vertical line on the right shows your 10 available recording tracks. The bottom row of buttons control the parameters of the matrix selections.

Figure 5-4 shows DEVA set up to record 8 Digital inputs (for example, from a Cameo or other Digital Board) to tracks 1 through 8 on the DEVA and an Analog mix from the mixer, routed through analog inputs 1 and 2 to tracks 9 and 10 on the DEVA. The SLATE MIC and the TONE generator are enabled for all 10 tracks.

Analog/Digital Toggle

To select either Analog or Digital inputs use the TOGGLE button. Selecting a box once enables it, selecting it again disables it.

Pre-Fader / Post-Fader

The PRE-FADER button allows you to choose whether each selection is Pre or Post fader. For example, you can record the microphone on one channel of the DEVA post fader and on another pre-fader, so it is unaffected by the mix.

- Pre-Fader: A or D appear in white on the matrix screen.
- Post-Fader: A or D appear in black on the matrix screen.

Preset

The PRESET button allows you to save and recall up to five saved settings. Saving is performed automatically by simply pressing the preset button. This moves to the next preset. Any changes performed with the matrix are “saved” to that preset.

Phase Invert

PHASE INVERT reverses phase of the selected input. A reversed phase input appears with a bar over the letter A or D.

Clear All

CLEAR ALL removes all selections and empties the screen.

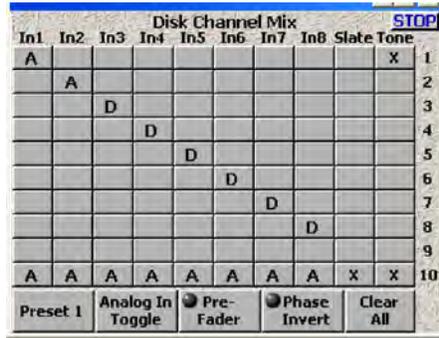


Figure 5-5 Disk Channel Mix Screen Example

Figure 5-5 above shows the DEVA set up to record 2 Analog inputs on Tracks 1 and 2, and 6 Digital inputs on tracks 3-8. The reference tone goes to tracks 1 and 10, the Slate mic goes to track 10. A mix of 8 analog inputs also goes to Track 10.

Output Mix Menu

The OUTPUT MIX MENU routes the inputs of the DEVA directly to the outputs. This can be used to feed monitors, Video recorders, Comtek transmitters, Ear Wig feeds, additional analog or digital recorders, or any other device that accepts an output.

Important: These settings apply only when the DEVA is in the record or stop mode. In the playback mode the tracks being played back are routed to their corresponding outputs.

Be aware, that even though DEVA has 10 tracks it only has 6 Analog and 8 digital outputs.

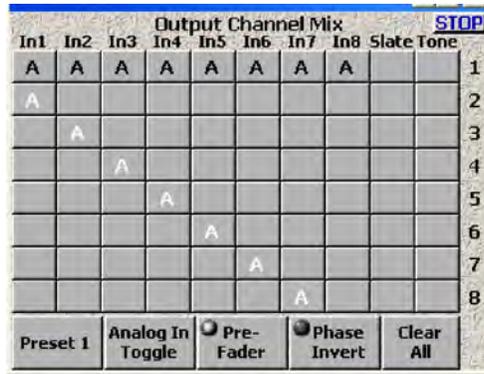


Figure 5-6 Output Channel Mix Screen

In Figure 5-6, the mix of all eight Analog Inputs is routed to output #1 post-fader, and inputs 1 through 7 are routed to Outputs 2 through 8 pre-fader.

Faders

The Faders screen contains the touch faders and fader assignment buttons.

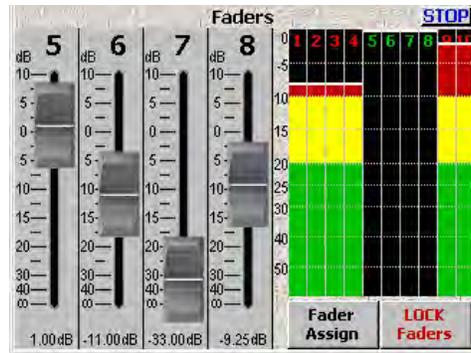


Figure 5-7 Touch Fader Screen

Fader Assign

FADER ASSIGN opens a matrix that allows you to assign any of the 8 Analog and/or 8 Digital inputs to any or all of the 4 faders. You can assign any of the inputs to either the touch or hardware faders.

Hint: When assigning inputs to touch faders, you should not assign any input that you will be “riding” the levels on, use the front hardware faders for those inputs.

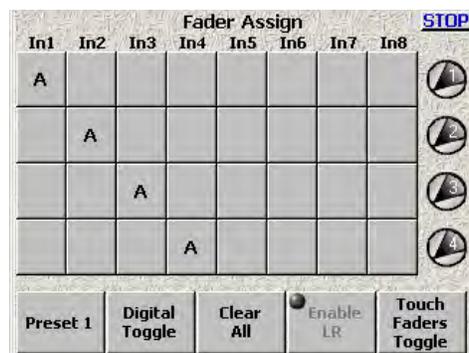


Figure 5-8 Hardware faders Screen

Preset

You can preset up to five settings. These are automatically saved as you toggle through to the next preset.

Analog/Digital Toggle

Toggles between the analog and digital inputs. You can assign any combination of digital and/or analog inputs to the faders.

Clear All

Clears all inputs on the screen.

Touch Faders Toggle

Brings up an identical screen allowing the assigning of the touch faders.

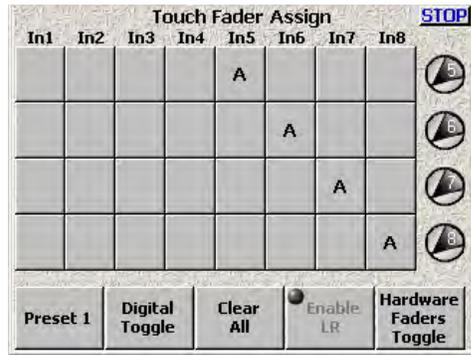


Figure 5-9 Touch Fader Screen

Time Code

This group of Menus allows you to set all the Time Code functions. The READER T.C. displays Time code from any External source coming into the DEVA. READER U.B. displays external User Bits. GENERATOR T.C. and GENERATOR U.B. displays Time Code and User Bits being generated by DEVA.

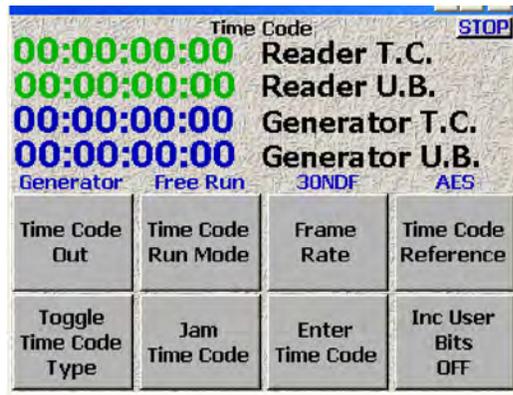


Figure 5-10 Time Code Screen

Time Code Out

Toggles between Generator and Disk. Generator outputs TC from the internal generator. Disk outputs TC from the hard drive (or whatever disk is selected for playback).

