HHb

PORTADRIVE

Location Sound Recorder

Operations Manual

Version 1.31   October 2004

PORTADRIVE KEY FEATURES

- Rugged, all in one, portable 8-channel hard disk (HD) audio recorder
- Three comprehensively equipped 6-into-2 digital mixers built-in
- Session based recording using either AES31-3 ADL or Pro Tools V5 formats, simplifying production workflow
- Over four hours of uncompressed 8-channel 24-bit/96kHz or around twenty hours of 4-channel 24-bit/48kHz recording on removable 40GB HD
- Simultaneous recording of mono or stereo rushes to external DVD-RAM drive or other storage device
- Six high gain, very low noise microphone balanced XLR-3 inputs with individual phantom powering, 'gangable' limiters, input pads, high pass filter (HPF), and phase reverse
- Mic inputs also feature adjustable delays for use with radio mics
- Eight balanced line inputs
- Dual analogue balanced stereo outputs
- 8-channel AES input and output, stereo SPDIF input and output
- M/S decoding available on inputs and outputs
- Advanced power management
- Built-in battery charging circuitry
- 8-channel metering with clip and limiting indicators
- Built-in slate mic and tone generator
- Extensive headphone monitoring capability including designated 6-into-2 mixer
- Six multi-function rotary encoders
- Ten second pre-record buffer
- Top and front panel LCD and control interfaces
- Comprehensive timecode and synchronization capability
- Supports tri-level synchronization for compatibility with HDTV technology
- 2.5" HDD in robust removable caddy ensures extremely reliable recording
- HD compatible with both PC and Mac platforms (FAT32, HFS)
- Records in industry-standard BWF or SDII audio formats
- Metadata (scene, take, comments) can be stored and transferred with audio files
- SCSI interface
- USB2.0 (USB1 compatible) port for high speed data transfer between the PORTADRIVE and a computer (software version 1.4)
- Ethernet port for file transfer
- Comprehensive remote control via a parallel remote socket
- PS2 for connecting keyboard to ease logging / labelling
- Optional 5.25" PDRDS Docking Station allows removable HD caddy to be plugged directly into a computer drive bay or external drive enclosure
- Optional DC-powered PDRDVDBU DVD-RAM backup unit for recording or backing up on location

REGISTRATION

Please register ownership of your PORTADRIVE now at http://www.hhb.co.uk. Select your location and click on the REGISTER tab at the top of the page. Registration will enable you to receive software updates and other important PORTADRIVE product news.

EC DECLARATION OF CONFORMITY

This equipment conforms to the requirements of the EMC Directive (89/336/EEC) relating to electromagnetic compatibility by the application of: - EN55013: 2001 and EN55020: 2002

LIMITED SOFTWARE WARRANTY POLICY

All the software provided with, or purchased especially for, HHB products has been tested for functionality. HHB Communications Ltd will make all reasonable efforts to correct reported software defects for future releases subject to technical and economic practicality. HHB Communications Ltd makes no warranty or representation either express or implied with respect to the system's performance or fitness for a particular purpose.

In no circumstances will HHB Communications Ltd be liable for direct or indirect damages arising from any defect in the software or its documentation. Further, HHB Communications Ltd will not be liable for any loss of or damage to programs, sounds, audio recording, sequences or data stored in or used with HHB products, including the cost of recovery.

The disclaimers above are exclusive and take precedence over all others, oral or written, express or implied, to the extent permitted by law in the geographical area of the product's sale. No employee of HHB Communications Ltd, agent, distributor or employee of an agent or distributor is authorised to offer any variation.

TRADEMARKS

Digidesign and Pro Tools are registered trademarks of Digidesign and/or Avid Technology, Inc. Macintosh is a registered trademark of Apple Computer Inc. All other trademark, product and company names are the property of their respective owners.

FURTHER INFORMATION

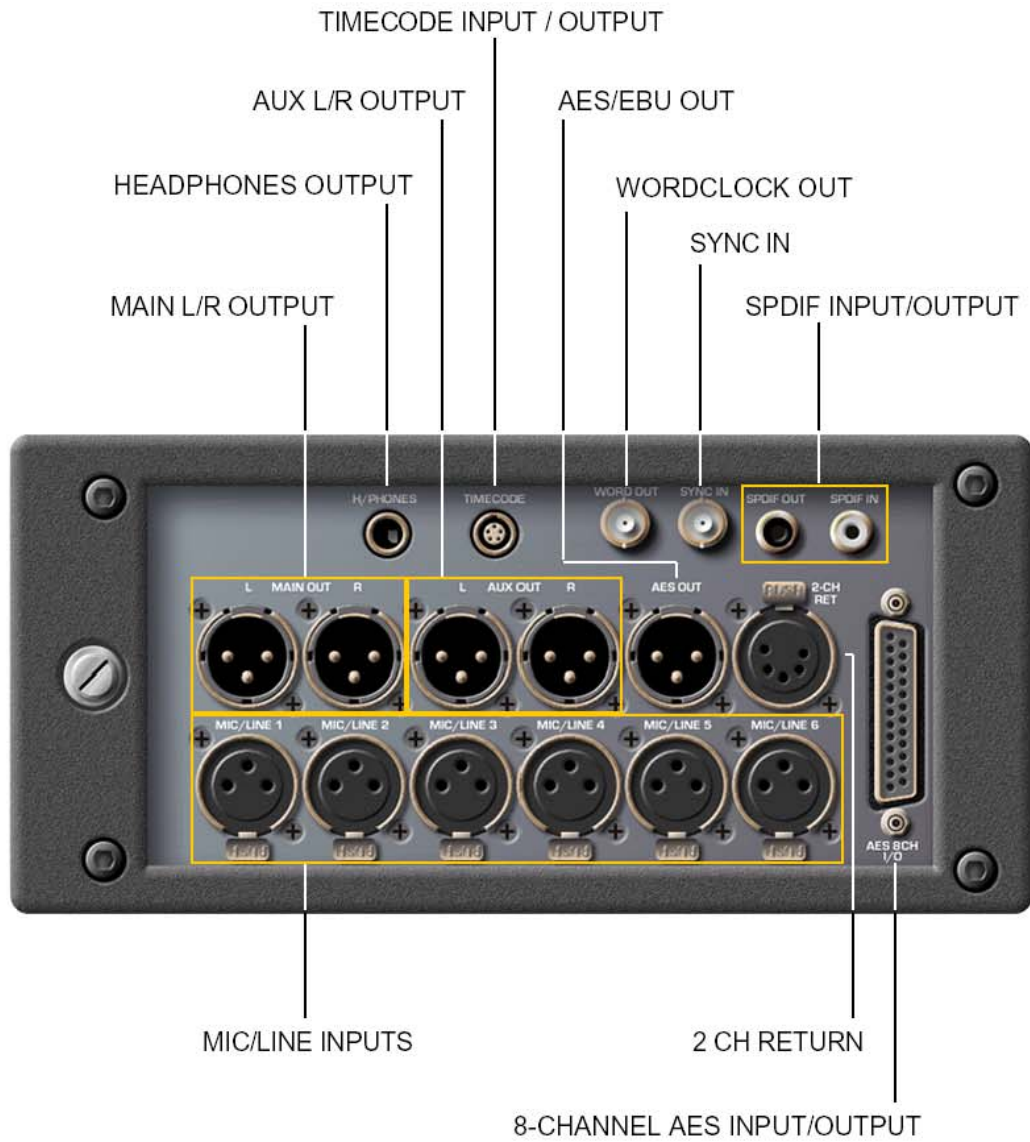To obtain further information relating to the HHB PORTADRIVE PDR2000 please visit http://www.portadrive.info

TABLE OF CONTENTS

This Page Is Intentionally Left Blank.

RIGHT PANEL

TIMECODE INPUT / OUTPUT

AUX L/R OUTPUT · AES/EBU OUT

HEADPHONES OUTPUT · WORDCLOCK OUT

SYNC IN

MAIN L/R OUTPUT · SPDIF INPUT/OUTPUT

MIC/LINE INPUTS · 2 CH RETURN

8-CHANNEL AES INPUT/OUTPUT

The PORTADRIVE is comprehensively equipped with a wide range of professional audio and synchronisation connectors. These are located on the right side panel. They are as follows:

MIC/LINE INPUTS

These six balanced XLR inputs can accept both microphones and line level signals. When used as a microphone input, each channel has (switchable) phantom power for use with condenser microphones.

MAIN L/R OUTPUTS

Carries a stereo or 2-mono channel signal (which can be derived from a large variety of sources) on balanced XLR connectors.

AUX L/R OUTPUT
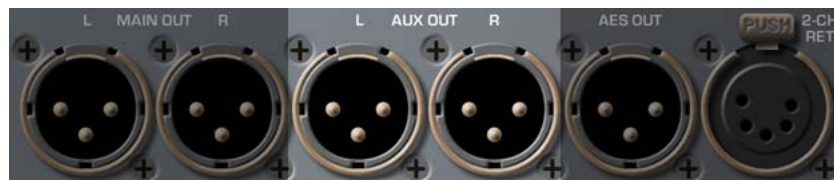
This is an additional stereo or 2-mono channel output source and can be used to carry an alternative mix on balanced analogue XLR connectors. Like the MAIN L/R OUTPUT, the AUX OUTPUT can be derived from a large number of sources.

AES/EBU OUT

This digital output can be OFF, MAIN OUT, AUX OUT or TRACKS L&R.

It is not necessarily a stereo mix - it might be 2 mono channels or just one mono channel if one channel is muted.

2 CH RETURN

This analogue connection provides an extra pair of line inputs that can be used for a variety of purposes.

