

360 Systems

Instant Replay®

RAPID ACCESS DIGITAL AUDIO STORAGE

OWNER'S MANUAL

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360 Systems®

PROFESSIONAL DIGITAL AUDIO

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INTRODUCTION

Thank you for purchasing Instant Replay. The system provides an unusual combination of mass storage, direct access to stored audio, and ease of operation, all in a professional quality package. Key features include:

- Storage of up to 1,000 audio Cuts.
- Four or more hours of storage, depending on the model.
- Assignment of Cuts to 50 front panel Hot-Key presets.
- Playlists that sequence a number of Cuts into a stored list
- 10 Banks – each providing 50 Presets (for a total of 500), plus 10 Playlists.
- "Find" function locates a Cut by entering its name or index number.
- Familiar tape transport style controls to provide fast and sure operation.

GETTING STARTED

Recordings, Hot-Keys™ and Banks

Perhaps the easiest way to understand Instant Replay is to see how individual recordings relate to the fifty Hot-Keys and how these relate to the ten Banks.

All recordings exist in a single pool, with a capacity of 1,000 Cuts. Each has a unique name and Index Number (or ID number), so they are easily distinguished.

When setting up Instant Replay, recordings are individually "mapped" to Hot-Keys. This way, you have complete control over which sound appears under a particular Hot-Key button. It was decided that 50 buttons was a good compromise between quick access and having a sufficient number of sounds available at once.

The 50 Hot-Keys are organized into Banks numbered 1 to 10, for a total of 500 Cuts assigned to Hot-Keys. Each Bank is like a separate "page"; changing Banks is equivalent to flipping a page, and presents an entirely different set of 50 Hot-Key presets. Banks are also a convenient way to organize Instant Replay's relatively large audio collection. The different Banks might contain sounds for different purposes, or they might be used by different people.

The remaining 500 Cuts are still accessible with the "Find" function, and can be used to replace an existing Hot-Key preset at any time. For more information on Find see page 3, *The "Find" Function*.

Instant Replay's unique feature is that Hot-Keys allow any Cut to be played instantly. Whenever an assigned Hot-Key is pressed, the corresponding Cut is selected and played at once. It will immediately end the playback of any other Cut that may have been playing.

This manual uses the word Preset to describe a Cut assigned to a Hot-Key. It doesn't mean the button itself, but rather a recording that has been assigned to that button.

About Audio Cuts

A Cut is simply a single audio recording. It can range from less than a second to any length; limited only by the time remaining on the hard disk.

Each Cut has a unique Index Number, which identifies it within Instant Replay's library. It also has a Name that you supply to aid in identifying and locating the Cut. To enter a Name, the Hot-Keys assume the function of an alphanumeric keyboard. Cut Names can be added or altered at any time and may consist of up to 15 characters.

Each Cut's length is displayed in HH:MM:SS (hours, minutes, seconds) format. For example, 00:01:30 is 1 minute and 30 seconds. If the Cut is less than a second long, the display shows its time in milliseconds (thousandths of a second; 1,000 ms = 1 Second).

Once the Cut is assigned to a Preset, the Preset number is also displayed. For example, 4-32 where "4" is the Bank number and "32" is the Preset number.

Cuts also contain an Output Gain value, which allows you to adjust and store the playback level after the recording has been made. You can adjust output gain in 1 dB increments from +6 dB (twice as loud) to -90 dB, which is close to the softest sound that can be recorded.

When a particular Cut is displayed, the PLAY button starts the Cut. If PLAY is pressed again during playback, the Cut will immediately restart from the beginning.

Cut Index Numbers

There are 1,000 unique Index Numbers that identify each Cut; they range from 000 to 999. When a Cut is recorded, Instant Replay automatically assigns the lowest available Index Number to the Cut. However, you can also choose another empty Index. Whenever record overwrite is on, you can choose to re-record and replace an existing Cut while retaining its previously assigned Index Number.

The Index Numbers of Cuts can be changed to any empty Index Number using the move operation.

When more than one Cut is present on the Hard Disk, the scroll arrows will select any Index Number for playback.

Pressing find and typing an Index Number will immediately locate a Cut for playback.

Recording Time Limits

Instant Replay is produced with hard disks having different storage capacities. The standard Model DR-550-4 stores a total of four hours of stereo audio. Other "dash" numbers following the model number indicate different total storage times, expressed in hours. Instant Replay uses Dolby AC-2™ coding, which provides extended storage time while maintaining superb audio quality.

An individual Cut can be as short or long as you like, although the maximum possible length of a Cut is always equal to the total unused time remaining on the hard disk. The time remaining can be found by holding down the STOP button. The display will read (Hours:Minutes:Seconds):

TIME LEFT HH:MM:SS

CUTS HH:MM:SS

Instant Replay always records at 48,000 samples per second, in stereo, and therefore use a constant amount of disk space per second. When other sample rates are applied to the digital inputs, the sample rate converter converts them to a 48kHz sampling rate.

All models of Instant Replay store a maximum of 1,000 Cuts; the number of Cuts recorded does not affect the disk space available. Only the total running time of all recorded Cuts determines the time remaining.

The "Find" Function

You can quickly locate cuts with a high-speed search function called Find. The Hot-Key preset buttons double as an alphanumeric keyboard for entering a Cut's Name or Index Number. Press the FIND key and type the Name or Index that you wish to locate, followed by ENTER. When searching by Name, a partial entry of a name will find any Cut that starts with those letters.

Playlists

A Playlist is a group of Presets that play sequentially in one of two ways: one-at-a-time, each time the PLAY button is pressed (Manual Step), or one after the other with no breaks (Follow-On). Playlists are built from presets stored within the selected Bank, and may consist of up to 999 events. There is no limit to the number of times a Preset can appear in the list.

Each Bank contains one Playlist, so a total of ten exist within the machine.

CHAPTER ONE – The Front Panel



FRONT PANEL LAYOUT

Front Panel Controls

Instant Replay's front panel contains all operating controls, plus an alphanumeric display. Most buttons include an indicator light to show when they are in use. Controls are grouped into five sections:

- Display Module
- Hot-Key Presets
- Transport Controls
- Function Buttons
- Level Control and Metering

Display Module



THE DISPLAY MODULE

For most operations, the display shows the Index number, Cut title, and the running time of the currently selected Cut.