Timecode Run Mode

Timecode Run Mode toggles between Free Run, Record Run, C.Jam All, C.Jam T.C., and C.Jam UB.

Free Run

Time code runs continuously from either 00:00:00:00: or whatever valid time code number you enter (you can also jam time code from the DEVA's 'Time of Day' clock).

Record Run

Time code starts and stops as you Record and Stop.

C. JAM ALL.

This mode Continuously Jams Time code and User Bits from an External Source.

C. JAM T.C.

This mode continuously jams only the time code. The user bits can be set independently.

C. JAM. U.B.

This mode continuously jams the User Bits, while the time code FREE RUNS independently. This mode allows a second time code to be input as user bits from an external source.

Frame Rate

Toggles the desired time code frame rate of: 30 NDF (Non Drop Frame), 30 DF, 23.98, 24, 25, 29.97 NDF, and 29.97 DF.

Timecode Reference

Sets the reference source for the time code generator. The options are XTAL and AES.

XTAL

Use XTAL for DEVA's Internal Crystal. Use this source when recording.

AES

AES for external reference from a digital source. For recording leave this setting at XTAL, even if you are recording from an external AES source such as Cameo. If you are using DEVA as a post (playback) machine which is locked to external AES, set the TIMECODE REFERENCE to AES.

Toggle Timecode Type

This selection toggles the settings for entering and jamming data between Time code and User bits. This selection changes the display on the 2 buttons to its right. JAM TIMECODE becomes JAM USER BITS and JAM TIME OF DAY and ENTER TIMECODE becomes ENTER USER BITS and ENTER TIME OF DAY.

JAM TIMECODE (USER BITS)

This button manually jams an external Time code or User bits into the internal generator. When set to JAM TIME OF DAY it will jam the time code clock to the time of day entered in the DEVA SETUP / CLOCK menu.

Enter Timecode (or User Bits)

This button opens a window that allows you to input Time Code or User bit data. ENTER TIME OF DAY brings you to the CLOCK setup menu in DEVA SETUP.

INC User Bits ON/OFF

Toggles between incrementing user bits On and Off. When ON, the DEVA increments the last digit in the USER BITS each time you go into record.

DEVA Setup

Provides many of the recording and setup options.

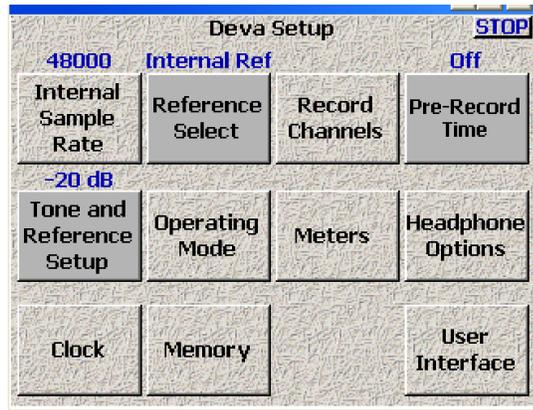


Figure 5-11 DEVA Setup Screen

Internal Sample Rate

Selects the sampling rate being recorded to DEVA's Hard Drive.

Note: You should select the highest sampling rate that will be used on any device when selecting a sampling rate.

Except for when recording at the 'pull up' or 'pull down' sampling rates, where you can mix and match any of those sampling rates among any of the drives, use the highest sampling rate that will be used on any device. For example, if you want to write a FireWire DVD at 96kHz then this setting must be at least 96kHz. All other sampling rates will be extrapolated from this one. If you record at 48K on the hard drive, but wish to mirror a DVD-RAM at 48.048, that is perfectly acceptable. But when using two vastly different sampling rates, set the hard drive for the higher of those rates.

Reference Select

Toggles the reference source for the Internal Sampling Rate. The options are Internal Reference and Auto.

Internal Reference

This locks the DEVA to its own internal reference. Select this mode when recording using the analog inputs.

AUTO

In this mode DEVA chooses whether it is getting an external reference or not.

Record Channels

Selects the number of desired recording channels from 1 through 10, for the DEVA V, or 1 through 8 for the DEVA IV.

Two Track

The TWO TRACK button enables tracks one and two.

Four Track

The FOUR TRACK button enables tracks one through four.

Tracks Mixed To

The TRACKS MIXED TO button automatically enables any tracks that are selected in the DISK MIX menu. For most uses you can leave this setting in the TRACKS MIXED TO mode.

Note: You can also manually select the tracks to record by selecting any or all of the 10 track buttons.

Pre-Record Time

Toggles between 0 and 10 seconds. This means that the DEVA, using a memory buffer, begins recording a set number of seconds before the RECORD button is pushed. This eliminates 'pre-roll' problems at video transfer houses, and is invaluable in documentary recording where events are non-predictable.

Important: Pre-Record Time is only available when recording at 48 kHz and below. It is not available at higher sampling rates.

Tone and Reference Setup

This cycles between -12 and -20 db.

Operating Mode

This button opens up the Operating Mode Main screen.

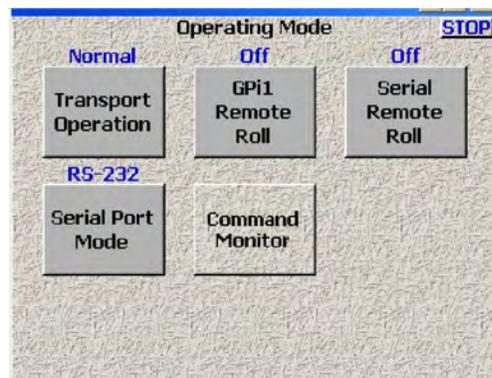


Figure 5-12 Operating Mode Main Screen

Transport Operation

This button toggles through three transport options; normal, T.C. Chase, and Auto-load.

Normal

All functions are controlled by the main transport buttons.

T.C. Chase

In playback mode, DEVA chases external time code.

Auto-Load

DEVA transport controls are locked to an external recorder such as an HD camera. When the camera goes into record, The DEVA also goes into the Record mode

GPI Remote Roll

Enables external transport control using a contact closure switch. This button toggles through the three options; off, Rising Edge, and Falling Edge.

OFF

Normal DEVA Operating mode.

Rising Edge

Places the DEVA into record when the contact is open.

Falling Edge

Places the DEVA into record when the contact is closed.

Serial Remote Roll

Enables the control of the DEVA using the Serial port.

Serial Port Mode

Used in conjunction with the Serial Remote Roll, it determines the serial port protocol. The serial port can either be configured as a standard RS-232 or Standard RS-422 port.

Command Monitor

Similar to Microsoft Windows DOS Prompt, or the UNIX terminal, it provides a command line to the DEVA. At this time, the Command Monitor has not been implemented and should not be used.

Master Output Mode

When the Deva MIX-12 is used, the Master Output Mode selects if the playback switch of the output buses is enabled or disabled.