HEADPHONE OUTPUT

A stereo or 2-mono channel headphone output for private monitoring. The audio at the headphone output can be set to follow whatever is selected for metering (e.g. inputs, track, outputs etc.) so that what you see is what you hear. It can also take as its source a wide variety of other signals easily selectable as pre-configured user presets.

TIMECODE INPUT / OUTPUT

This allows you to slave to external timecode or act as a master timecode source.

WORDCLOCK OUTPUT

This BNC carries a wordclock signal that is equal to the PORTADRIVE's own internal sampling frequency. This can be used to synchronise other digital audio equipment to the PORTADRIVE.

SYNC INPUT

This BNC connector allows you to synchronise the PORTADRIVE to external wordclock, video, tri-level or digital audio sync. When external digital audio equipment is being used with the PORTADRIVE, it is important that they are accurately synchronised - this connector allows the PORTADRIVE to 'slave' to external digital audio equipment.

SPDIF INPUT/OUTPUT

Carries a stereo SPDIF digital audio input and output. The SPDIF input can be assigned to INPUTS 1&2 and the SPDIF output is sourced from the same signal that is routed to the AES/EBU output.

AES 8-CHANNEL I/O D-SUB CONNECTOR

This provides 8-channels of AES/EBU digital audio input and output and can be used to connect the PORTADRIVE to a digital mixing console or multitrack recorder.

LEFT PANEL

BATTERY COMPARTMENT   PS2 KEYBOARD INPUT   REMOVABLE DISK DRIVE   PARALLEL REMOTE CONNECTION

PS2   REMOTE   RS422

DC INPUT

USB   ETHERNET   SCSI

DC INPUT   USB   ETHERNET   SCSI   RS422
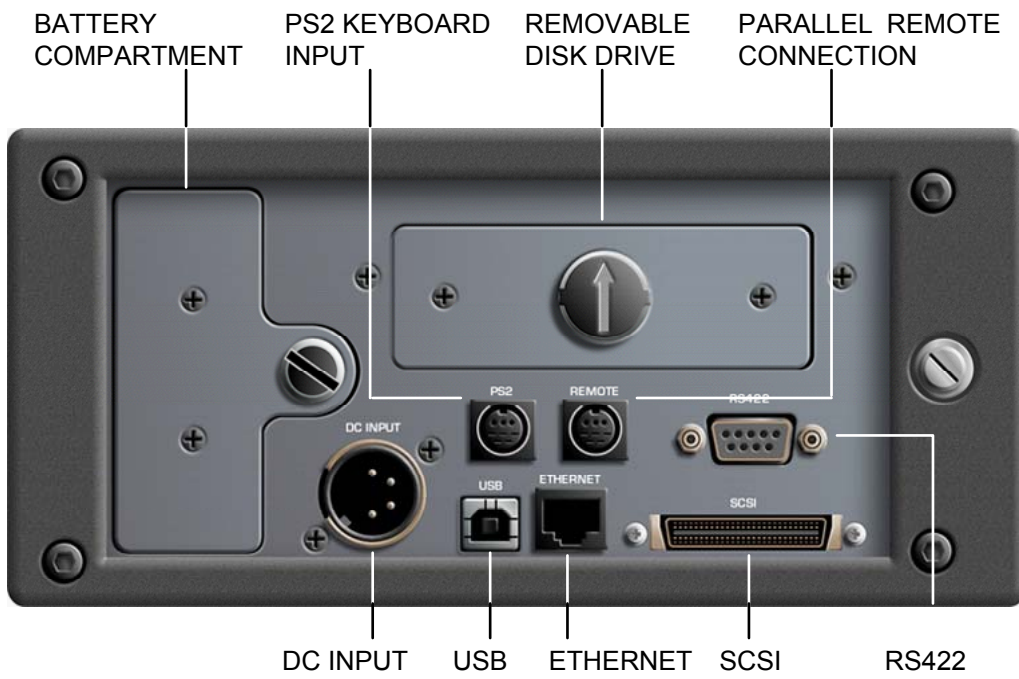
SIDE PANELS/CONNECTIONS

The left side panel accommodates a variety of other connections and facilities. These are:

BATTERY COMPARTMENT

This is where the LI - ION battery, NP-L50, is housed. To replace the battery, undo the large thumbscrew and carefully remove the battery. Replace the battery and tighten the screw back up.

**** IMPORTANT ****

<u>NEVER</u> REMOVE THE BATTERY DURING RECORDING!

DOING SO WILL (UNDERSTANDABLY) RESULT IN LOSS OF DATA!

NEITHER SHOULD YOU REMOVE / CHANGE THE BATTERY IMMEDIATELY AFTER MAKING A RECORDING. DOING SO MAY RESULT IN LOSS OF DATA!

Every effort has been made to safeguard data in the event of power loss and/or battery removal. However, please exercise caution (and common sense) when removing/exchanging the battery in order to protect your data.

DC INPUT

This 4-pin XLR connector will accept a DC power supply from the supplied power adaptor or an external battery with the correct rating. See PORTADRIVE Specifications on page 124 and DC Power Connector pinout on page 119.

REMOVABLE DISK DRIVE CADDY

This caddy houses the PORTADRIVE's internal hard disk.

The drive caddy is removable - that is, the disk can be taken out of the PORTADRIVE and connected to other systems via the optional HHB Docking Station.

To remove the caddy, turn the large 'screw' in the middle counter-clockwise to the 9-o-clock position. Now carefully pull the caddy out.

To insert a drive, reverse the above procedure -- carefully insert the caddy into the compartment and turn the screw clockwise to the 12-o-clock position (as shown above).

**** IMPORTANT ****

Please exercise extreme caution when removing and inserting drives.

Please refer to the section that describes safe handling of disk drives on page 68.

PS2 KEYBOARD INPUT

This socket allows you to connect a standard PS2 keyboard to the PORTADRIVE to make to make it easier to input text such as scene name, notes, input name, session name etc. Input of text is still possible without a keyboard attached (see page 48). PS2 keyboards can be purchased at any computer store - you may already have a spare one that you use!

PARALLEL REMOTE CONNECTION

This is a parallel remote connection that allows the user to connect a simple switch based remote control unit (not supplied). Control is implemented by shorting specific pins together. For further details see Parallel Remote (8-Pin Mini Din) on page 119

RS422 PORT

This is a future option to allow machine control using the Sony 9-pin protocol.

USB2 CONNECTION

This allows you to download operating system software updates for the PORTADRIVE from your computer and allows the transfer of data to and from a computer (software version 1.4).

ETHERNET CONNECTION

Allows the PORTADRIVE to be connected to a network so that transfer of data to and from the network is possible.

SCSI-2 CONNECTION

This allows you to connect to the optional HHB DVD Backup Unit (PDRDVDBU), external hard disk drives or other forms of data storage and should be used primarily for copying data (backing up) and recording from the PORTADRIVE.

PDR2000 FRONT PANEL
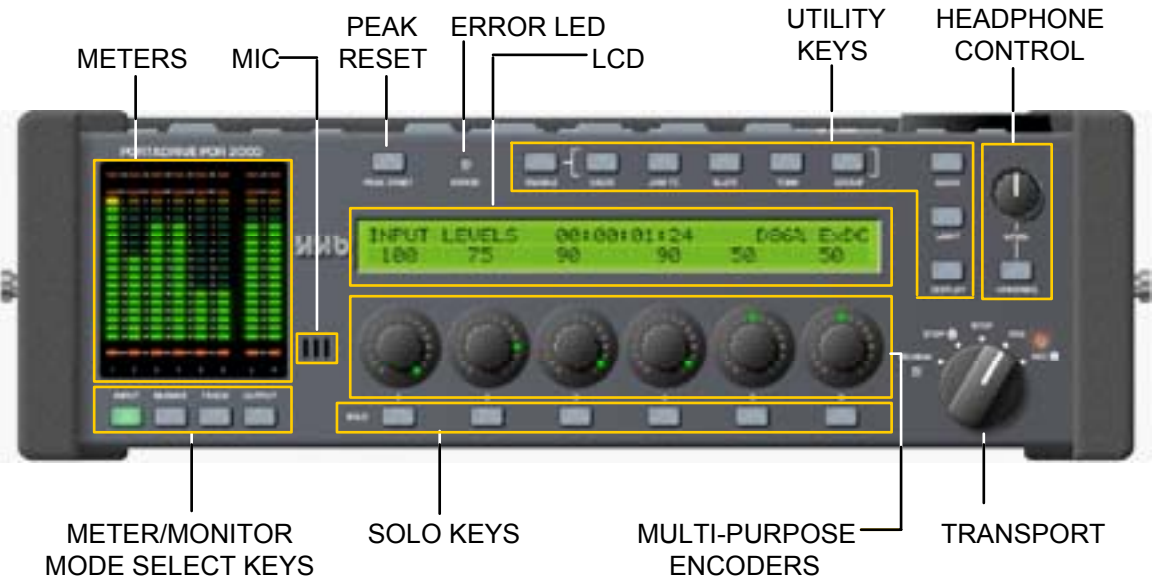
METERS

These high resolution, 18-segment meters offer detailed, precision level metering.

PEAK HOLD
The meters have a peak hold function. It is possible to set the peak hold time between OFF, ON or 1-4 seconds. These options are set in the PORTADRIVE's SETUP mode, see page 109.

The PEAK RESET key to the right of the meters allows you to reset any held peaks. It also allows you to reset the margins, see page 28.

LIMITER ACTIVE LEDS
At the top of the meters are 8 x LEDS that show the action of the PORTADRIVE's soft-saturate limiters. The six LEDs above columns 1-6 illuminate when the analogue input limiters are active.