The currently selected Bank number is displayed in the lower right corner, followed by the Preset Number of the current Cut. If the displayed Cut is not assigned to a Preset in the current Bank, this number will be 00.

When a Cut starts playing, the lower line of the Display changes to show the name of that Cut, followed by the running time in Hours:Minutes:Seconds.

Other messages appear on the display during special operations. These are explained in appropriate sections of this manual.

Hot-Key Presets

There are three primary uses for Hot-Key presets:

- Triggering audio presets
- As an alphanumeric keyboard
- Bank selection, using the top row of keys

The main array of 50 buttons are Hot-Key Presets numbered 1 through 50. A Hot-Key's primary function is to trigger playback of a Cut assigned to it as a Preset. Hot-Keys light up whenever an assigned Cut is playing.

Each button additionally carries an alphabet character. In modes that require the entry of text and numbers, such as Change Cut Name, Change Bank Name and Move Cut, the Hot-Keys serve as a typewriter-style keyboard. Key number 50 is a Backspace key that allows deleting characters. Keys 48 and 49 are cursor movement keys that allow you to move to any character position. Key number 40 is a special star (*) character used by the Find function. Keys 41 to 47 all function as a space bar.

In the Bank Select mode, the numbers 1 through 10 on the top row select the corresponding Banks numbered 1 through 10.

TRANSPORT CONTROL BUTTONS

The Transport Controls include STOP, PLAY and RECORD. They perform in the traditional manner of tape recorders:

Stop

Immediately ends recording or playback.

Play

Starts playback of the currently selected Cut. Note that pressing PLAY initiates playback from the beginning of the selected Cut, even if it is already playing. The exception is when PLAY is used to disengage PAUSE.

Record

Places Instant Replay in Record Ready mode. (Instant Replay will allocate disk space, and then enter record when the PLAY button is pressed.)

FUNCTION BUTTONS

These include:

Bank Select

When you press the BANK SELECT button, it lights and the top row of Hot-Keys blink. The display changes to show the number and name of the current Bank; the number of Presets it contains; and an indication of the presence of a Playlist in the Bank. Pressing Hot-Keys 1-10 will directly select the corresponding Bank.

Alternately, the SCROLL ARROWS may be used to view the Banks. Pressing ENTER will activate the Bank whose name is currently shown on the display. Pressing BANK SELECT again or CANCEL exits this mode.

Assign Preset

The assign preset button lights and the Display prompts selection of a Preset. Pressing a Hot-Key immediately assigns the Cut shown in the top line of the Display to that Preset. To exit, press assign preset again, or cancel.

Preview

Mutes the main audio output, so Cuts can be auditioned from the headphone output only.

If PREVIEW is turned on during playback, the display changes from showing the current Cut and playing time, to showing the ID Number, Name, Length and Preset Assignment of any Cuts selected. The current Cut will continue playing from both the main and headphone outputs.

In either case, pressing PREVIEW a second time exits this mode and restores normal operation. If no Cut is playing, CANCEL will also end Preview.

Playlist

Playlists allow you to create and playback a sequence of Presets. You can set Playlists for Follow-On as well as Manual-Step playback (see page 9, *Using Playlists*). You can create one Playlist for each Bank.

Loop

LOOP causes a Cut to repeat endlessly until either STOP or LOOP is pressed. STOP ends playback immediately and turns off Loop mode. Pressing LOOP a second time exits from the Loop mode, and allows the current Cut to continue playing to its end.

While a Cut is looping, another Cut can be selected for playback. A different Preset can also be triggered. The new Cut will immediately start from the beginning, and will also loop until LOOP mode is exited.

Looping works in all modes. You can loop a single Cut, or an entire Playlist when in Playlist mode, whether it is a Manual-Step Playlist or a Follow-On Playlist.

Pause

PAUSE interrupts playback of a Cut. When pressed again, playback will resume.

Note that while Instant Replay is paused, pressing a Hot-Key displays the Preset's title and statistics, but the Preset will not play.

Menu

The MENU button selects one of several different Menu items, which appear in rotation when you press the SCROLL ARROWS. When the desired item is displayed, press ENTER to select it. The SCROLL ARROWS will then select the Options available within that Menu. CANCEL will return to the selection of other Menus.

Once a Menu Option is selected, pressing ENTER will select of a value for that Option. The second line of the display will flash to indicate that the value may be changed. The SCROLL ARROWS (or in some cases the keyboard) are used to select a value. ENTER will confirm the new value, and CANCEL will restore the previous one.

Pressing MENU a second time will exit to normal operation.

Cancel

This button is used to end operations, exit menus, or to answer "no" to display prompts.

Scroll Up/Down Arrows

Used to select Cuts, Banks, Menus, Option values and Playlist Steps.

Find

FIND searches for a Cut by Index Number or Name. When you press the FIND button, any previously found Cut name or ID number is displayed. To use that name for the current FIND simply press ENTER. To use a different name or index number, simply type it and press ENTER.

Cuts can be located by entering part of the name. In the event many cuts exist with almost the same name, they will be found in alphabetical order with each subsequent use of the FIND command. The SCROLL ARROWS may be used to examine all similar entries when the Sort By Name option is active in the configuration menu.

Enter

Used to enter Menus, initiate operations, confirm choices, and to answer "yes" to display prompts.

USING PLAYLISTS

Creating a New Playlist

To create a new Playlist, enter Playlist mode by pressing the PLAYLIST button. It will light, and the display will show START OF PLAYLIST. Press the Hot-Key preset you want to use as the first entry, and the display will indicate the Cut name, ID number, and running time. Continue pressing Hot-Keys to add subsequent entries to your Playlist. When you are done, press ENTER to confirm and save the list.

Note that whenever PLAYLIST is enabled, the Hot-Keys are used only for adding presets to the Playlist, not for playing audio.

Selecting and Playing a List

To select a Playlist, just select the desired Bank. (The Playlist number is always the same as the Bank.) To put the Playlist on-line, push the PLAYLIST button. Playlists always start at their first entry when turned on. A Playlist can be enabled "on the fly" during playback of another Cut; the next time PLAY is pressed, the first Preset in the Playlist will be heard.

For convenience, the Hot-Key corresponding to a Playlist step will light when playing; the next-to-follow Hot-Key Preset will also blink. The display always shows the cut currently playing on the bottom line, and the currently selected cut on the top line.