Slate Source

The Slate Source toggles between the Deva internal mic and camera input as the source for slate.

Headphone Options

Opens a new window providing additional options for the headphones when monitoring.



Figure 5-13 Headphone Option Screen

Headphone Alarm Tone

Toggles On / Off any audible alarms.

Mute Unrecorded Tracks

When enabled, all tracks not being recorded are muted. This enables you to have multiple inputs into the Deva still configured, but monitor only those inputs that are currently being recorded.

Headphone Mix Menu

This button opens a new screen which displays the full Headphone Matrix.



Figure 5-14 Headphone Mix Screen

This screen routes the Recorded Tracks to the headphones. An audio channel can be placed in the left, right, or both headphone channels. The monitoring is E to E. You are listening to what is being placed onto

the hard drive. Check-Sum Error Correction insures that what is being sent to the internal hard drive is being recorded there.

CAMERA INPUT

When a 10-pin camera connector is attached to the camera port, this button allows you to monitor the return feed.

Note: *The camera feed is a mono return, while there are two camera return feeds, they are internally summed to mono.*

Get Factory Presets

brings up 20 factory monitoring presets:

Store User Presets

Allows you to create and store your own monitor presets.

Get User Presets

allows you to recall these presets.

Phase Invert

Reverses the phase of the monitored channel for use in M/S monitoring. This does not change the phase of the recorded channel, it only reverses phase in the monitor.

METERS

The Meters screen provides the options for metering. This includes how many meters are shown on the home screen, the orientation of the meters, and their size.

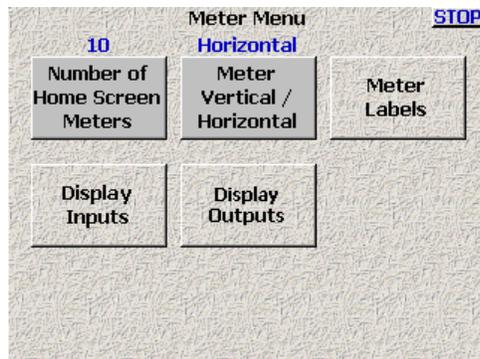


Figure 5-15 Meters Screen

Display # of Home screen Meters.

Toggles from 4 through 10, allowing you to select the number of meters to be displayed on any of the home screens

Meter Vertical / Horizontal

Toggles between the following meter display formats: Vertical, Horizontal, Big Horizontal, Big Vertical.

Meter Labels

Opens a window that allows you to enter text on any of the selected meters.

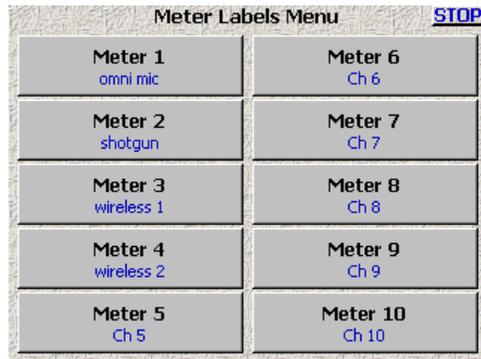


Figure 5-16 Labels Menu

Selecting any button opens the following window:



Figure 5-17 Meter Label Menu

Enter the text using your finger or a stylus. Touching SHIFT capitalizes the first letter than reverts to lower case. Selecting ENT Enters the text on the selected meter.

Display Inputs

Shows all the DEVA's inputs, including 8 Analog ins, 8 Digital ins, 1 Camera return input and the internal Slate Mic.

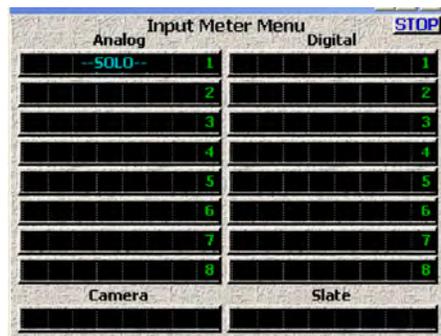


Figure 5-18 Input Meter Menu

Any of these inputs can be SOLO'd in the headphones by selecting its meter display. Selecting it again turns off the SOLO feature.

Display Outputs

Shows all the DEVA's outputs. DEVA has 6 analog outs, 8 digital outs and 1 headphone output. The SOLO feature is also available in the output menu.

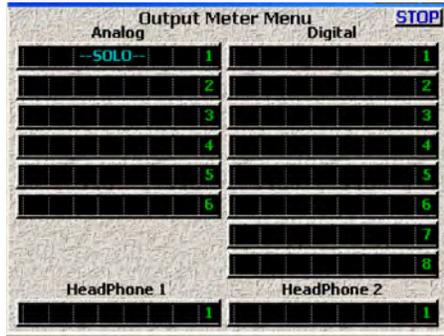


Figure 5-19 Output Meter Menu

CLOCK

This opens up the DEVA's master clock setting menu. This is the time and date stamp placed within the metadata of each recorded track, it is also the clock which can be used to jam Time Code with Time of Day.

Note: Daylight Savings Time is not currently implemented.



Figure 5-20 Date and Time Screen

Enter Time

To Set the time, push the Enter Time button. Use the number keys to set the time and push Enter Time again to enter the new time.

Set Date

To set the date, you do the same thing, using the Set Date button.

Time Mode

Toggles between a 12 hour and a 24 hour display. For Time Code purposes leave this setting at 24 HR.

Date Mode

Toggles between USA (month/day/year) and Europe (day/month/year).

Important: When using Time of Day to jam AATON systems set the Date Mode to Europe.

Memory

While many of the configuration items on the DEVA have their own save option, so they can be recalled later, some do not. The Memory screen allows you to save and recall every setting that has been previously saved. After performing firmware updates, you will sometimes be required to perform a factory reset. The instructions for the firmware update will usually state if a factory reset of the settings is required.

Note: *Not all firmware updates require a factory reset of the settings.*

Restore Factory Defaults

Resets all settings to the factory original.

Save DEVA State

Saves your current settings for future recall.

Restore DEVA State

Restores your personal settings.

User Interface

The Deva interface is very flexible. The User Interface screen allows you to configure the following parts of the Deva's operations:

- Startup Screen
- Hold Key Time
- False Start
- Default STN Edit Position
- Color Theme
- Big STN

Startup Screen

Allows you to select the first screen you see after the DEVA has been powered on. The options are:

- Home Screen
- Cue Screen
- Main Menu
- My DEVA
- Time Code

Hold Key Time

Allows you to set the amount of delay before the Deva keypad repeats a character. The values available are 100 ms, 200 ms, 300 ms, 400 ms, 500 ms, 600 ms, 700 ms, 800 ms, 900 ms, 1 second, 2 seconds, and off.

Hint: Pressing and holding menu key when in any screen eventually takes you back to the Home Screen. When setting this button, press and hold the menu button to evaluate the Hold Key Time setting.

False Start

Allows you to toggle the delete option when pressing the False Start key. The two options are Allow Delete and No Delete. When set to No Delete, the ability to delete a take is removed from the False Start dialog. You can only mark a take as a false start, or cancel the action.