The LEDs remain illuminated for the duration of the limiter's action, or, in the case of a limiter switching in when a short peak transient is received, they simply flash momentarily. The two LEDs above the L & R columns illuminate when the 2-CH return input limiters are active.

Note - The limiter LEDs are only active when in INPUT or BUSMIX. However, the limiter LED 's for the 2ch return do not function when in BUSMIX mode.

Also, the LIM indicators have no function for inputs whose sources are digital.

CLIP INDICATORS
These red LEDs illuminate when the signal exceeds 0dB. The clip indicators will remain illuminated for a minimum of 2 seconds. The clip indicators will follow the PEAK HOLD duration if longer than 2 seconds.

REC ARM INDICATORS
The red REC arm indicators at the bottom of the meters indicate which tracks are enabled for record. These LEDS will flash when the PORTADRIVE is armed for recording; the LEDs will be steadily illuminated when recording.

MODE KEYS

The four mode keys below the meters allow you to select the metering / monitoring.

The PORTADRIVE has three mixers, two of which (BUSMIX and OUTPUT MIX) can be selected here. The four modes are:

INPUT
When INPUT is pressed, the meters will show input levels 1-8. Also, the LCD in the centre of the front panel will show Page 1 of the INPUT menu. If the H/P Preset is set to 'FOLLOW METERS' (see page 34), the signal in the headphones will be a stereo mix of the inputs 1-6.

BUSMIX
When BUSMIX is pressed, the meters will show input levels 1-6 and the bus mixer's stereo output. Also, the LCD in the centre of the front panel will show Page 1 of the BUSMIX menu. If the H/P Preset is set to 'FOLLOW METERS', the signal in the headphones will be the stereo output (BUSMIX L&R) of the bus mixer.

TRACK
When TRACK is pressed, the meters will show track levels 1-8 (i.e. the level of the signal on disk). Also, the LCD in the centre of the front panel will show Page 1 of the TRACK menu. If the H/P Preset is set to 'FOLLOW METERS', the signal in the headphones will be a stereo mix of the tracks 1-6.

OUTPUT
When OUTPUT is pressed, the meters will show the MAIN L&R output signal . Also, the LCD in the centre of the front panel will show Page 1 of the OUTPUT menu. If the H/P Preset is set to 'FOLLOW METERS', the signal in the headphones will be a copy of the MAIN output signal.

If OUTPUT is pressed again, the meters will show the AUX L&R output signal and the LCD will show page 2 of the OUTPUT menu. If the H/P Preset is set to 'FOLLOW METERS', the signal in the headphones will be a copy of the AUX output signal.

If OUTPUT is then pressed for a third time, the meters will show the OUTPUT MIXER's source 1-6 and stereo output. The LCD will show Page 3 of the OUTPUT menu and if the H/P Preset is set to 'FOLLOW METERS', the signal in the headphones will be the stereo output of the OUTPUT MIXER.

When the modes are selected, the LEDs in the keys illuminate to indicate status.

Also, as you select different modes/mixer, the functions in the front panel LCD change to reflect the selected mode/mixer.

We'll look at each mode's functions in more detail later in the manual. See Front Panel Modes (page 21) and Top Panel Modes (page 50).

LCD / ENCODERS / SOLO KEYS

In the centre of the PORTADRIVE's front panel is a large 40 x 2 character LCD. This is used to show levels, pan/balance and other parameters.

The top line of the display shows general information:

		FREE	BATTERY
CURRENT 'MODE / PAGE'	'NOW' TIME	ON DISK	CHARGE
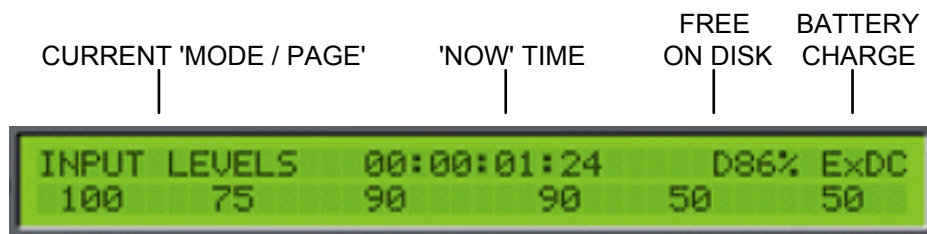
The LCD also works in conjunction with the encoders below it and you will note how the parameters on the bottom line of the LCD line up with the encoders and you can see the exact values of the encoders on the LCD. However, the encoders have a 'collar' of LEDs around them that show their position at a glance.

Portadrive detects how fast you turn a rotary encoder; the faster you turn a pot, the bigger the gain change. This allows for much easier fade outs, fade ins and makes mixing using the rotary encoders far more practical.

Below the encoders are six SOLO keys that allow you to listen to channels/tracks in isolation. The solo'd signal only appears (in mono) in the headphone mix - it does not get recorded to disk, neither will it appear at the main L/R output. Thus it's possible to solo any channel whilst recording without affecting the recording in any way.

What gets solo'd depends on the PORTADRIVE's status:

STATUS	STOPPED	RECORDING	PLAYING
SOLO	Inputs		Tracks

It is possible to solo any number of channels / tracks simultaneously. The input solo signal is post the input fader.

By default, pressing a channel's SOLO key will solo that channel and the selected key will illuminate - press the key again to 'un-solo' it. However, depending on the way you like to work, there are various options for how the SOLO keys react - these are available in the top panel's HEADPHONE OUTPUT window. See page 61.

TRANSPORT CONTROL

The PORTADRIVE has a simple rotary switch to control transport. The five positions are:

STOP   Stops playback or recording when the switch is turned to the 12-o-clock position. In this condition, you can use the PORTADRIVE's front panel without restriction.

STOP (lock)   This stops playback or recording and also locks (or disables) the panel controls and switches as a safety feature to prevent inadvertently adjusting anything.

                You can choose what features are locked (or disabled) from the Panel Lock Mode, accessed through the SETUP/MISC page on the top panel (see page104). The two options are:

                a) ALL - All controls are locked out
                b) RESTRICTED - All controls are locked out **apart** from:-

                        INPUT LEVELS
                        BUSMIX LEVELS
                        SOLOS
                        H/P SHORTCUTS (hold ENABLE and press SOLO 1-6)
                        GROUP
                        MARK
                        LIGHT
                        DISPLAY pages 1&2

                If you attempt to adjust or use any of the disabled controls, the LCD will briefly flash a message to say that the panel is locked:

REC   Puts the PORTADRIVE into record.

REC (lock)   Puts the PORTADRIVE into record and also locks (or disables) the panel controls and switches as a safety feature to prevent inadvertently adjusting anything by mistake while you are recording.

You can choose what features are locked (or disabled) from the Panel Lock Mode, accessed through the SETUP/MISC page on the top panel. The two options are:

a) ALL - All controls are locked out
b) RESTRICTED - All controls are locked out **apart** from:-

INPUT LEVELS
BUSMIX LEVELS
SOLOS
H/P SHORTCUTS (hold ENABLE and press SOLO 1-6)
GROUP
MARK
LIGHT
DISPLAY pages 1&2

If you attempt to adjust or use any of the disabled controls, the LCD will briefly flash a message to say that the panel is locked (see previous page).

Note - If you put the PORTADRIVE into record and the disk is not formatted, the LCD will briefly display an error message:
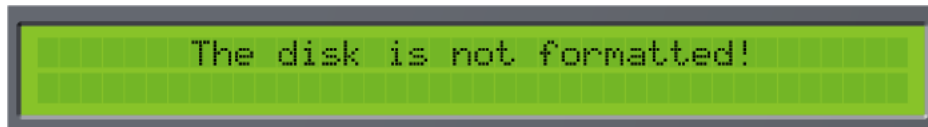
Similarly, if the disk is full (or close to full), you will be informed:
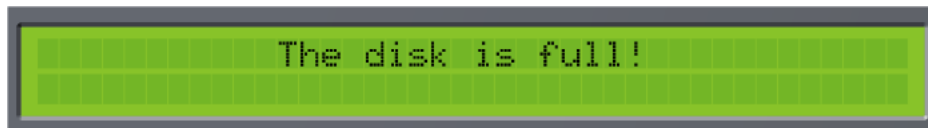
In either case, you should take the appropriate action to remedy the situation.

REVIEW   This will play the most recently recorded take - ideal for checking what was just recorded.

HEADPHONE CONTROL

The rotary control sets the level of the headphone output and the speaker on the top panel. It is a 'push-lock' control that can be pushed to recess it into the front panel to prevent accidental adjustment.

The HPHONES key brings up the headphones menu in the LCD where you can set and select certain options that relate to the headphones. See page 34.

DISPLAY KEY

Pressing this key will display an overview of the current session on the LCD:
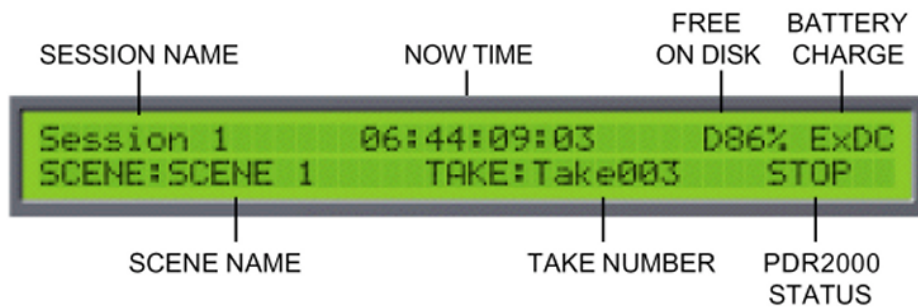
The fields are:

SESSION NAME   Shows the currently selected session.