Editing the Playlist

To remove a Cut from the Playlist, use the SCROLL ARROWS to find the Cut you want to delete. Press CANCEL to remove it from the list.

To insert a new Cut into the Playlist, SCROLL to the position you desire within the list, and press the Hot-Key that corresponds to the Cut. It will be inserted immediately after the position you selected, and the Playlist will increment to display the new Cut.

To append a Cut to the end of the Playlist, SCROLL through the list until you see END OF PLAYLIST. Press the appropriate Hot-Keys to add additional Cuts to the list.

Changing the Playlist “On-the-Fly”

The SCROLL ARROWS and ENTER key can be used in real time to change the sequence in which the Cuts are played. At any time you can SCROLL through the list. If you then press ENTER, the step you selected will be played next, and the playlist will continue from that point onward.

When a cut is playing and Playlist is not enabled, pressing the Playlist key enables the Playlist mode. The current cut will play to completion and the button corresponding to the first Cut in the playlist will blink. However, the playlist will not execute until you press PLAY.

When executing a playlist, the top line of the display shows the Cut currently playing.

Clearing the Playlist

To clear the playlist, hold down the CANCEL button, then press PLAYLIST. The message CLEAR PLAYLIST? appears on the display. Press ENTER to confirm that you wish to clear the Playlist.

Setting the Type of Playlist

After you have created a Playlist, you can change it from MANUAL STEP to FOLLOW-ON or vice-versa. Scroll back to the beginning until you see START OF PLAYLIST. The display shows the Playlist type. Press ENTER to edit the type; the bottom line will start blinking. Use the SCROLL ARROWS to choose between MANUAL STEP and FOLLOW-ON. Press ENTER to accept the new type or CANCEL to quit.

Note that if PLAYLIST PROTECTION is ON, the playlist type cannot be changed.

Manual Step Playlist Characteristics

If the Playlist type is Manual Step, the PLAY button will play the first Cut in the Playlist and stop. When PLAY is pressed again, the next Cut will play. The sequence will continue in this manner until the end of the Playlist, or until the Playlist button is turned off.

Follow-On Playlist Characteristics

If the Playlist type is Follow-On, the PLAY button will play the first Cut in the Playlist. When the first Cut ends, the next Preset in the list will begin immediately.

Unlike a Manual-Step playlist where you must press PLAY to begin the next Cut, the Follow-On playlist automatically begins the next Cut following the end of the previous one. The sequence will continue in this manner until the end of the Playlist, or until the Playlist button is turned off. The Hot-Key corresponding to the current Cut will light when playing, and the next-to-follow Hot-Key will blink indicating that it is queued to play.

A Follow-On playlist will continue to play to its end unless you press STOP. Pressing PLAY will then cause the next cut in sequence to begin. If you exit the Playlist mode while a Follow-On playlist is executing, the current cut will play to completion and then the playlist will stop. Pressing PLAY while a Follow-On playlist is executing has no effect.

METERING AND LEVEL CONTROLS

Level Meters

The Level Meters show the current record or playback level. The Level Meters are not affected by the setting of the rear panel Output Attenuator switch.

Input Level Controls

The Left and Right Input Level Controls set the levels for recording. Set the levels so that the loudest part of your recording causes the first red segment of the meter to light. When turned all the way down, no sound will pass.

Headphone Level Control

Sets the level of the Headphone Output. This output is not affected by the Output Attenuator Switch.

CHAPTER TWO – The Rear Panel



INSTANT REPLAY REAR PANEL

ELECTRICAL POWER

CAUTION!

CONNECT THIS PRODUCT ONLY TO AN AC POWER SOURCE OF THE SAME VOLTAGE AND FREQUENCY INDICATED ON THE REAR PANEL. THIS PRODUCT MAY NOT BE CONVERTED FROM ONE VOLTAGE TO ANOTHER.

THE PRODUCT IS SUPPLIED WITH A DETACHABLE IEC TYPE AC LINE CORD APPROPRIATE TO THE COUNTRY TO WHICH THE UNIT WAS ORIGINALLY DELIVERED. CHECK TO SEE THAT IT MATCHES THE ELECTRICAL OUTLET YOU WILL BE USING.

Power Switch

The power switch is located next to the AC power input on the rear of the product.

Fuses

The fuses in this product are not user replaceable. Failure of a fuse is an indication of other component failure, and will require service by a qualified repair technician. Return the product to 360 Systems or the dealer from whom you purchased it.

ANALOG AUDIO CONNECTIONS

Analog Audio Inputs

The analog inputs are a pair of female XLR-3 connectors marked left and right. The inputs are balanced, with an impedance of 40k ohms. Input levels from -15 dBu to +24 dBu can be accepted, and are capable of producing full-scale indications on the level meters. Input cables should be wired as follows:

PIN 1	COMMON
PIN 2	+ INPUT
PIN 3	- INPUT

Analog Audio Outputs

The main analog outputs are a pair of male XLR-3 connectors. The output is balanced, and is capable of driving loads of 600 ohms or greater. Full scale output level is +24 dBu. Output cables should be wired as shown above for the inputs.

Unbalanced connections are achieved by connecting pin 2 of the Instant Replay to the hot lead of the unbalanced input or output and pin 1 to ground.

Output Attenuator Switch

An Output Attenuator switch is located on the rear panel. Set this switch to the **out** position for operation of Instant Replay with equipment having a nominal operating level of +4 dBu. Set the switch to the **in** position for use with equipment operating at -10 dBu.

The switch has no effect on the level meters, digital outputs, or the headphone output.

Headphone Output

The Headphone Output always carries the same signal as the Main outputs, but its level is controlled by the Headphones Level control on the front panel.

When the Preview button is activated, the Headphone Output is active and the Main Outputs are turned off. It may be helpful to use the Headphone Output for control room monitoring, while the Main Outputs provide the main feed to a mixer or transmitter.

DIGITAL AUDIO CONNECTIONS

AES/EBU Inputs

An XLR-3 female connector is provided for digital inputs in the AES/EBU format. The input will accept any sample rate from 24k samples/second to 50k samples/second. Use only special AES cable having an impedance of 110 ohms. Limit the cable run to 100 feet. Do not use microphone cables.

IEC 958 Type II Inputs

An RCA "phono" connector provides a digital input from consumer or semi-pro equipment. Most equipment with connectors marked "S/P DIF" can also be connected to this input.