Default STN Edit Position

Toggles between editing the current Scene, Take, Note metadata, and the next Scene, Take Note metadata.

Color Theme

Toggles between old and new color themes. The new color theme makes most buttons and some backgrounds have more of a white color to them. You must restart your Deva for color theme changes to take affect.

Big STN

Toggles between the normal Scene, Take, Note area on the home screen, and a larger text area on the home screen. When the big STN option is enabled, the text of the folder name, current segment number, and total number of segments on the home screen are also enlarged and the headphone output matrix is removed from the home screen.

MIX-12

When a Deva MIX-12 is used with the Deva, a new MIX-12 button appears in the Deva Setup. The MIX-12 screen sets the following options.

- Mix-12 support
- Meter Brightness
- Tone Button Assign

Mix-12 Support

When a Mix-12 is connected to the Deva, you must toggle this button to the On position.

Note: After turning on Mix-12 support, you need to toggle the power on the Deva.

Meter Brightness

This sets the LED brightness on the MIX-12 console. The brightness can be set from 1 (dim) to 8 (brightest).

Tone Button Assign

Sets the action of the tone button on the Mix-12 console. The options are:

- Escape
Assigns the Tone button to go back one screen on the Deva.
- Play
Assigns the Tone button to Play
- Unassigned
Disables the Tone Button
- Tone
Leaves the Tone Button assigned to the Tone function
- Home
Assigns the Tone button to go to the Home Screen.

Input Control Menu

The eight analog inputs parameters are set from the input control menu.

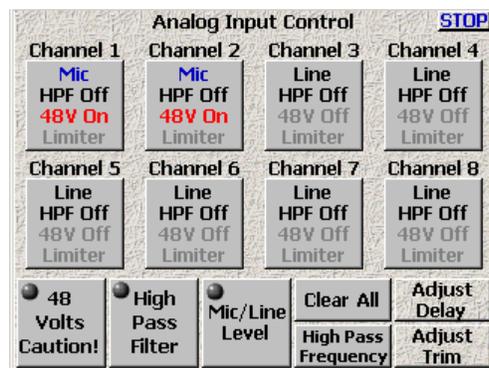


Figure 5-21 Analog Input Control Menu

Phantom Power

Phantom power works in cooperation with the Mic/Line Level settings. If you have a channel set to Line Level, you cannot turn on phantom power to that channel.

Setting Phantom Power

To Set +48 v Phantom Power, select the 48 Volts Caution! button, then select the buttons for the desired channels. The 48 Volts button flashes red when activated. When phantom power is enabled for a channel, the 48V On indicator appears red.

Note: If you change a channel from Microphone input (Mic) to Line input (Line), 48V On is automatically disabled for that channel.

High Pass Filter

Each analog input can have a high pass filter applied to it. You can enable the high pass filter for both line and mic inputs.

Enabling the High Pass Filter

1. Press the High Pass Filter button
The button's LCD indicator flashes green when pressed.
2. Set the High Pass Frequency.
Setting and changing the High Pass Frequency is outlined in the section Setting High Pass Frequency on page 43.
3. Press the individual channel the High Pass Filter should be applied to.
The HPF indicator changes to purple with the high pass frequency indicated.
4. Repeat Step 3 for all channels, to enable the high pass filter.

Note: You can set different frequencies for each channel, simply repeat steps 2 and 3 for each frequency.

Setting High Pass Frequency

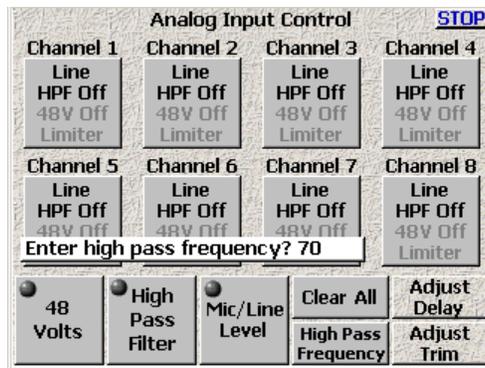


Figure 5-1 Changing High Pass Frequency

To set the High Pass Frequency, do the following:

1. Press the High Pass Frequency button
You are prompted to enter the high pass frequency in Hz.
2. Use the keypad numbers to the frequency.
The default frequency is 70 Hz, the valid range is 30 Hz to 240 Hz.
3. Press High Pass Frequency button
This sets the frequency.

Note: The frequency remains until the DEVA is powered down or you change it again.

Mic/Line Level

To set the Mic/Line input gain, press the Mic/Line button, then select the individual Input Channels. 'MIC' appears in DARK BLUE. 'LINE' appears in BLACK.

Clear All

This button provides a convenient way to clear all the settings, and put the Analog Input Control screen back to the factory default settings.

Adjust Delay

Opens a window allowing you to set digital delay to any of the analog or digital inputs.

Analog Input Delay					STOP
More Delay	Channel 1 3 ms	Channel 2 3 ms	Channel 3 0 ms	Channel 4 0 ms	
Less Delay	Channel 5 0 ms	Channel 6 0 ms	Channel 7 0 ms	Channel 8 0 ms	
Digital Input Delay					
Enter Delay	Channel 1 0 ms	Channel 2 0 ms	Channel 3 0 ms	Channel 4 0 ms	
Clear Delay	Channel 5 0 ms	Channel 6 0 ms	Channel 7 0 ms	Channel 8 0 ms	

Figure 5-1 Adjust Delay Screen

Adjusting the Delay

1. Press the channel you want adjust the delay in.
The button changes to white indicating it is the selected channel.
2. Select either More Delay, Less Delay or Enter Delay.

Note: When using Digital Radio Microphones which have an inherent 3 ms delay, you can minimize phasing anomalies between digital and analog radio mics by adding 3 ms of delay to the analog radio mic inputs.

3. Repeat steps 1 & 2 until all channels have been adjusted.

Clear Delay

Clears all the entered delays.

Adjust Trim

Opens a menu that allows you to individually adjust the gain on each of the 8 analog inputs and the camera return input.

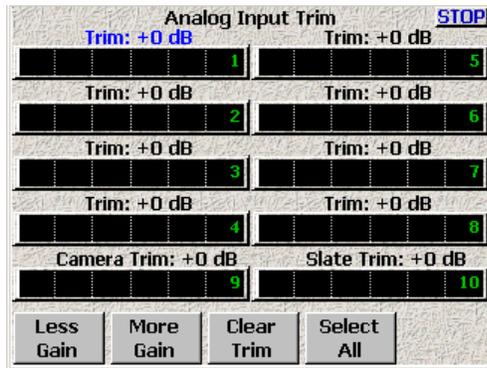


Figure 5-1 Analog Trim screen

To adjust the trim, select the desired input display and select MORE GAIN or LESS GAIN. You can add or subtract 20 dB of gain. CLEAR TRIM deletes any changes you've made.

My DEVA Menu

The My DEVA menu gives you access to all the internal and external recording drives.