NOW TIME   Shows the current timecode.

FREE ON DISK   This shows the amount of free space on disk.

BATTERY CHARGE   Shows the current battery charge and power source.

SCENE NAME   Shows the current scene name.

TAKE NUMBER   Shows the current take (recording).

PDR2000 STATUS   Shows the PORTADRIVE's current status (i.e. PLAY, REC, STOP).

Pressing DISPLAY again will show further information about the current session including parameter as well as time information:

Examples:

```
TAKE REM 00:00:00   TC=29f/DISK SYNC=INT
DISK REM 05:37:21   BWF  88K+16b ⏵REC=0s
```

```
ELAPSED  00:02:21   TC=23f/REC  SYNC=EXT
DISK REM 03:24:23   BWF  96K 24b ⏵REC=5s
```

```
ELAPSED  00:00:48   TC=25f/FREE SYNC=INT
DISK REM 11:22:23   SD2  48K-24b ⏵REC=10
```

```
ELAPSED  00:00:39   TC=29d/EXT  SYNC=INT
DISK REM 30:45:01   SD2  44K 16b ⏵REC=3s
```
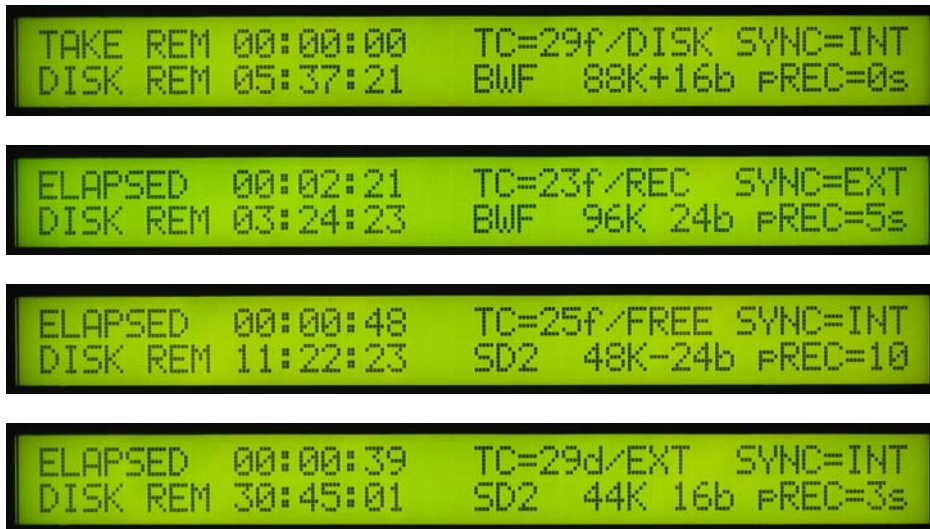
The fields are:

TAKE REM   When the PORTADRIVE is playing back, this field shows TAKE REM (take remaining time).

TC=   frame rate / time-code mode

Frame rate: 23f,   24f,   25f,   29f,   29d,   30f,   30d
Time-code mode: REC=recrun, FREE=freerun, EXT=external, DISK=disktc

SYNC=   INT or EXT

INT: Internal
EXT: External (wordclock, tri-level, video, digital audio)

DISK REM   Shows the actual time that is free on disk for recording at the currently selected sample rate, bit depth and number of enabled tracks.

BWF or SD2 Audio file format

FS; bits   Sample rate and bit depth. '+' indicates 0.1% pull-up. '-' indicates 0.1% pull-down.

pREC=   Pre-record buffer setting.

It is not possible to adjust or change anything in these screens - they are purely for information.

To cancel this display, press any other mode key.

LIGHT KEY

This turns the front panels' LCD backlight on or off and can be used to conserve battery life.

If the LIGHT key is pressed for less than 1.0 seconds, the LCD backlight is only switched on for 10 seconds after which, it automatically turns off. If the LIGHT key is pressed for more than 1.0 seconds, the LCD backlight is switched on permanently until such time as you press the LIGHT key again to switch it off.

MARK KEY

The MARK key next to the headphone level control allows you to mark locate points.

When the mark key is pressed a 'MARKER CREATED' message is shown on the front and top LCDs.

Locate points can be marked on the fly during playback and/or recording simply by pressing the key at the appropriate moment. Locate points can be recalled from the top panel's LOCATE function, see page 113.

ERROR LED

This three-coloured LED is used to give visible warnings and it will illuminate in one of the three colours according to the condition being reported. These are:

BATTERY LOW Flashes red (you will also see an indication on the front and top LCDs).

DATA WRITE ERROR   Constant red illumination for the duration of the error.

EXT TC ERROR   Constant yellow illumination for the duration of the error.

EXT SYNC ERROR   Constant green illumination for the duration of the error.

An audible error warning can also be set, see page 61.

UTILITY KEYS

This row of keys above the LCD gives access to several utilities you might need quick access to. However, to prevent inadvertently pressing one of them by mistake, you need to press and hold the ENABLE key and then press the required utility key. For example, to undo a recording, press *and hold* ENABLE and UNDO.

The functions are:

UNDO
Allows you to delete the latest recording (take) – all markers within the deleted take will also be deleted. This is useful if there has been a false take, etc. - you can quickly undo (i.e. delete) it and re-record it.

The LCD display will also show the following message for a few seconds
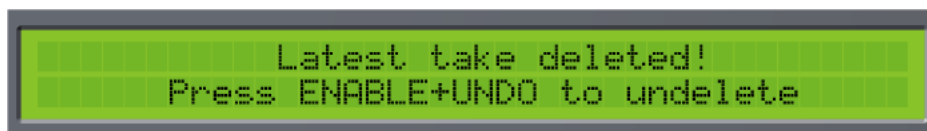
It is possible to undo this action if required by pressing and holding ENABLE and pressing UNDO immediately after deleting the take. However, note that if you record immediately after deleting a take in this way, it is not possible to undelete that take and the UNDO function will simply delete the new recording.

> Note - UNDO complies with the false-start convention whereby the new take uses the same take number as the 'false-start' take.

JAM TC
JAM TC allows you to manually 'jam' the external timecode into the internal timecode generator. This is only possible if there is a valid SMPTE LTC signal at the LEMO TC input and if the GEN TC is set to FREERUN.

Press JAM whilst holding down the ENABLE key to initiate the jam function. The LCD display will momentarily show the following message:

SLATE
The slate microphone mono signal will be output to wherever it has been routed in the SETUP/SLATE page on the top panel (see page 99). Audio signals routed to the same destination(s) will be muted during slate operation.

To activate the SLATE function, press *and hold* the ENABLE key and then press the SLATE key. The SLATE key can be set to momentary, latching or 'auto' operation (where if the SLATE key is 'dabbed' - i.e. pressed for a short period - SLATE operation is latched, or if pressed and 'held' for a second or more, SLATE operation is momentary. This setting is made in the SETUP/SLATE page.

To de-activate the slate when in latching mode, simply press the SLATE key again. The SLATE key is illuminated when active. The SLATE can be routed to Tracks 1-6, stereo track and Main and Aux L&R outputs.

TONE
This key allows you to generate a test tone. The test tone generator can be routed to Tracks 1-6, stereo L/R tracks plus the main and Aux L/R outputs. Audio signals routed to the same destination(s) will be muted whilst the tone generator is in use. The routing and the characteristics of the test tone generator can be set in the SETUP pages (see page 98).

To activate the tone generator, press *and hold* the ENABLE key and then press the TONE key. The TONE key can be set to momentary, latching or 'auto' operation (where if the TONE key is 'dabbed' - i.e. pressed for a short period - the tone generator is latched, or if pressed and 'held' for a second or more, the tone generator's operation is momentary. This setting is made in the SETUP/TONE page.

To de-activate the tone generator when in latching mode, simply press the TONE key again. The TONE key is illuminated when active.

GROUP
The GROUP key is used to group all six rotary encoders so that levels 1-6 can be adjusted up or down proportionally by the same amount using just one control. When the encoders are grouped, you only need to turn one and all the others follow.

To enable the GROUP function, press and hold ENABLE and press GROUP - the key will illuminate. The levels for the currently selected mode will now be grouped.

Of course, it could be that the LCD is not displaying the selected mode's level parameters. This doesn't matter - when the mode's LEVELS page is displayed on the LCD, the GROUP function will have effect (it will have no effect on other sub-pages of any given mode). To de-activate GROUP for the currently selected mode, press and hold ENABLE and press GROUP again.

INTERNAL MICROPHONE

The PORTADRIVE has an internal microphone that can be used for slating a recording. To use it, simply press ENABLE +SLATE and speak into it! Note, however, that you will have to set up the track routing for the slate mic. This is carried out in the top panel's SETUP pages (see page 99).

That concludes our look at the main front panel functionality. In the next section we will look at some of these in more detail.