The input will accept any sample rate from 24k samples/second to 50k samples/second. Use only low-capacitance 75 ohm coaxial cable, such as those made for video connection between VCRs and television video inputs. Do not use audio cables with RCA connectors.

Digital Audio Interfacing

Should Instant Replay detect a mismatch at its digital audio ports when preparing to record, the PLAY button is disabled and an error message appears in the display. Possible mismatches can include miswired connectors and DAT copyright protection data ("SCMS"). Correct the mismatch as necessary.

Digital Audio Outputs

When using Instant Replay as a digital audio source, RECEIVER ECHO should be DISABLED in the FILE TRANSFER MENU.

AES/EBU Outputs

An XLR-3 male connector provides a digital audio output in the AES/EBU format. Outputs are always at 48k samples/second. Use only special AES cable having an impedance of 110 ohms. Limit the cable run to 100 feet. Do not use microphone cable.

IEC 958 Type II Outputs

An RCA "phono" connector provides a digital audio output to consumer or semi-pro equipment. Most equipment with input connectors marked "S/P DIF" can also be connected to this output.

D-NET File Transfer Ports

Instant Replay can transfer its files to other 360 Systems products and certain DAT recorders using the D-NET file transfer network. D-NET uses AES/EBU protocols, and the digital audio inputs and outputs described above. The choice between XLR and RCA connectors is made as a menu selection.

D-NET data is not standard digital audio, and may not be listened to. See the section titled D-NET File Transfers for complete information on using this network.

Printer Port

This is a standard parallel printer port on a 25 pin "D" connector. Although many printers may be used, 360 Systems has tested the following models:

MANUFACTURER	PRODUCT NAME	MODEL NUMBER
CANON	BUBBLE JET	BJ-200E
CANON	BUBBLE JET	BJ-200EX

Canon, BJ and Bubble Jet are trademarks of Canon, Inc.

The printer can provide a variety of different listings about audio materials stored in Instant Replay. See the section titled MENU for further information.

GPI/Play

Instant Replay includes a General Purpose Interface (GPI) that duplicates the PLAY button, and is implemented as a 1/8" mini phone jack on the back panel. Simply connect a momentary switch

(console button, footswitch, etc.) to the back panel jack marked GPI/PLAY. When you activate the remote momentary switch, Instant Replay will behave as if you had pressed PLAY.

You can also initiate recording remotely by putting Instant Replay in Record Ready and activating the remote switch.

Note that activating the remote switch will also cancel PAUSE if it is active. While Instant Replay is paused, pressing a Hot-Key displays the Preset's title and statistics but does not play it. This lets you check the contents of a Preset silently, and is most useful in a live broadcast environment.

CHAPTER THREE – Command Summary

To Use The Menus

- Press MENU.
- Use the SCROLL ARROWS to select the desired Menu. Press ENTER to select a specific Menu item.
- Use the SCROLL ARROWS to select the desired option for that menu item.
- To adjust the value of the selected item press ENTER. The second line of the display will flash.
- Use the SCROLL ARROWS to set the value. (Where required, enter it using the keyboard keys).
- Press ENTER to confirm your selection or CANCEL to restore the previous programmed value.

NOTE: At any time, CANCEL will move operation back one level (from Value Entry to Option Selection to Menu Selection to Normal Operation). Pressing MENU again will return to normal operation. Refer to the Menu Map below for the location of the various options within the Menu tree.

To Record A Cut

- Set Threshold and turn off Record/Erase Lockout (in Record Setup Menu).
- Set Audio Input to Analog or Digital (in Configuration Menu).
- Press RECORD button. Set Input Level controls (for Analog Input only).
- Select an alternate Index Number if desired using SCROLL ARROWS.
- Press PLAY; machine will enter Record mode.
- When done, press STOP.
- Enter Cut Title using alphanumeric keys.
- Press ENTER to save title.

To Erase A Cut

- Select the Cut.
- Press the MENU button.
- Select Operations.
- Press ENTER.
- Select Erase.
- Press ENTER.
- Press ENTER again to confirm.
- To erase additional Cuts, select another Cut and press ENTER twice.
- When done, press MENU to exit.
- Note that Record / Erase Lockout (in Record Setup Menu) must be OFF.

To Assign A Cut To A Hot-Key

- Press the ASSIGN PRESET button.
- Select the desired Cut using SCROLL ARROWS or FIND.
- Press the desired Hot-Key.
- Repeat to assign another, or press ASSIGN PRESET to end.

To Select A New Bank

- Press the BANK SELECT button.

- Press a Hot-Key from 1 to 10 to select the desired Bank Number.
- Use the SCROLL ARROWS to select the desired Bank.
- Press ENTER to confirm selection.
- Press the BANK SELECT button to exit.

To Create and Edit a Playlist

- Press the PLAYLIST button.
- Press the Hot-Key preset you wish to use as the first entry.
- Press additional Hot-Keys for subsequent Playlist entries.
- When all entries have been made, press ENTER to conclude the list.
- Use the Scroll Arrows to scroll back to the START OF PLAYLIST.
- Press ENTER to change the Playlist type.
- Select Manual Step or Follow On using the Scroll Arrows.
- Press ENTER to confirm your choice.
- The Playlist is now complete, and may be reviewed with the Scroll Arrows, or auditioned with the PLAY button.
- Press ENTER to set the Playback Pointer to the currently displayed step.
- To insert a new Preset into the Playlist, use the SCROLL ARROWS to select the position within the list, then press a Hot-Key to add the new Preset.
- To remove a Preset from the Playlist, use the SCROLL ARROWS to select the position occupied by that Preset, then press CANCEL to remove it from the list.
- To append a Preset to the end of the Playlist, scroll to the end of the list and press additional Hot-Keys to add additional Presets.

MENUS AND MENU OPTIONS

Record Setup

Threshold (in dB) - OFF, -6, -12, -18, -24, -30, -36, -42, -48, -54, -60

Record Overwrite - OFF, ON

Record Time Limit - NONE, 60 MIN, 30 MIN, 5 MIN

Record/Erase Lockout - OFF, ON

Operations

Change Cut Name - Changes name of currently selected Cut.

Erase - Erases currently selected Cut.

Move - Move currently selected Cut to any unused Index number.