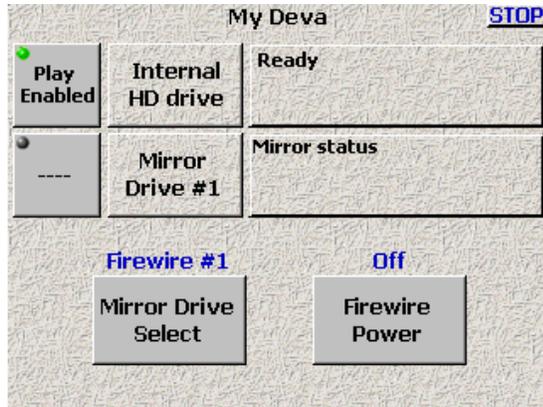


Figure 5-2 My DEVA Main Screen

The selections for the Internal DVD drive or the External Fire Wire Drives allow you to set options independently of the Internal Hard Drive settings. You can set different options for all of the drives. You can use the external FireWire device with either a DVD-RAM drive or FireWire Hard Drive.

- Important:** There are some known limitations using FireWire hard drives with the DEVA IV and DEVA V.
- FireWire drive must have the Oxford 911 Chipset, other chipsets may not work
 - FireWire hard drives are currently limited to mirroring 8 GB before they start corrupting the data.

Mirroring is done after recording. Currently six tracks can be mirrored to DVD-RAM in real time at 24-bit resolution with a 48K sampling rate.

Internal HD

The Internal HD button opens the Internal Disk Utilities menu, which provides options for managing folders and files on the internal hard drive.

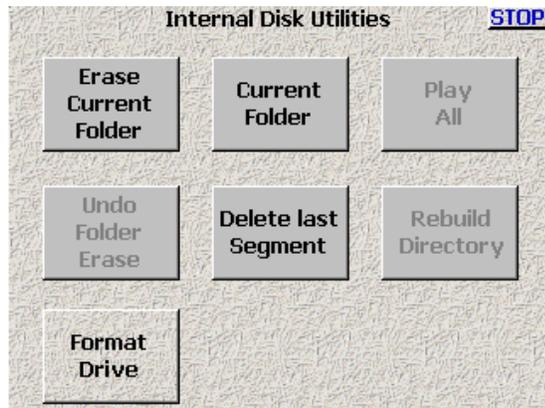


Figure 5-3 Internal Disk Utilities Menu

Erase Current Folder

Pressing Erase Current Folder both erases and formats the currently selected folder.

Note: While not shown in Figure 5-3, the name of the currently selected folder appears above the Current Folder button in blue text.

When you select the Erase Current folder button, a confirmation screen appears. This helps prevent accidental deletions of material.

Delete Last Segment

Erases the previous segment. When you select the Delete Last Segment button, a confirmation screen appears.

Format Drive

Deletes all data on the internal hard drive and prepares the drive to accept data. This is a destructive function, a warning screen appears to prevent accidental formatting of the drive.



Figure 5-4 Format Drive Warning Screen

Current Folder

Opens a directory of all the folders on the internal disk drive called Internal Disk Folders.

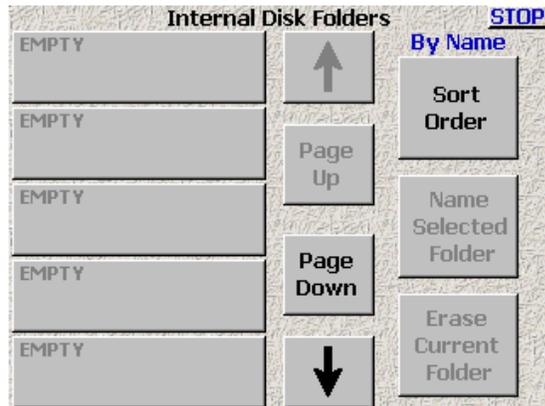


Figure 5-5 Internal Disk Folder Menu

The Internal Disk Folders is where you manage all folders/directories on the internal hard drive.

Warning: *Do not change folders while mirroring is on. Doing so can cause the mirroring process to skip files or cause the DEVA to stop responding.*

While not shown in Figure 5-5, Each folder button contains information about the contents of each folder. This includes the name of the folder, number of Segments in the folder, and total size of all Segments.

You can scroll up or down to display all the folders on the drive. In most cases Folder numbers are equivalent to your sound roll numbers.

Each Folder button displays the folder name, the number of segments recorded, size of the folder and its file format (always MARF). You can navigate through all the folders on the disk by using the UP and DOWN arrow keys, or the Page Up or Page Down buttons. You can sort the folders using the Sort Order button to sort by name or date. When it comes time to delete folders you can sort by date to easily select the oldest folder for deletion.

Name Selected Folder

Opens a text entry screen so you can apply an alpha-numeric name to the current folder. This name will usually be the sound roll number. This is currently limited to 4 characters.

Erase Current Folder

This is a destructive command that deletes the contents of the folder. It is identical to the Erase Current Folder button available from the Internal Disk Utilities screen.

Enable DVD Playback

If the Deva has an internal DVD-RAM drive, this enables you to playback mirrored data from the drive.

Sort Order

This button toggles how folders are sorted. Folders can be sorted either by Name or By Date.

Folder Contents

Selecting the folder button brings up the Folder Contents display.

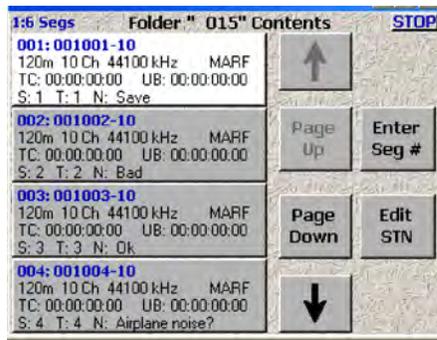


Figure 5.1 Folder Contents Menu

To go directly to a Segment you can either scroll through the directory with the UP and DOWN Arrows. The PAGE UP and PAGE DOWN buttons, or you enter a Segment # directly through the Enter Seg # button.

Edit STN (Scene, Take, Note)

The EDIT STN (Scene, Take, Note) button opens the data entry window.

Selecting any of the SCENE, TAKE or NOTE buttons opens a data entry window. You may enter up to 6 alpha-numeric characters in the Scene and Take boxes, and up to 16 alpha-numeric characters in the Note box. Notes can be saved in the 20 storage boxes.

Mirror Drive #

The Mirror Drive # button provides the options for mirroring the data off the internal drive onto other media through the FireWire port or the optional Internal DVD-RAM drive.