INPUT MODE

Pressing INPUT will cause the metering to show the level of the inputs. Headphone monitoring will also, if selected to 'FOLLOW METERS', automatically switch to monitoring these signals. It will also switch the LCD to show the input parameters. The first of these pages shows input level but by repeatedly pressing the INPUTS key, you can cycle through the various input parameters that are available. The pages are as follows:
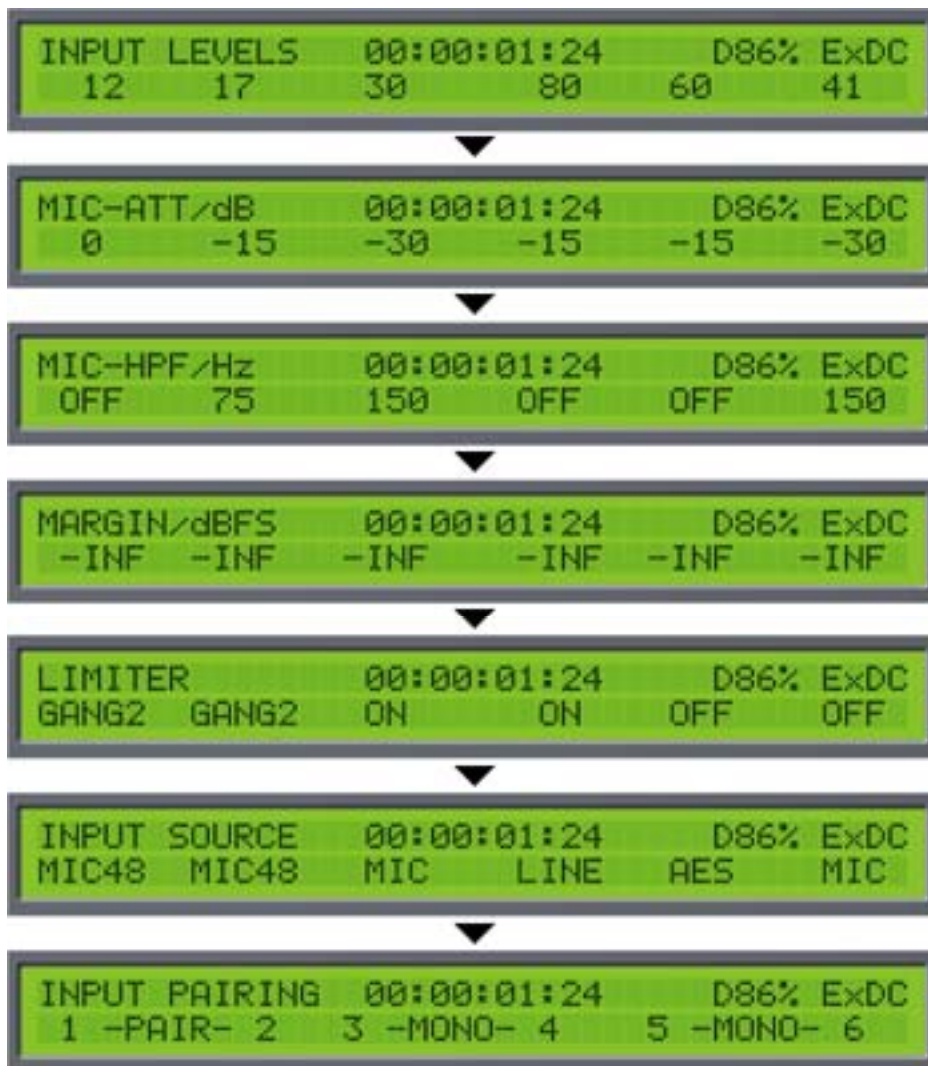
Pressing INPUT again will return you to the first of the pages (INPUT LEVELS).

The six rotary encoders are used to change the values of the parameters shown on the lower row of the LCD. When setting LEVEL, the LEDs on the encoders' 'collars' show the control's position. However, when setting other parameters (MIC ATT, MIC HPF, etc.) where the options are switched, the LEDs around the encoders do not illuminate.

The parameters on the various pages are as follows:

INPUT LEVEL
The six encoders are used to adjust the input level. The range is 0-100 and it should be adjusted to send as healthy a level of signal to disk as possible without overloading or distorting.

MIC ATT
Microphone attenuation can be set on each channel to 0 (no attenuation), -15dB and -30dB. Of course, mic attenuation cannot be applied to digital or LINE inputs.

MIC HPF
This page allows you to apply a high pass filter to microphone inputs to filter out any unwanted low frequency elements. Each channel's filter can be set to OFF (no filter), 75Hz or 150Hz. The HPF cannot be applied to digital or line input sources.

MARGIN
You can use this page to monitor the peak levels (in dBFS) of the inputs. This page is provided simply for information - no parameters can be changed. However, when PEAK RESET key is pressed, the display is re-initialised.

LIMITER
The channel limiters can be switched on and off in this page. However, it also possible to 'gang' pairs of limiters on adjacent channels, or all six channels. The full range of options are OFF, ON, GANG 2 (Adjacent channels are ganged) and GANG 6 (all six input limiters are ganged).

In the case of the 'ganged' selection, when one channel has this selection, its adjacent channel is automatically ganged to its neighbour. For example, in the case of selecting this option on Channel 1, Channel 2 will automatically be ganged; in the case of selecting this option for Channel 4, Channel 3 will automatically be ganged. It is recommended that stereo-paired channels use the 'ganged' selection.

The limiters can only be applied to mic or line signal sources.

INPUT SOURCE
You may select the input source for each channel in this page. The options are:

INPUT 1	LINE, MIC, SPDIF, AES, OFF, MIC48
INPUT 2	LINE, MIC, SPDIF, AES, OFF, MIC48
INPUT 3	LINE, MIC, AES, OFF, MIC48
INPUT 4	LINE, MIC, AES, OFF, MIC48
INPUT 5	LINE, MIC, AES, OFF, MIC48
INPUT 6	LINE, MIC, AES, OFF, MIC48

- The MIC selection is a normal microphone input through the balanced XLR's.

- MIC48 is a microphone input through the balanced XLR's but with 48V phantom power applied.

- LINE selects a line level input through the balanced XLR's

- SPDIF (Input channels 1 and 2 only) select an SPDIF digital audio input through the SPDIF phono connector.

- AES selects an AES/EBU digital audio input signal through the multi-channel D-Sub connector.

Note –
When inputs 1&2 are both set to OFF, the associated input circuitry is also turned off thus saving power. Similarly pairs 3&4, 5&6 operate in the same manner.

INPUT PAIRING

Adjacent inputs (e.g. 1+2, 3+4, 5+6) can be 'paired' so that either encoder associated with those channels can be used to adjust their levels proportionally. Primarily, this is useful when using stereo signals. However, you may well find other uses for it. If there is an offset between the two channels' levels, this offset is retained as either encoder is adjusted.

IMPORTANT NOTE REGARDING INPUT PAIRING

LEVELS

When two channels are paired and their levels are offset, the offset is retained even when the upper limits of either channel's range is reached. For example....

Two channels are paired. Channel 1 has a level of 80, Channel 2 has a level of 90.

You adjust Channel 1's encoder, increasing the level. The two channels increment in parallel:

80/90... 80/91... 82/92... 83/93.. 84/94... etc.

Until you reach 90/100

You can continue to increase Channel 1:

91/100...   92/100...   93/100...   94/100...   95/100...   etc.

Until you reach 100/100

However, if you now turn Channel 1 down, you will see the following:

99/100...   98/100...   97/100...   96/100...   95/100...   etc.

Until you reach 90/100.

If you now continue to decrease Channel 1's level, the two channels will continue to track in parallel with the original offset remembered:

89/99... 88/98... 87/97... 86/96... 85/95... etc.

Until you are back to the original setting of 80/90.

If you continue to decrease Channel 1, you will see the following:

79/89... 78/88... 77/87... 76/86... 75/85... etc.

However, using this example, things would be different if you were adjusting Channel 2's encoder. In this case, when you reach Channel 2's extreme (i.e. 100), no further changes would take place on Channel 1 because you've gone as far as you can with the encoder you are adjusting.

NOTE: The following also applies to BUS INPUT PAIRING, BUS OUT LEVELS and in fact any page where levels can be paired such as the GROUP function.

BUSMIX MODE

Pressing BUSMIX will cause the metering to show the level of the bus mixer's inputs. If 'FOLLOW METERS' mode is selected, headphone monitoring will also automatically switch to monitoring these signals. It will also switch the LCD to show the busmix parameters. The first of these pages shows the mixer's input level but by repeatedly pressing the BUSMIX key, you can cycle through the various parameters that are available. The pages are as follows:
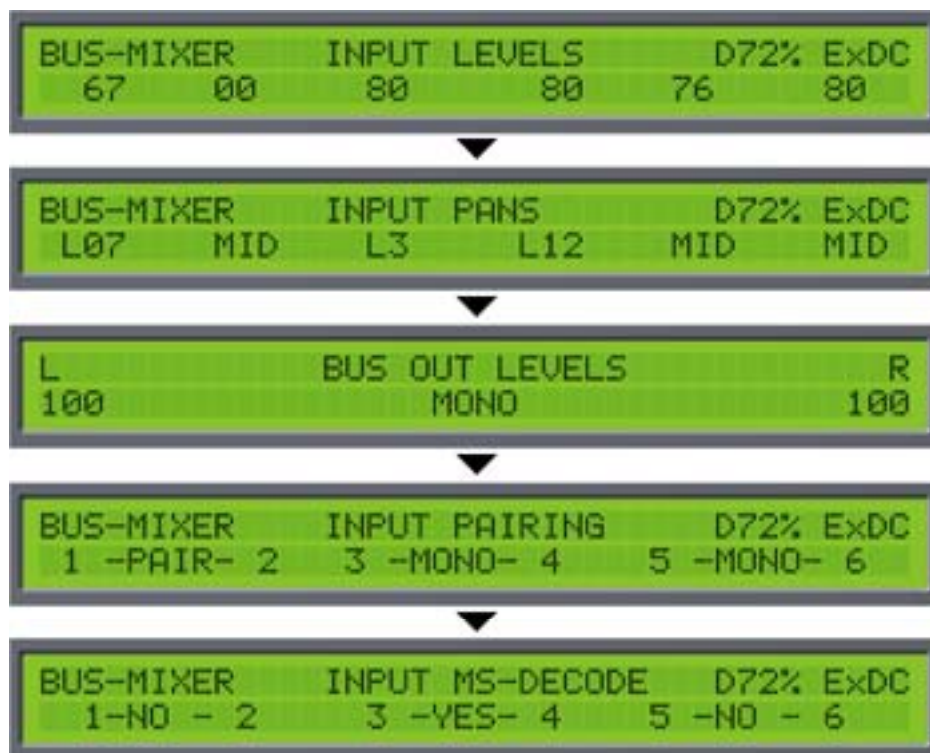
Pressing BUSMIX again will return you to the first of the pages (BUSMIX INPUT LEVELS).