Adjust Output Gain - Variable from +6 to -90 dB. Default is 0 dB.

Change Bank Name - Changes name of currently selected Bank.

Defragment Disk - Eliminate fragmentation of audio files on disk.

Configuration

Time Display - TIME REMAINING, ELAPSED TIME
Sort Directory By - INDEX, NAME
Select Language - ENGLISH, SPANISH
Digital Output - OFF, PROFESSIONAL FORMAT, CONSUMER FORMAT, COPY PROT.
CONSUMER
Audio Input - ANALOG, AES/EBU XLR-3, AES/SMPTE 75 OHM RCA, IEC 958 TYPE II
RCA
GPI Input- ENABLE, DISABLE

Printer Output

Print - CURRENT BANK, ALL, LEGEND OVERLAY
Sort By - NAME, INDEX, PRESET #, PLAYLIST

Playlist

Clear Playlist? - Press ENTER to clear Playlist stored within the current Bank.
Playlist Protection - OFF, ON

Presets

Assign Preset - Scans list of Presets in current Bank using SCROLL ARROWS.
Pressing ENTER assigns current Cut to the displayed Preset.
Clear Preset - Scans list of Presets in Current Bank using SCROLL ARROWS.
Pressing ENTER clears the displayed Preset.
Assign Bank - Assigns all available Cuts in a selected range of 50 consecutive
Index Numbers to the corresponding Presets.
First select the Cut to begin the range before pressing Menu.
When ENTER is pressed in Assign Bank, any Cuts that exist in the range are
automatically assigned to a Preset.
Empty Index Numbers in the range result in the corresponding Preset remaining
unassigned, or left intact if a previous Preset existed.
All other previously existing Presets will be replaced.
Preset Protect - OFF, ON

File Transfer

Transfer Cut
Transfer All Cuts
Backup Drive
Backup Bank
Restore From Backup
File Receiver - OFF, ON
Echo During Receive - OFF, ON
Receiver Input - RCA, XLR-3
Transfers to Accept - MAIL BOX ONLY, ALL
Receiver Name - (NONE - RECEIVE ALL) or programmed name

CHAPTER FOUR – D-NET File Transfer Operations

Introduction

D-NET is a new kind of audio network designed by 360 Systems. It uses Instant Replay's digital audio interfaces for high-speed audio transfers, and to backup and restore files for archival purposes. Unlike other networking schemes, there is no extra cost for networking cards or hardware, no special software, and it is compatible with many other products that use the AES/EBU digital audio interface standard.

Features

- Transfer individual audio cuts, or the contents of entire drives, from one Instant Replay to another.
- Transfer to and from DigiCart/II hard disk recorders. (Note: the DigiCart/II machines must have the file transfer option installed.)
- Backup and restore a bank of files, or an entire drive, to a DAT tape.
- Transfers file headers with File Name, Index Number, running time, etc.
- Transfer audio faster than standard playback rates.
- Supports AES/EBU and AES/SMPTE-75 digital interfaces.
- Individual machines can be configured to allow or disallow automatic reception of transfers.
- Optional protection for overwrite of existing drive contents (via the 'mail box' feature).

File Transfer Characteristics

Transfers are one-way, without acknowledgment from the receiver, and are initiated from the sending machine. The sender specifies a destination name, or partial name with a wild card character. All machines that are configured with a matching name can receive the file.

A file is transferred to a specific cut index, or optionally to a 'mail box' location. A transfer to a specific disk location will replace an existing file at that location. A files transferred to the mail box will have the next available index number in the destination machine. Each receiving machine can be configured to disallow transfers to specific cut locations.

All machines to receive a transfer must be enabled to receive file transfers, must be configured with a name matching the name, and must not be playing or recording. Receivers offer the option of a "blank receiver name" which matches all names, and thus receives all transfers.

The destination machine will discard files received with errors. Since files received with errors are discarded the user does not get a direct indication of which files in a multiple-file transfer need to be re-sent.

An operator at a receiving or sending machine can easily cancel file reception to regain control of the machine at any time by pressing the STOP or CANCEL buttons. The user is prompted to confirm before the transfer is aborted.

Only one sender can be transferring files at a time.

TRANSFER RATES

(TRANSFER TO PLAYBACK)

File transfer rate: 8 to 1

File backup/restore rate: 5.33 to 1

Backup/Restore Characteristics

BACKUP BANK saves a specific bank to a DAT tape. BACKUP DRIVE saves the contents of the entire drive to a DAT tape. RESTORE FROM BACKUP adds files to the drive from the DAT backup tape, replacing any with the same cut index. RESTORE FROM BACKUP does not discard files on disk unless a file at the same index is successfully read from the DAT tape.

Backup and restore data is compressed, so a disk with 4 hours of audio can be backed up using about 65 minutes of DAT tape. A disk with 8 hours of audio can be backed up with about 115 minutes of tape.

Backup and restore support the AES/EBU interface only.

CAUTION!

PLAYBACK OF BACKUP DATA SOUNDS LIKE LOUD NOISE AND BEARS NO RESEMBLANCE TO THE UNCOMPRESSED MATERIAL.

FILE TRANSFER MENUS

FILE TRANSFER is a sub-menu selected from the main Menu. It has menu items for file transfer configuration, for selecting transfer of a single cut or all cuts, and for performing backup and restore.

The FILE TRANSFER menu contains a number of its own sub-menus. At the outer most level, the SCROLL ARROW keys select a specific menu item. When editing input fields, the alpha-numeric legends on the Hot-Keys are used to enter data, and the left and right arrows move the cursor. The ENTER key initiates an activity, or completes an edit operation.

Transfer Cut

Transfer a single selected cut to a mail box or to a specific drive, directory and index.

Transfer All Cuts

Transfer the entire contents of an audio disk drive to the mail box, or to a designated drive and directory in a destination machine.

Backup Drive

BACKUP DRIVE backs up the entire contents of the internal hard disk through the AES/EBU (XLR-3) output connector to a DAT tape.

Backup Bank

BACKUP BANK backs up the presets of the current bank and the cuts assigned to those presets. Its operation is identical to BACKUP DRIVE.

Restore From Backup

Restores the internal hard disk contents through the AES/EBU (XLR-3) input connector from a DAT tape previously created via BACKUP BANK or BACKUP DRIVE.