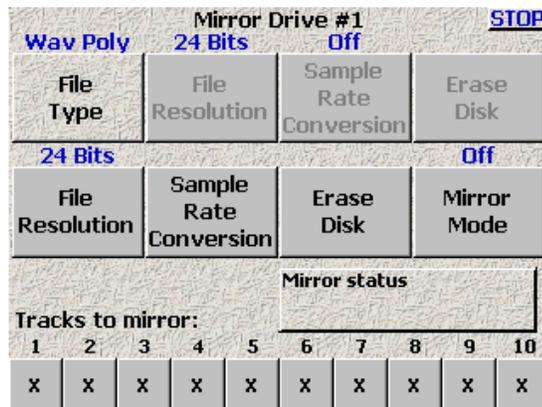


Figure 5-6 Mirror Drive Screen

File Type

Allows selection of file type to be written to the mirrored device. These include:

- WAV MONO files (BWF-M).
This creates a separate WAV file for each track recorded. When using this option with UDF formatted DVD-RAM discs, the files and discs may not be readable on Mac OS computers.
- WAV MONO F files
This format is a custom format to ensure recorded audio will playback correctly on Fostex DV40 equipment.
- WAV POLY (BWF-P) files.
This creates a single file combining all the tracks recorded
- Wav Poly F files
This format is a single file combining all the tracks recorded with the custom changes necessary to playback correctly on a Fostex DV40.

Note: The Wav Poly F mode always stamps the WAV file at 48000 Hz even if the file was recorded at 48048Hz. Selecting this mode when recording at 48000 hz has no effect.

- ZAX Files
This format is a custom non-lossy format. Creates.ZAX files which require the use of Zaxcom's ZAX File Utility to convert to standard broadcast wave or MP3 files.
- Time Code stamp pull up
Pulls up time code on mirrored audio. This option is used in conjunction with the file type.
- Time Code stamp pull down
Pulls down time code on mirrored audio. This option is used in conjunction with the file type.

File Resolution

Allows you select 16 or 24 bit resolution for the mirroring process.

Sampling Rate

Opens a window that allows you to select any sampling rate. Options are 44.1, 47.952, 48, 48.048, 96, 96.096 and 192K.

Note: You should always record your audio at the highest sampling rate you intend to write to any of the external, or DVD-RAM drives.

Erase Disk

Erases (and formats) the disc. this button. A dialog appears asking if you want to format a UDF or FAT32 disc. The UDF format is required for discs destined for a DV40, you should use FAT32 unless your disc is going to a DV40 device. You will be asked for confirmation before proceeding.

Important: DVD-RAM discs come pre-formatted as UDF 2.0. While deva can write to these discs, many computers cannot read UDF2.0 discs. Always format discs using the Erase function in the DEVA before using them. The DEVA displays "Non-DEVA" in the mirror status button when the DEVA sees a disc that it did not format.

Mirror Mode

Enables the 'Mirroring' process which writes the audio to the selected drive.

Important: You must set the mirroring parameters before you turn on mirroring. **Do not** change folders while mirroring is on. Doing so can cause the mirroring process to skip files or cause the DEVA to stop responding.

You must turn off mirroring to change any of the parameters. When mirroring is ON, all the other buttons are disabled until the mirroring process has completed.

Folder to Mirror

Selects which folder you want to mirror.

Start Seg

Allows you to select the first segment to mirror. This setting is automatically updated when a disc is inserted. If the DEVA sees segment 5 is already on the disc the StartSeg is set to 6.

Hint: A quick method to ensure your disc readable, is to eject and re-insert your mirrored disc after you are finished mirroring. Then check that the DEVA recognizes the format and the Start segment is set to 1 past the last recorded segment.

End Seg

Allows you to select the last segment to mirror. In most cases the End Seg can be left at 999.

Tracks to Mirror

Select the tracks you wish to mirror.

Cue Mode Menu

This is the main playback screen. It is used to select Cues for playback.

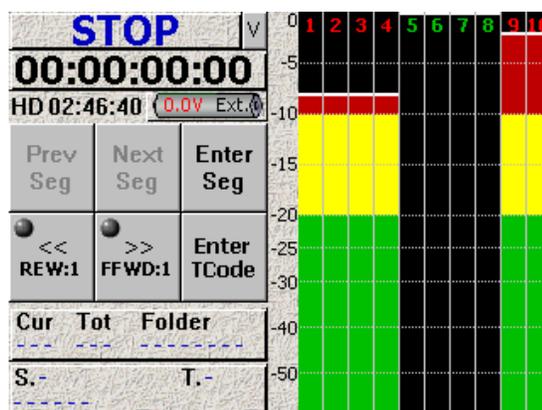


Figure 5-7 Cue Mode Screen

Prev Seg

Selects the next previous segment for playback.

Next Seg

Advances the next segment for playback.

Enter Seg

Opens a window to enter in any segment number for playback.

<<REW

Similar to the rewind function on a tape deck. Touch it once and it rewinds at 3x speed. Touch it again and it fast rewinds at 10x.

Press the Stop button on the DEVA to stop the rewind process.

>>FFWD

Operates the same as the REW button, but in the other direction.

Enter TCode

ENTER TCODE opens a window that allows direct entry of a time code starting point.
(Not enabled at this time)

Folder Button

Pressing this button takes you to the Internal Disk Folders Screen. See “Current Folder” on page 47. for additional information,.

S.T. Button

Pressing this button takes you to the Scene Take Note screen.

Tone

Turns the reference tone generator ON and OFF. The settings for the Tone level are found on the DEVA Setup menu. The routing for the Reference Tone can be set on the Disk Mix and Output Mix menus.

Headphone Mix

Selects the basic headphone matrix.



Figure 5-8 Headphone Mix Screen

Left Headphone Mix

Select the tracks desired for the left side of the headphones. In this menu you are monitoring the audio being recorded.

Right Headphone Mix

Same as the Left Headphone Mix except for the right channel.

Note: To monitor a single channel in both the left and right headphone mix, press the channel in both the left and right mix.

Camera Input

Sends the audio from the camera return, using the 10 pin Camera connector, to the headphones.

Note: This is a mono feed. If two tracks are being sent from the camera, they are summed into a mono signal in the headset.

If two tracks are being sent from the camera they will be summed to mono in the headsets.

Working Preset

Shows the selected Pre-set.

Hint: Using the Setup \dagger Headphone Options, you can toggle head phone alarm tone, or Mute Unrecorded Tracks. In the DEVA V, you can also turn on the surround field monitor for monitoring the B format produced by the SoundField microphone.

Store User Presets

You can set and name up to 12 user pre-sets for headphone monitoring. The name is limited to 8 characters.



Figure 5-9 Store User Presets Screen

Preset (#)

Pressing any Preset button brings up a new screen allowing you to save your headphone configurations.

Get User Presets

Allows you to select any of the 12 presets you have previously stored.

Get Factory Presets

Allows you to quickly access 20 commonly used headphone configurations. These are pre-programmed into the DEVA and are always available.

Phase Invert

To reverse phase on any monitored track, select this button and then select the desired track.

Note: *The phase invert follows any previous phase adjustment done in the recording matrices. If you have phase reversed a channel, you do not have to phase reverse the headphone monitor. It is already reversed.*

Toggle On Recorded Tracks

Automatically selects all tracks that are being recorded.

Scene Take Note

This menu opens up the Meta-Data entry windows. It can also be accessed using the STN button on the Front Panel.