As we saw with the INPUTS mode, the six rotary encoders are used to change the values of the parameters shown on the lower row of the LCD. When setting variable parameters such as LEVEL and PAN, the LEDs on the encoders' 'collars' show the control's position. However, when setting other parameters (M/S DECODE, for example) where the options are switched, the LEDs around the encoders do not illuminate.

The bus-mixer is ideal for recording each of the 6 inputs to its own track as well as a stereo mix of those inputs to a further two disk tracks. In other words, INPUTS 1-6 go to TRACKS 1-6 respectively and BUSMIX LR goes to TRACKS 7-8.

Each adjacent pair of channels also has an MS decoder, which is individually switchable.

The parameters on the various pages are as follows:

BUS-MIXER INPUT LEVELS
Here you can set the bus mixer's input levels.

Because the input signal is fed from *after* the inputs' level controls, with all the BUSMIX level controls set to the same value, the mix is effectively a copy of the inputs' level; settings. However, by adjusting the bus mixer's level controls, a sub-mix can be set up which can be recorded to the stereo L/R tracks.

BUS-MIXER INPUT PANS
Using the six rotary encoders, you can set the pan position of the bus mixer's inputs. With these, you can set up a stereo sub mix with each input placed in the stereo image as required.

BUS OUT LEVELS
Here, you may adjust the overall output level of the bus mixer's stereo output. Encoders 1 and 6 are used to set the left and right levels respectively (encoders 2 and 5 are de-activated in this page).

Encoders 3 or 4 can be used to pair the L/R output channels' level. When paired, you can use either encoder 1 or 6 to set the master output level of the bus mixer's stereo output.

BUS-MIXER INPUT PAIRING
Adjacent channels (e.g. 1+2, 3+4, 5+6) can be 'paired' and either encoder associated with those channels can be used to adjust their levels proportionally. Primarily, this is useful when using stereo signals. However, you may well find other uses for it. If there is an offset between the two channels' levels, this offset is retained as either encoder is adjusted.

BUS-MIXER INPUT MS-DECODE
The encoders can be used to switch MS decoding on or off for adjacent pairs of channels. This is particularly useful if, for example, an MS stereo mic is being used on inputs 1/2 and is being recorded directly to tracks 1/2 un-decoded but it is necessary to provide an L/R stereo mix of these using the bus mixer.

TRACK MODE

Pressing TRACK will cause the metering to show the level of the audio coming off the disk tracks[1]. If 'FOLLOW METERS' mode is selected, headphone monitoring will also automatically switch to monitoring a mix of tracks 1-6. It will also switch the LCD to show the disk tracks parameters. By repeatedly pressing the TRACK key, you can cycle through the various parameters that are available. The pages are as follows:
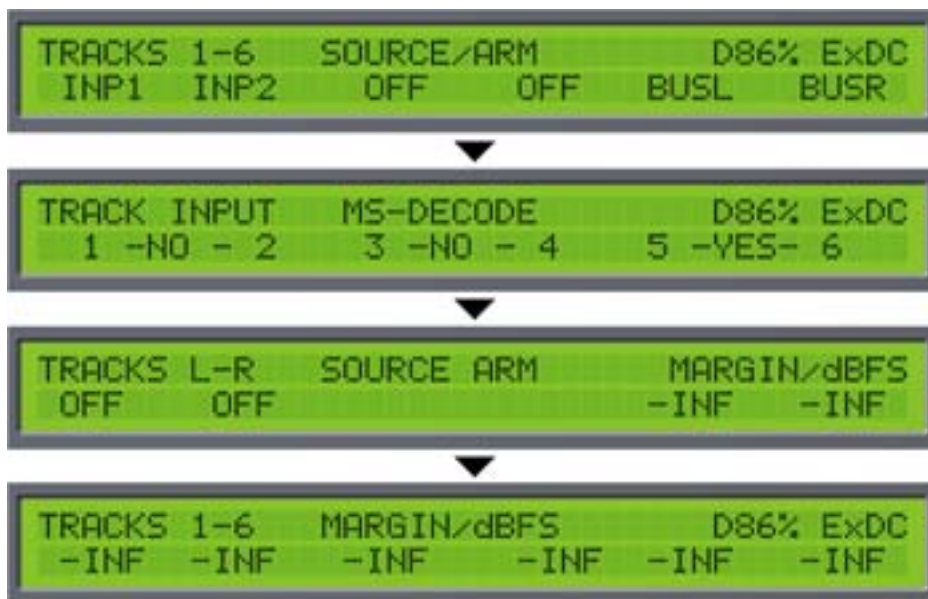
Pressing TRACK again will return you to the first of the pages.

---

1 Only when the PDR2000 is playing back. When the PDR2000 is recording or stopped (i.e. not playing back), the meters will show the level of the inputs to the disk tracks.

TRACKS 1-6 SOURCE / ARM

This page is used to select an input source for the disk tracks. By default, they are inputs 1-6 but these may be changed according to requirements. Any combination of tracks may armed for each take. The input sources are:

Track 1:	INP1 (*)	BUS L	OUTL	OFF
Track 2:	INP2 (*)	BUS R	OUTR	OFF
Track 3:	INP3 (*)	BUS L	OUTL	OFF
Track 4:	INP4 (*)	BUS R	OUTR	OFF
Track 5:	INP5 (*)	BUS L	OUTL	OFF
Track 6:	INP6 (*)	BUS R	OUTR	OFF

(*) The actual input source for these selections depend on what is set as the input source in the INPUT mode (e.g. MIC, MIC48, AES, etc.).

> Note: When a track source is set to OFF, it is effectively disarmed - that is, it is not recorded. The track arm indicators below the metering indicate which tracks are currently armed.

It is not possible to change a track source when the PORTADRIVE is actually recording. If you attempt this, you will be prompted on the LCD accordingly:

Track Arming notes when using BWF formats.

BWFm

> There are no limitations. Any number or combination of tracks can be armed for each take in a session. For example, take 1 could have all 8 tracks armed, take 2 could have just tracks 2,5 and 7 armed and take 3 could have tracks 1,2,4,5,8 armed etc.

BWFp

> If you set a group of tracks to polyphonic for a session, then it is not possible to individually arm/disarm the tracks within that polyphonic group between each take. It is only possible to arm/disarm the whole group between each take. The main reason for this is to ensure that the original track number is maintained when importing into a current AVID system.

For further details explaining BWFm and BWFp file formats see page 90.

A few examples:-

If you set TRACKS 1-X to 6 X POLY, then tracks 1-6 will all be armed if any one of the tracks 1-6 is armed. Only if you disarm (turn off) all tracks 1-6, then all tracks 1-6 will be disarmed.

If you set TRACKS 7&8 to 2 X POLY, then tracks 7&8 will both be armed if either one them is armed. Only if you disarm (turn off) both tracks 7&8, then both of them will be disarmed.

If you set TRACKS 1-X to MONO and TRACKS 7&8 to 2 X POLY, then you will be able to individually arm/disarm any of the tracks 1-6 between each take without limitation. Tracks 7&8 will both be armed if either one of them is armed. Only if you disarm (turn off) both tracks 7&8, then both of them will be disarmed.

Reminder: Tracks are armed or disarmed in the front or top panel TRACK menu.

TRACK INPUT MS-DECODE

You can use the rotary encoders to select whether a pair of adjacent tracks is routed through an MS Decoder or not. This is particularly useful for decoding an MS pair so that it is recorded to disk as a L/R pair.

TRACKS L-R SOURCE ARM

Encoders 1 and 2 are used to set the input source for the L/R tracks. The options are:

Left:	INP7	BUSL	OUTL	OFF
Right:	INP8	BUSR	OUTR	OFF

The default assignment is OFF. When any of the inputs are selected, these tracks are enabled for record.

TRACKS 1-6 MARGIN/dBFS

You can use this page to monitor the peak levels (in dBFS) of the tracks.

In record and stop, the display shows disk track input level peaks. When playing back, the display shows track output levels.

This page is provided simply for information - no parameters can be changed. However, when PEAK RESET key is pressed, the display is re-initialised.

OUTPUT MODE

Pressing OUTPUT will cause the metering to show the level of the MAIN L/R outputs on the L/R columns of the meters and the LCD will show the first of the OUTPUT pages. The headphones will monitor the main L/R output if 'FOLLOW METERS' mode is selected. However, what is shown in the meters and what is heard through the headphones depends on the page being displayed. The pages are as follows:

Encoders 1 and 2 can be used to select the MAIN outputs' input source. The source options are:

BUS L/R	The L/R outputs of the BUS MIXER
OUT L/R	The L/R outputs of the OUTPUT mixer
INP 1/2	Inputs 1 and 2
INP 3/4	Inputs 3 and 4
INP 5/6	Inputs 5 and 6
INP 7/8	Inputs 7 and 8
2CH RET	The 2-Channel return
TRACKS 1/2	Tracks 1 and 2
TRACKS 3/4	Tracks 3 and 4
TRACKS 5/6	Tracks 5 and 6
TRACKS L/R	Whatever is being (or has been) recorded to the L/R tracks
OFF (*)	

TONE and SLATE can also be routed to the MAIN output. This is set in the top panel SETUP window. See pages 98 and 99 respectively.