File Receiver

Selects whether file reception is ON or OFF. When ON, an idle machine receives all file transfers specifying a destination name that matches the configured receiver name. When OFF, the machine does not receive file transfers.

Echo During Receive

Selects whether received data is passed through to the digital output. The ON selection is useful when machines are daisy-chained for file transfer. Note that any machine in a daisy-chain that is playing or recording can not echo file transfer data to subsequent machines. The OFF selection prevents file transfer data from being echoed through the digital output.

Receiver Input

Selects either the RCA or the XLR-3 digital input connector for receiving files.

Receiver Name

This field specifies an optional name for addressing the receiver during file transfer. A blank name causes a machine to receive all file transfers from any source machine (provided the destination drive and directory are correct).

The name specified as the destination machine may end with a single asterisk character (Hot-Key 40) to indicate that all receivers partially matching the name should receive the transfer. For example:

EDITBAY* will transfer to EDITBAY 1, EDITBAY 2, EDITBAY 3, etc.

Leading and trailing blanks in names are not significant and are removed whenever a name is saved.

When sending to a specific location instead of sending to a mail box, the destination drive defaults to '1', the destination directory defaults to '0' and the destination index defaults to the index of the currently selected cut in the source machine. Applicable portions of the destination disk location may be edited by the user.

Transfers To Accept

This menu determines whether transfers can be to locations outside of the mail box. The MAIL BOX ONLY choice causes the receiver to accept transfers with a destination location of MAIL BOX and to reject transfers to specific locations. The ALL choice causes the receiver to accept MAIL BOX transfers as well as transfers to specific locations.

File Transfer Setup (First Time Configuration)

1. Select the file transfer menu.

2. Use the arrow keys to select the FILE RECEIVER menu item. Press ENTER and then use the arrows to select ON to enable receiving of files, or the OFF setting to disable receiving of files. Press ENTER again to confirm the selection.
3. Use the arrow keys to select the ECHO DURING RECEIVE menu item. Press ENTER and then use the arrows to select ON to echo received file data through the digital output or OFF setting to prevent echoing of received file data. Press ENTER again to confirm the selection.
4. Use the arrow keys to select the RECEIVER INPUT menu item. Press ENTER and then use the arrows to select either the RCA or the XLR-3 connector. Press ENTER again to confirm the selection.
5. Use the arrow keys to select the RECEIVER NAME menu item. Press ENTER to edit the receiver name. The name can be blank to receive all file transfers or can have from 1 to 15 characters consisting of any combination of letters, digits, dashes and spaces. Leading and trailing spaces are not significant and are removed when the name is saved. Press ENTER to confirm the selection.
6. Use the arrow keys to select the TRANSFERS TO ACCEPT menu item. Press ENTER and then use the arrows to select the appropriate setting:
 - MAIL BOX ONLY - when *only* mail box transfers are to be allowed.
 - ALL - when mail box transfers *and* transfers to specific locations are to be allowed.

Press ENTER again to confirm the selection.

7. Press CANCEL or MENU to exit from the File Transfer Menu.

The machine is now configured, and is ready to be connected to D-NET.

Backup Drive

1. From the FILE TRANSFER menu select BACKUP DRIVE and press ENTER.
2. The MENU button begins to flash and the display shows:

START BACKUP DEVICE

PRESS ENTER/CANCEL

3. Place the DAT machine in record (via its AES/EBU digital input) and press ENTER. (Or CANCEL to prevent starting the backup). The display shows:

PREPARING TO BACKUP

STOP/CANCEL TO QUIT

Backup begins and the display shows the current file number and the percent completion for the current file:

FILE 1 OF 193

00% BACKED UP

Backup will proceed until all files are backed up, and the display will show the total number of files.

If STOP or CANCEL is pressed during backup the display changes to:

QUIT BACKUP?

PRESS ENTER/CANCEL

Press ENTER to stop backup. An ending summary will be displayed.

Press CANCEL or STOP and the backup will continue.

Restore From Backup

1. From the FILE TRANSFER menu select RESTORE FROM BACKUP and press ENTER.
2. The display changes to:

ARE YOU SURE?

PRESS ENTER/CANCEL

Press ENTER to continue, or CANCEL to exit this operation.

3. The menu button begins to blink and the display shows:

START RESTORE DEVICE

PRESS ENTER/CANCEL

At this time start the DAT machine playing a backup tape through its AES/EBU digital output, and press ENTER. Alternately, press CANCEL to exit from this operation .

When backup data is received from the DAT player, the display changes to show the current file number and the percent completion for the current file:

FILE 1 OF 193

00% RESTORED

Restore will proceed until all files are restored; the display will show the number of files successfully restored. Files received with DAT tape errors are skipped.

If the STOP or CANCEL buttons are pressed, the operation continues but the display shows:

QUIT RESTORE?

PRESS ENTER/CANCEL

If you press ENTER the restore discontinues and an ending summary is displayed.

If you press CANCEL or STOP at the prompt to QUIT the display reverts to updating the file number and percentage complete and the restore operation continues.

4. After the ending summary you are prompted to press ENTER. The machine resets itself and restarts as it does when power is first applied.

File Transfer Procedure (SENDER)

1. Select a cut.
2. Select the FILE TRANSFER menu. The top line will show:

TRANSFER CUT

The bottom line displays:

PRESS ENTER/CANCEL

Press ENTER to proceed. Or use the SCROLL ARROWS to select the TRANSFER ALL CUTS menu item and press ENTER to proceed.

3. Press ENTER and the display will show:

DESTINATION NAME

POST RM#1

(This is the most recently used destination name.)

Optionally, press ENTER to edit the Destination Receiver name. When the name is blank the display indicates '(NONE SPECIFIED)' and the transfer can be received only by machines that have a blank receiver name.

4. Push the down arrow and the display shows:

DESTINATION LOCATION

MAIL BOX

(OR)

DESTINATION LOCATION

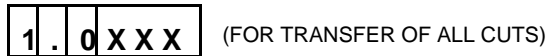
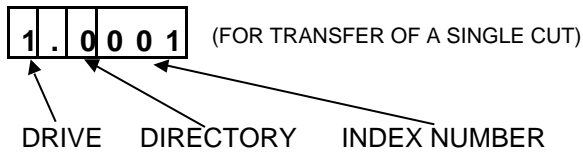
1.0001

(SELECTED CUT)

depending on which type of destination was most recently selected. The Destination Location can be changed by pressing ENTER, followed by the up or down arrows, to select between a specific location and the mail box. The selection blinks until you press ENTER again to confirm.