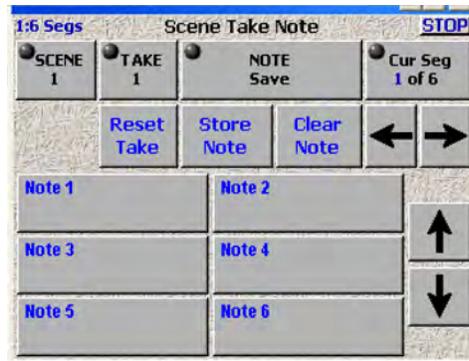


Figure 5-10 Scene Take Note Screen

Scene

Opens the Data Entry screen. Select the SEGMENT # and touch the SCENE button. Enter the information on the keypad and press Ent. The TAKE # auto increments when you press the Record button. If there is a false start you can press the False Start button on the front panel (F3). This deletes the previous take# and take.

Inc Scene

Increments the scene number by one.

Take

Use Take to enter the take number. It opens up an ENTER TAKE window. Use the DEVA number pad or the pop-up alpha-numeric display to enter your take #.

Reset Take

Resets the take number to 1.

Note

Open the alpha/numeric data entry screen. You can enter any note up to 16 characters in length.

Store Note

Allows you to store custom notes. To store a note do the following:

1. Press Note to open the Note entry area.
2. Press Store Note
3. Press the Note box you want to store the note in.

Stored notes can be used in for any segment and folder.

Clear Note

Allows you to clear any custom notes. You cannot clear any of the default notes stored in Note boxes 1 through 8.

Stored Notes

Pressing any of the Note boxes places the note into the segments metadata. The up and down arrows allow you to scroll through all 20 notes.

Segment

Allows you to select any previous segment to enter data. Data can be edited at any time. You have two options if you wish to edit Metadata after the fact. You can use a re-writable media such as DVD-RAM, or a FireWire hard drive after you have finished editing your Metadata.

Arrows

Right Arrow

Advances the data display to the next available segment.

Left Arrow

Advances the display to the next previous segment.

About DEVA

Displays the current hardware and software information. The information includes current firmware version installed, serial number, options installed (Mix-12, EQ, etc.), total number of hours the unit has been powered on, hardware revision, and memory information.

Limiting, Equalization, and Compression

Both the DEVA IV and DEVA V come with a built-in limiter, that is available on all channels, and EQ and compression enabled on channels 1 and 2. As an option, you can enable EQ and compression on all channels. Contact Zaxcom for details on enabling EQ and compression.

Limiting

The limiter on the Deva prevent the analog input signal from clipping or exceeding 0 dB. When the signal exceeds this limit, the limiter automatically reduces the analog input while signal is above this limit. There are no settings for the Deva limiter, simply enable the limiter for the analog channel.

Enabling limiting on a channel

From the Input Control screen:

1. Select the channel you want limiting enabled on.
2. Select the Limiter button.
This toggles the limiting.

Equalization

The Deva provides five bands of filters for equalization. You get to pick the frequency of each band, so if you want to create a notch filter or simply roll off some of the low-end, you can. There are three types of filters available, low-pass; high-pass, and peaking (parametric).

When using a MIX-12 mixer with the Deva, you can change the values to any setting within the range limits using the jog wheel. However, when using a keyboard or the keypad on the Deva, you set the values using the number keypad.

Note: *The Deva is a very versatile recorder, and allows you to set both the HP filter and change the EQ at the same time.*

EQ Range

- Level:** +24 dB to -24 dB
- Frequency:** 30 Hz to 20 kHz
- Q:** 0.5 to 9.9

Enabling the EQ

From the Input Control screen:

1. Select the channel you want Equalization enabled on.
The Analog or Digital Input screen appears.
2. Select the EQ button.
The EQ Screen appears.
3. Select one of the bands.
Pressing the Band button toggles through the four choices; off, Low Shelf, Hi Shelf, and Peaking.

4. Select Entry Mode button.
Pressing the Entry Mode button toggles through the four choices; off, Level, Frequency, and Q.
5. Use the number keypad on the Deva or keyboard to change these values.
When in the Level entry mode, use 0 to enter negative numbers.
6. Press ENTER on the Deva when finished.
7. Repeat steps 3 through 6 for all bands you want to change.

Compression

As part of the EQ package on the Deva, compression is available, adding another tool for you to use on-location to help capture and mix the best sound available. All the standard compression options are available on the Deva; attack, decay, threshold, ratio, and gain.

The second meter on the Analog/Digital Input screen shows you the result of your compression settings.

The Deva allows you make compression changes to one channel and copy those settings to other channels.

Enabling Compression

From the Input Control screen:

1. Select the channel you want Compression enabled on.
The Analog or Digital Input screen appears.
2. Select the Compress On/OFF button.
The Compress On/Off button toggles between on and off.
3. Select the compression option you want to change.
4. Use the Increment and Decrement buttons to change the compression value.
5. Use the meter on the right of the Analog/Digital Input screen to check the result of your compression changes.

Copying Compression Settings

Once you have set up the compression on one channel, you can quickly copy those compression setting to any other channel on your Deva.

From the Input Control Menu:

1. Select the channel you want to copy the compression settings to.
The Analog/Digital Input screen appears.
2. Press the Copy Compress button.
3. Enter the channel that you want to copy the compression settings from at the prompt using the keypad.
4. Press Enter to complete the copy process.

Repeat these steps for all channels you want the compression settings copied to.

Appendix

There are some features in the Deva designed to help troubleshoot with the Zaxcom staff. These items have been placed in areas of the Deva that are not usually accessed. This section of the manual covers those items.

Diagnostic “Secret Menu”

The Deva IV and Deva V, contain a diagnostic mode which allows you to upgrade the firmware, and perform some basic diagnostic routines.

Getting to the 1967 Menu

To get to the diagnostic menu perform the following steps:

1. Go to the Main Menu.
2. Press 1967 on the numeric keypad
The Deva goes into the diagnostic mode.

Important: If you enter the 1967 mode and want to exit, you can either power down the Deva or press the menu key.

Commands Available in 1967 Menu

All commands in the 1967 menu are preceded by pressing the F5 function button on the Deva.

	Description
F5 , then 1	Restart the Deva. This can help some FireWire drives mount properly.
F5, then 2	Copy currently running program to FireWire or internal DVD disc. This is called DevaProgFile.bin
F5, then 3	Copy currently running program to internal hard drive. This allows you to startup from the hard drive. This is useful for using multiple versions of firmware on your Deva.
F5, then 4	Reserved. Not currently used.
F5, then 5	Prints debug information and puts a boot record on the internal disk for PC access. Zaxcom use only.
F5, then 6	Copy DevaProgFile.bin from UDF formatted disk to the internal hard drive. Used when updating the firmware.
F5, then 7	Copy DevaProgFile.bin from non-UDF formatted disk to the internal hard drive. Used when updating the firmware.
F5, then 8	Prints debug information and prevents the Deva from mounting UDF discs.
F5, then 9	Burns the currently running program into ROM.

Updating the Firmware

Use the steps listed to place the updated firmware on your internal hard drive. The procedure for upgrading the firmware places it first on the internal hard drive, then flashing it to the ROM. This is the safest way to upgrade the firmware since you will always be able to boot the Deva should something go wrong during the firmware update process.