(*) When both the MAIN and AUX input sources' are set to OFF, the output path electronics are turned off thus saving power. As such, if you are not using both the MAIN and AUX outputs, switching both sources to OFF will conserve battery life.

Encoders 3 or 4 can be used to switch MS decoding on or off. This can be useful if, for example, inputs 1 and 2 are an MS pair of microphones and it is necessary to feed an MS decoded signal through the MAIN outputs.

Encoders 5 and 6 can be used to set the master level for the MAIN outputs.

When this page is displayed, the meters show the MAIN output level in the L/R columns and if 'FOLLOW METERS' mode is selected, the headphones carry a copy of the MAIN outputs.

Pressing the OUTPUT key again will show this screen:

```
AUX SOURCE        MS-DECODE        AUX LEVEL
   OFF               OFF                   0
```

Here you can set the AUX outputs' input source, enable or disable MS decoding and set the master level. The options are exactly the same as for the MAIN outputs.

(*) When both the MAIN and AUX input sources' are set to OFF, the output path electronics are turned off thus saving power. As such, if you are not using both the MAIN and AUX outputs, switching both sources to OFF will conserve battery life.
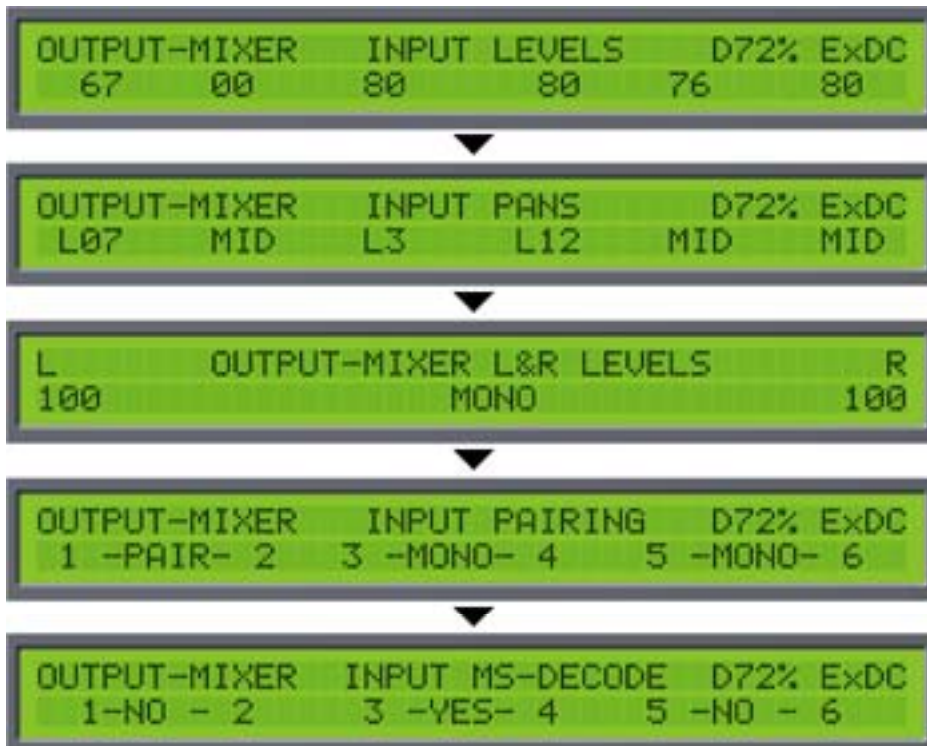
When this page is displayed, the meters show the AUX output level in the L/R columns and if 'FOLLOW METERS' mode is selected, the headphones carry a copy of the AUX outputs.

Pressing the OUTPUT key again will show this screen:

```
OUTPUT-MIXER SOURCE                D86% ExDC
INPUTS
```

It is possible to select INPUTS, TRACKS or OFF as the input source for the output mixer - if either INPUTS or TRACKS are selected, further functions are available on extra pages as follows.

When INPUTS is selected as the output mixer's source, the following screens are available:

```
OUTPUT-MIXER     INPUT LEVELS    D72% ExDC
   67      00       80       80     76      80
```

▼

```
OUTPUT-MIXER     INPUT PANS       D72% ExDC
 L07     MID      L3       L12    MID      MID
```

▼

```
L          OUTPUT-MIXER L&R LEVELS           R
100                   MONO                  100
```

▼

```
OUTPUT-MIXER     INPUT PAIRING   D72% ExDC
 1 -PAIR- 2    3 -MONO- 4     5 -MONO- 6
```

▼

```
OUTPUT-MIXER     INPUT MS-DECODE  D72% ExDC
  1-NO - 2      3 -YES- 4      5 -NO - 6
```

When INPUTS is selected as the output mixer's source, you can use the output mixer to set up an alternative mix to BUSMIX. This might be used to provide a special mix feed to a director or external recording device. If you have routed inputs 1-6 to disk tracks 1-6, these will not be affected by adjusting the output mixer:
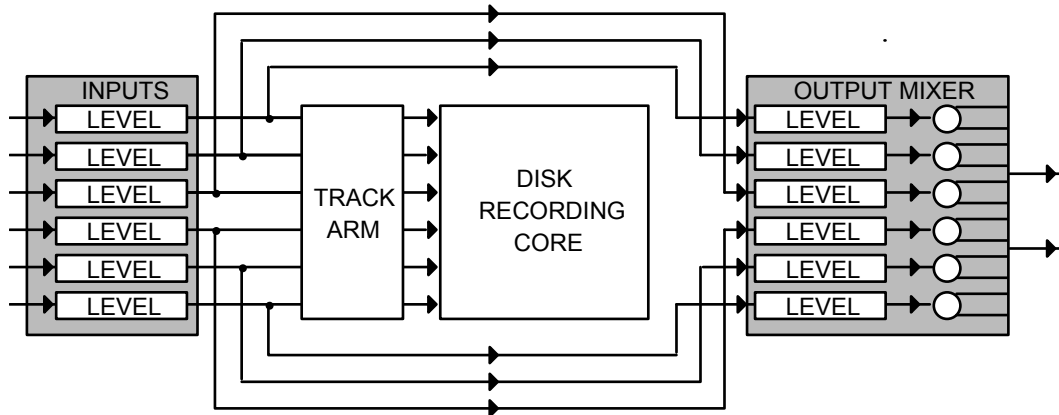
The parameters on the various pages are as follows:

OUTPUT-MIXER INPUT LEVELS
Here you can set the output mixer's input levels. Because the input signal is fed from *after* the input level controls, with all the OUTMIX level controls set to the same value, the mix is effectively a copy of the input level settings. However, by adjusting the output mixer's level controls, an alternative sub-mix can be set up which can be recorded to the stereo L/R tracks or routed to the outputs.

OUTPUT-MIXER INPUT PANS
Using the six rotary encoders, you can set the pan position of the output mixer's inputs. With these, you can set up a stereo sub mix with each input placed in the stereo image as required.

OUTPUT-MIXER L&R LEVELS
Here, you may adjust the overall output level of the output mixer's stereo output. Encoders 1 and 6 are used to set the left and right levels respectively (encoders 2 and 5 are de-activated in this page).

Encoders 3 or 4 can be used to pair the L/R output channels' level. When paired, you can use either encoder 2 or 5 to set the master output level of the output mixer's stereo output.
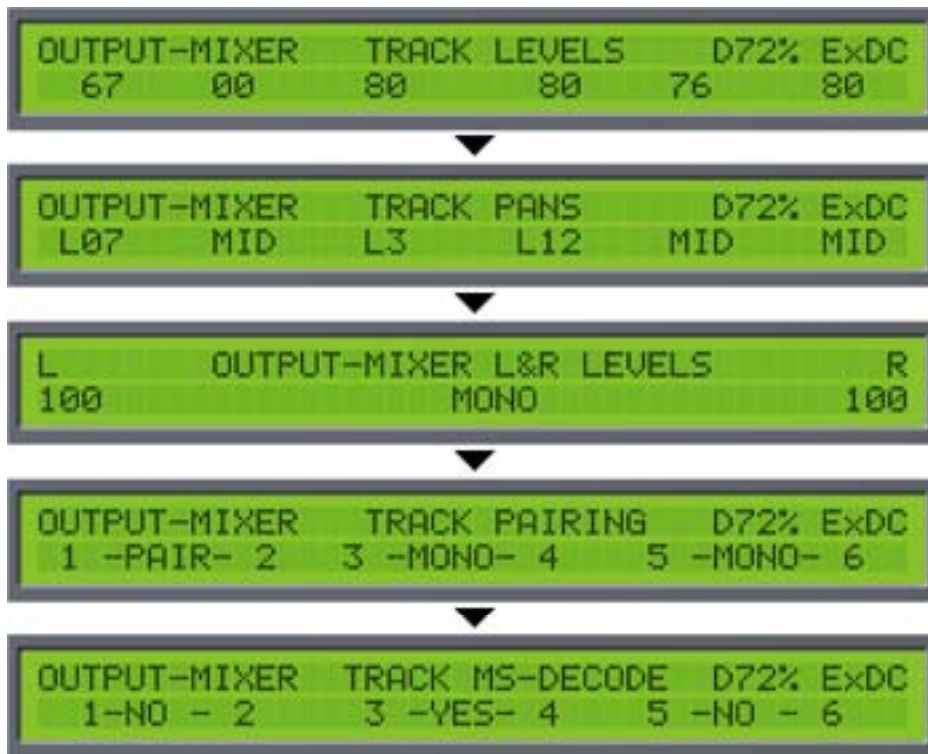
OUTPUT-MIXER INPUT PAIRING
Adjacent channels (e.g. 1+2, 3+4, 5+6) can be 'paired' and either encoder associated with those channels can be used to adjust their levels proportionally. Primarily, this is useful when using stereo signals. However, you may well find other uses for it. If there is an offset between the two channels' levels, this offset is retained as either encoder is adjusted.