Press ENTER again when MAIL BOX is displayed to select the mail box as the destination location.

Alternately, press ENTER when a another specific location is displayed to select that location. Portions of the location field that are not applicable for a particular type of transfer are displayed as X's:



The numeric keys of the keyboard are used to enter digit numbers. The left and right arrows select a digit to edit, skipping over non-editable columns. Press ENTER at the edit prompt to complete selection of the destination location.

Note the drive number must be left at '1' and the directory number at '0' when sending to other Instant Replay machines.

However, when sending to machines such as the DigiCart/II which support multiple drives and directories, the drive and directory numbers may be changed.

5. Press the down arrow. The display will show:

BEGIN TRANSFER
PRESS ENTER/CANCEL

6. Press ENTER and the transfer will proceed. The display initially shows:

PREPARING TO SEND
PRESS ENTER/CANCEL

Once the destination machines have been activated to receive the display changes to:

FILE 1 OF 1 ← FILE NUMBER AND TOTAL NUMBER OF FILES
00% COMPLETED ← PERCENT COMPLETED FOR THE CURRENT FILE

If no buttons are pressed, the percentage is updated until an error occurs or the transfer is completed. The display then shows:

TRANSFER COMPLETE
PRESS ENTER/CANCEL

If an error occurs during sending the display briefly shows:

TRANSFER ERROR
XXXX ← ERROR MESSAGE

Some possible errors are:

- COULD NOT OPEN FILE FILE TO SEND COULD NOT BE OPENED
- DISK ERROR..... ERROR READING FILE TO SEND
- FILE IS EMPTY FILE TO SEND IS EMPTY
- NO FILES TO SEND DRIVE TO SEND IS EMPTY
- PART OF FILE MISSING FILE IS SHORTER THAN EXPECTED
- TOO MANY ERRORS 20 DISK OR FILE ERRORS OCCURRED

After the brief error message the display then changes to:

TRANSFER INCOMPLETE
PRESS ENTER/CANCEL

After pressing ENTER or CANCEL the display shows briefly:

FILES SENT: 0 ← NUMBER OF FILES TRANSFERRED WITHOUT ERRORS
PLEASE WAIT

If any files could not be sent the display shows:

FILES SENT: 0 ← NUMBER OF FILES TRANSFERRED WITHOUT ERRORS
FILES NOT SENT: 1 ← NUMBER OF FILES NOT SENT DUE TO ERRORS

If you press CANCEL or STOP during the transfer, the transfer will proceed while the display shows:

QUIT TRANSFER?
PRESS ENTER/CANCEL

Press CANCEL to continue the transfer.

Press ENTER to confirm the cancellation of the transfer. The display will briefly show:

TRANSFER ERROR
CANCELED BY USER

After the brief error message the display then changes to:

TRANSFER INCOMPLETE
PRESS ENTER/CANCEL

File Transfer (RECEIVER)

1. When Instant Replay is idle, it can monitor the file transfer input for a destination name that matches the stored receiver name. When a file transfer begins the display outputs the following:

FILE 1 OF 1 ← FILE NUMBER AND TOTAL NUMBER OF FILES
00% COMPLETED ← PERCENT COMPLETION FOR THE CURRENT FILE

Backup and restore are not provided in DigiCart/II machines.

Sending to the mail box in a DigiCart/II means sending to the first unused index number following the highest used index in directory 9 (for cuts) and directory 'S' (for Stacks) on drive 1.

For Instant Replay, sending to the mail box means sending to the first unused index following the highest used index in directory 0 of drive 1 (the only drive that exists).

Instant Replay machines accept transfers destined *only* for directory 0 of drive 1.

The entire contents of an Instant Replay audio drive may be transferred to the 'mail box' of a receiving machine.

The up and down arrow keys on Instant Replay perform the functions of the Select knob on a DigiCart/II recorder.

On the Instant Replay, you must perform an extra step of pressing ENTER before transfer parameters or setup values can be adjusted.

The Transfer Stack and Transfer Directory menu selections are not present on Instant Replay.

On Instant Replay the transfer drive feature is really a transfer of the only directory an Instant Replay has: drive 1, directory 0.

CHAPTER FIVE – Maintenance and Disk Operations

FORMAT DISK

The Format Disk option is only available through a special "power-on" sequence. This option will erase the entire contents of Instant Replay's internal hard disk. It is essential to back up the contents of your hard drive using the D-NET File Transfer or Backup/Restore procedures detailed in Chapter 4 before beginning the Format Disk operation.

During FORMAT DISK, if you wait too long to select an option, Instant Replay will "time out", aborting the Format Disk operation.

CAUTION!

FORMAT DISK WILL PERMANENTLY ERASE THE CONTENTS OF THE HARD DISK AND WILL RESET ALL MENU ITEMS TO THEIR ORIGINAL DEFAULT VALUES.

AFTER COMPLETING THE FORMAT DISK OPERATION, YOU MUST TURN POWER OFF, THEN ON AGAIN, TO ENSURE PROPER OPERATION.

IF AT ANY TIME THE DEFRAGMENTATION PROCESS IS ABORTED, YOU MUST RECYCLE POWER (TURN THE MACHINE OFF, THEN BACK ON AGAIN) TO ENSURE PROPER OPERATION.

To Format the Disk

1. Turn Instant Replay's power switch OFF.
2. While holding down the STOP button, turn power ON. The display will prompt:

FORMAT & ERASE DISK?

PRESS ENTER/CANCEL

3. Press ENTER to proceed, or CANCEL to abort. If you press ENTER, the display will prompt:

PRESS PLAY TO FORMAT

PRESS CANCEL TO QUIT

4. Press PLAY to continue. The display will prompt:

FORMATTING DISK

PLEASE WAIT

After the formatting operation is complete, the display will show the initializing message, then will indicate NO CUTS AVAILABLE. At this point, you may:

- Press MENU and reset default options to the desired values.
- Press RECORD and begin recording new material.
- Press MENU, select the FILE TRANSFER Menu, then select RESTORE FROM BACKUP. Audio material previously backed up to DAT may now be restored to the hard drive.