1. Download the updated Firmware
2. Burn the DevaProgFile.bin on a CD, DVD, or DVD-RAM disc.
You can also place the firmware on a FireWire hard drive.
3. Connect a CD-ROM/DVD-ROM/DVD-RAM drive to the FireWire Port of the Deva.
4. Power on the Deva.
5. Place the disc with the firmware on it in the FireWire drive.
6. Go to the Main Menu.
Press Menu on the keypad.
7. Press 1967 using the numbered keypad.
8. Press the F5 function key on the keypad (also labeled S.T.N.).
The Debug Flag? prompt appears.
9. Press 7 on the keypad.
This starts the 'RAW' read process.
If you burned a UDF disk instead of a standard CD, then you can use 6 instead of 7. However, if you just use 7, it works regardless of if the disc is a UDF or standard CD

Once the process is complete the Deva screen states it was successful.

10. Power off the Deva.

The updated firmware is now installed on the hard drive.

11. Press and hold the Menu key, then power on the Deva.
This boots the Deva using the updated firmware burned on the hard drive.
12. Release the Menu key when the boot-up screen has finished displaying its information.
13. Press the Menu key to get to the Main Menu Screen.
14. Enter 1967 using the keypad.
The debug screen is displayed.
15. Press the F5 function key on the keypad (also labeled S.T.N.).
The Debug Flag? prompt appears.
16. Press 9 on the keypad
The Burning to Flash ROM process begins.

Important: Do not power down the Deva unit until the screen displays the completed the process message.

17. Once the process is complete, restart the Deva normally
Do not hold down the menu key during the restart

****B and *P Diagnostic Flags***

On very rare occasions a *B or *P may appear either during the recording process or mirroring process. Both diagnostic flags stay on the Deva's screen until the unit is powered off. If either of these diagnostic flags occur, you should contact Zaxcom's technical support department.

****B Flag***

The *B flag means the Deva hit a breakpoint instruction. This happens when the Deva comes across an error it does not know how to handle.

****P Flag***

The *P indicates the beginning of memory has been written to by some Task. Normally the beginning of memory is not used by any task, so if some non-zero data winds up there, it means a NULL pointer has been encountered.

Reading the Startup Screen

When you power on the Deva, the startup screen normally appears for only a very short period of time, and there is normally not enough time to read any of the information on the screen. However, some important information is presented on the startup screen. To read this information, press and hold the Menu key after power up the Deva. This pauses the startup sequence until you release the Menu key. This allows you to read all the information on the screen.

Zaxcom Warranty Policy and Limitations

Zaxcom Inc. values your business and always attempts to provide you with the very best service.

No limited warranty is provided by Zaxcom unless your Zaxcom Deva ("Product") was purchased from an authorized distributor or authorized reseller. Distributors may sell Products to resellers who then sell Products to end users. Please see below for warranty information or obtaining service. No warranty service is provided unless the Product is returned to Zaxcom Inc. or a Zaxcom dealer in the region where the Product was first shipped by Zaxcom.

Warranty Policy

Zaxcom Deva IV/V carries a Standard Warranty Period of one (1) year.

Note: *The warranty period commences from the date of delivery from the Zaxcom dealer or reseller to the end user.*

There are no warranties which extend beyond the face of the Zaxcom limited warranty. Zaxcom disclaims all other warranties, express or implied, regarding the Products, including any implied warranties of merchantability, fitness for a particular purpose or non-infringement. In the United States, some laws do not allow the exclusion of the implied warranties.

Return Material Authorization (RMA)

No Product may be returned directly to Zaxcom without first contacting Zaxcom for a Return Material Authorization ("RMA") number. If it is determined that the Deva may be defective, you will be given an RMA number and instructions for Product return. An unauthorized return, i.e. one for which an RMA number has not been issued, will be returned to you at your expense. Authorized returns are to be shipped prepaid and insured to the address on the RMA in an approved shipping container. Your original box and packaging materials should be kept for storing or shipping your Product. To request an RMA, please contact Zaxcom by telephone. There is an RMA form on the Zaxcom web site <http://www.zaxcom.com>. Please fill out the form and return it with the product for repair. Zaxcom will return the warranty repair via 2nd day UPS or FedEx at their discretion. If overnight service is required a FedEx or UPS account number must be provided to Zaxcom to cover the shipping expenses.

All Devas returned for warranty service must be returned with a Zaxcom disk drive carrier.

Warranty Limitations

Zaxcom's limited warranty provides that, subject to the following limitations, each Product will be free from defects in material and workmanship and will conform to Zaxcom's specification for the particular Product.

Limitation of Remedies

Your exclusive remedy for any defective Product is limited to the repair or replacement of the defective Product.

Zaxcom may elect which remedy or combination of remedies to provide in its sole discretion. Zaxcom shall have a reasonable time after determining that a defective Product exists to repair or replace a defective Product. Zaxcom's replacement Product under its limited warranty will be manufactured from new and serviceable used parts. Zaxcom's warranty applies to repaired or replaced Products for the balance of the applicable period of the original warranty or thirty days from the date of shipment of a repaired or replaced Product, whichever is longer.

Limitation of Damages

Zaxcom's entire liability for any defective Product shall in no event exceed the purchase price for the defective Product. This limitation applies even if Zaxcom cannot or does not repair or replace any defective Product and your exclusive remedy fails of its essential purpose.

No Consequential or Other Damages

Zaxcom has no liability for general, consequential, incidental or special damages. These include loss of recorded data, the cost of recovery of lost data, lost profits and the cost of the installation or removal of any Products, the installation of replacement Products, and any inspection, testing, or redesign caused by any defect or by the repair or replacement of Products arising from a defect in any Product.

In the United States, some states do not allow exclusion or limitation of incidental or consequential damages, so the limitations above may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Your Use of the Product

Zaxcom will have no liability for any Product returned if Zaxcom determines that:

- The product was stolen from Zaxcom
- The asserted defect:
 1. is not present,
 2. cannot reasonably be fixed because of damage occurring when the Product is in the possession of someone other than Zaxcom, or
 3. is attributable to misuse, improper installation, alteration, including removing or obliterating labels and opening or removing external covers (unless authorized to do so by Zaxcom or an authorized Service Center), accident or mishandling while in the possession of someone other than Zaxcom.
- The Product was not sold to you as new.
- Non Zaxcom supplied parts including Disk Drive Carriers being used internal to the Deva case.

Additional Limitations on Warranty

Zaxcom's warranty does not cover Products which have been received improperly packaged, altered, or physically abused.

Warranty of Deva hard drive disk carrier shall be 1 year from date of purchase. The internal hard disk is under warranty by Zaxcom for a period of 30 days. After that period the internal disk drive is covered by the warranty of the hard disk manufacturer and must be returned directly to that manufacturer for warranty service.

Zaxcom's warranty does not cover use of non Zaxcom disk drive carriers or any device or material (excluding batteries) internal to the Deva that can connect to internal circuit boards.