DEFRAGMENT DISK

As cuts are recorded and then erased, or overwritten by new recordings of different lengths, disk space will become fragmented into small blocks of free space separated by blocks of audio. Eventually, the available space is broken up into too many small blocks. When this happens, the message DISK IS FRAGMENTED appears. In addition, a severely fragmented disk can interfere with D-NET file transfers, causing the display to indicate an overrun error.

The Defragmentation program will restore the continuity of a fragmented disk. It does this by moving blocks of audio from one position on the disk to another, always seeking to combine the various parts of a cut into a single continuous file. When the Defragmentation program is finished, it leaves each cut in a single continuous file, and all available disk space is combined into one contiguous area on the disk.

The Defragmentation program needs free disk space in which to re-arrange the audio blocks, and it cannot proceed if any cut is severely fragmented. Lack of disk space, or the presence of a severely fragmented cut will produce error messages, and the Defragmentation program will not continue. The user must move some cuts to another machine and delete them. If a severely defragmented cut is present, its index number will appear in the error message.

Defragmentation should be done occasionally, especially if cuts are frequently overwritten with new recordings or if cuts are often erased. The process can take from a few minutes to over an hour. The machine should not be turned off while defragmentation is being done. If necessary, defragmentation can be interrupted by pressing the CANCEL key. The process will not stop immediately, since transfer of a file from one area of the disk to another must first be completed. Eventually, the program will pause and ask for confirmation that defragmentation should be canceled. If the response is yes (ENTER), the process will stop.

Defragment Disk Command

The Defragment Disk command is accessible from the OPERATIONS menu. It is advisable to back up the contents of your hard drive using the D-NET File Transfer or the Backup/Restore procedures detailed elsewhere in this manual before you begin.

CAUTION!

DEFRAGMENT DISK WILL TAKE SOME TIME. FOR A HIGHLY FRAGMENTED HARD DISK, THE OPERATION MAY REQUIRE AS MUCH AS 30 MINUTES TO AN HOUR. DO NOT BEGIN THE DEFRAGMENT DISK OPERATION UNLESS YOU HAVE ADEQUATE TIME FOR INSTANT REPLAY TO REMAIN OFF-LINE.

IF AT ANY TIME THE DEFRAGMENTATION PROCESS IS ABORTED, YOU MUST RECYCLE POWER (TURN THE MACHINE OFF, THEN BACK ON AGAIN) TO ENSURE PROPER OPERATION.

To Defragment the Disk

1. Press MENU and use the SCROLL ARROWS to locate OPERATIONS.
2. Press ENTER and use the SCROLL ARROWS to locate DEFRAGMENT DISK. Press ENTER, and the display will prompt:

DEFRAGMENT DISK?

PRESS ENTER/CANCEL

3. Press ENTER to proceed, press CANCEL to abort. If you press ENTER, the display prompts:
ARE YOU SURE?

PRESS ENTER/CANCEL

4. Press CANCEL to abort, or press ENTER to proceed. The display will prompt:

DEFRAGMENTING DISK

00% COMPLETE

As Defragmentation takes place, the lower line of the display will indicate progress by displaying the percentage completed. When defragmentation is complete, the display will prompt:

DEFRAGMENTATION COMPLETE

RESTARTING MACHINE

Instant Replay will restart itself, and after a few moments the display will return to the normal "Play Ready" state.

SOFTCODE

SoftCode is a special feature of Instant Replay that makes it easy for you to upgrade your Instant Replay with the latest version of software (also referred to as a Feature Set). It is no longer necessary to open the unit or install chips, so there's no chance that you will damage your Instant Replay by mistake. All you need is a CD player (or DAT player) with a digital output and an Instant Replay SoftCode CD (or DAT), which 360 Systems will issue from time to time.

Installing SoftCode in the Field

To install a new Feature Set using SoftCode:

1. Connect the digital audio out of your CD to either Instant Replay's XLR AES/EBU input or its RCA IEC 958 Type II digital input, depending on your CD player's output configuration.
2. Press MENU, select the FILE TRANSFER Menu, then select RESTORE FROM BACKUP and press ENTER. The display will ask you to confirm your choice:

ARE YOU SURE?

PRESS ENTER/CANCEL

3. Do not press ENTER yet. Instead, if your CD is connected to Instant Replay's XLR input, press and hold Hot-Key #1 and then press ENTER. If your CD is connected to Instant Replay's RCA input, press and hold Hot-Key #2 and then press ENTER. Instant Replay will begin looking for valid SoftCode on the selected digital input.

To exit the SoftCode option, press CANCEL.

4. Initiate playback on your CD player. Instant Replay will display its progress as it loads each of ten identical copies of new software contained on the CD:

FILE 1 OF 1 ← FILE NUMBER AND TOTAL NUMBER OF FILES

00% COMPLETED ← PERCENT COMPLETION FOR THE CURRENT FILE

The ten copies of software exist to ensure that at least one of the ten loads successfully. In the unlikely event that none of the copies load successfully, Instant Replay will revert to the previous Feature Set.

Upon completing the Feature Set transfer, Instant Replay will automatically restart itself. If this is the first time SoftCode has been loaded, then Instant Replay will start up using the new Feature Set. If this is not the first time, then you must manually enable the new Feature Set as detailed below.

Enabling a Feature Set

The Select Feature Set option lets you choose the software version under which Instant Replay will operate. It is only available through a special "power-on" sequence.

To Select a Feature Set

1. Turn Instant Replay's power switch OFF.
2. While holding down the STOP button, turn power ON. The display will prompt:
FORMAT & ERASE DISK?
PRESS ENTER/CANCEL
3. Press CANCEL to proceed. The display prompts:
DEFRAGMENT DISK?
PRESS ENTER/CANCEL
4. Again press CANCEL to proceed. The display prompts:
SELECT FEATURE SET?
PRESS ENTER/CANCEL
5. Press ENTER to proceed, press CANCEL to abort. If you press CANCEL, Instant Replay will start up utilizing the previous Feature Set. If you press ENTER, the display prompts:
1→ FACTORY INSTALLED
2 FIELD UPGRADE
6. Press Hot-Key #1 for the original factory installed Feature Set, or press #2 for the Feature Set installed using SoftCode. The display will prompt:
360 SYSTEMS
INSTANT REPLAY
followed by software version numbers for the operating system and DSP code. The display will then return to the normal "Play Ready" state.