OUTPUT-MIXER INPUT MS-DECODE
The encoders can be used to switch MS decoding on or off for adjacent pairs of channels. This is particularly useful if, for example, an MS stereo mic is being used on inputs 1/2 and are being recorded directly to tracks 1/2 un-decoded but it is necessary to provide a stereo mix of these using the output mixer.

When, in the MIXER SOURCE page, the input source is set to TRACKS, the following extra pages are available:

```
OUTPUT-MIXER    TRACK LEVELS      D72% ExDC
   67     00      80       80      76       80
```

▼

```
OUTPUT-MIXER    TRACK PANS        D72% ExDC
   L07    MID     L3      L12     MID      MID
```

▼

```
L           OUTPUT-MIXER L&R LEVELS           R
100                    MONO                  100
```

▼

```
OUTPUT-MIXER    TRACK PAIRING     D72% ExDC
   1 -PAIR- 2    3 -MONO- 4     5 -MONO- 6
```

▼

```
OUTPUT-MIXER    TRACK MS-DECODE   D72% ExDC
   1-NO - 2      3 -YES- 4      5 -NO - 6
```

When TRACKS is selected as the output mixer's source, the output mixer can be used to provide an alternative stereo or mono mix of what's playing back off disk or being recorded to disk. Levels going to disk are unaffected (these are set in the INPUT mode) but the output mixer can be used (for example) to provide an alternative director's monitoring feed or as a feed to an external recording device. This mix can also be routed to the tracks L & R on the disk for sub-mixing.
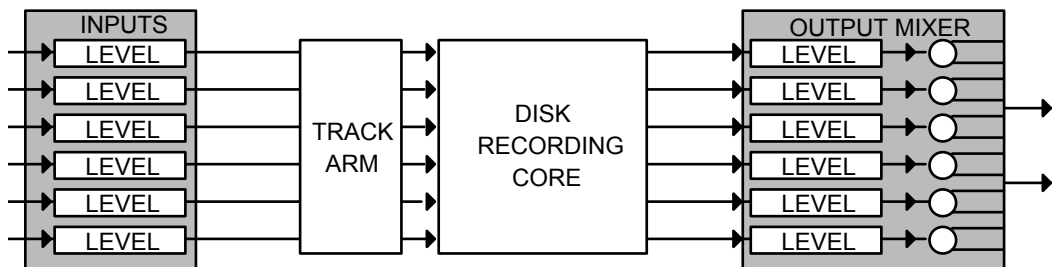
The parameters on the various pages are as follows:

OUTPUT-MIXER TRACK LEVELS
Here you can set the output mixer's input levels.

OUTPUT-MIXER TRACK PANS
Using the six rotary encoders, you can set the pan position of the output mixer's inputs. With these, you can set up a stereo sub mix with each input placed in the stereo image as required.

OUTPUT-MIXER L&R LEVELS
Here, you may adjust the overall output level of the output mixer's stereo output. Encoders 1 and 6 are used to set the left and right levels respectively (encoders 2 and 5 are de-activated in this page).

Encoders 3 or 4 can be used to pair the L/R output channels' level. When paired, you can use either encoder 2 or 5 to set the master output level of the output mixer's stereo output.

OUTPUT-MIXER TRACK PAIRING
Adjacent channels (e.g. 1+2, 3+4, 5+6) can be 'paired' and either encoder associated with those channels can be used to adjust their levels proportionally. Primarily, this is useful when using stereo signals. However, you may well find other uses for it. If there is an offset between the two channels' levels, this offset is retained as either encoder is adjusted.

OUTPUT-MIXER TRACK MS-DECODE
The encoders can be used to switch MS decoding on or off for adjacent pairs of channels. This is particularly useful if, for example, an MS stereo mic is being used on inputs 1&2 and is being recorded directly to tracks 1&2 un-decoded but it is necessary to provide a stereo mix of these using the output mixer.

HEADPHONE SETUP MODE

Pressing the HEADPHONE key allows you to set certain parameters that relate to the headphones.

HEADPHONE CONFIGURATION PRESETS

On the PORTADRIVE, it is possible to store and recall six preset monitoring configurations. This feature allows you to quickly select different signal sources in the headphone monitoring for checking signals, confidence monitoring etc. The presets only affect monitoring and do not affect signals being recorded to disk.

Pressing the HEADPHONES key shows this screen on the LCD:
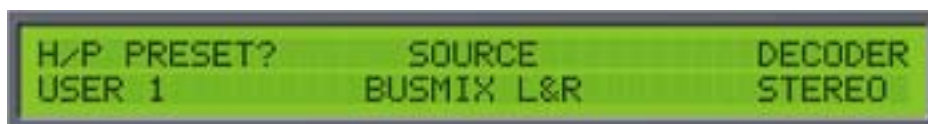
Encoder 1 can be used to select any of the six presets simply by rotating it.

You can also select presets directly by pressing *and holding* ENABLE and then pressing any one of the six SOLO keys. When a preset is selected by the ENABLE+SOLO method, the LCD will briefly show the PHONES PRESET page for that preset.

        Press ENABLE+SOLO1 to select H/P Preset User 1
        Press ENABLE+SOLO2 to select H/P Preset User 2
        Press ENABLE+SOLO3 to select H/P Preset User 3
        Press ENABLE+SOLO4 to select H/P Preset User 4
        Press ENABLE+SOLO5 to select H/P Preset User 5
        Press ENABLE+SOLO6 to select H/P Preset User 6

Encoders3 and 4 can be used to select the headphone-monitoring source. The source options are:

|	
BUSMIX L&R	L/R outputs of the bus mixer
OUTMIX L&R	L/R outputs of the output mixer
MAIN OUT	Duplication of the MAIN L/R outputs
AUX OUT	Duplication of the AUX L/R outputs
INP1/2	Inputs 1 and 2
INP3/4	Inputs 3 and 4
INP5/6	Inputs 5 and 6
INP7/8	Inputs 7 and 8
2CH RETURN	The 2-Channel return
TRK1/2	Tracks 1 and 2
TRK3/4	Tracks 3 and 4
TRK5/6	Tracks 5 and 6
TRKL/R	Tracks L and R
FOLLOW METERS	See following explanation.

With the 'FOLLOW METERS' option selected, the source will be the currently selected mode (i.e. INPUTS, BUSMIX, TRACKS, OUTPUT). in this way, the headphone (and top speaker) monitoring will

follow the metering so that what you're seeing on the meters is what you're hearing in your headphones. However, by pressing HEADPHONES and using Encoder 1, you can quickly override this to monitor any signal within the PORTADRIVE.

Encoders 5 and 6 can be used to select a decode option for the preset. The options are STEREO, MONO BOTH, MONO R, MONO L and MS

Also, when the source is set to FOLLOW, you actually have access to independent sub-mixers that allow you set your own personal headphone mix.

If you press the HEADPHONES key when in INPUT mode, the following extra pages are available:
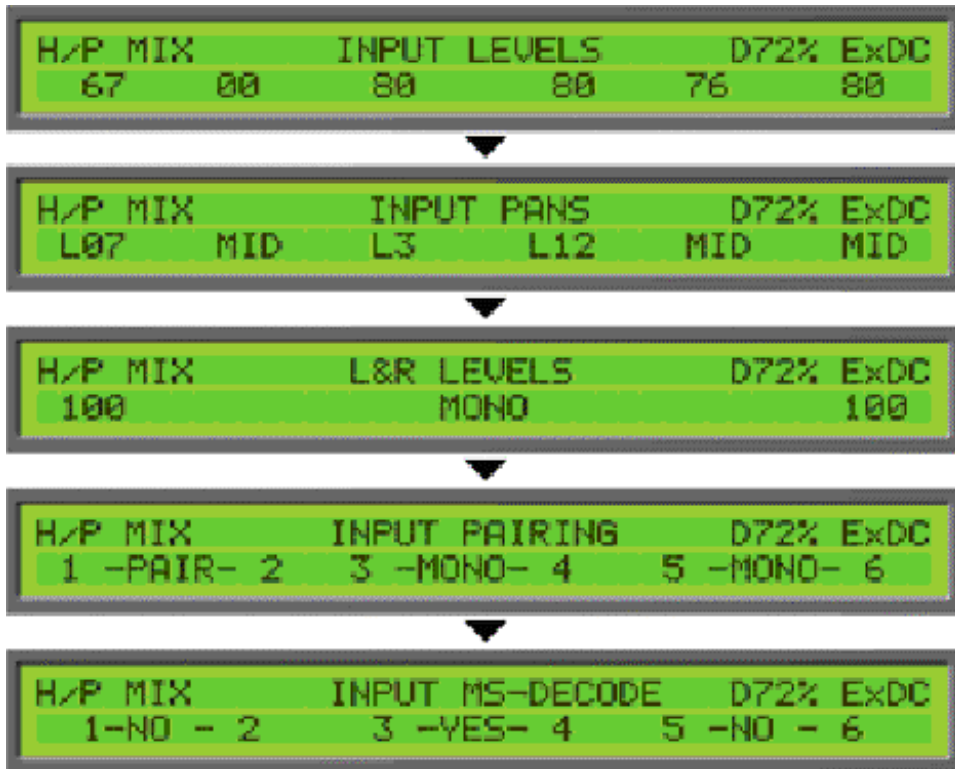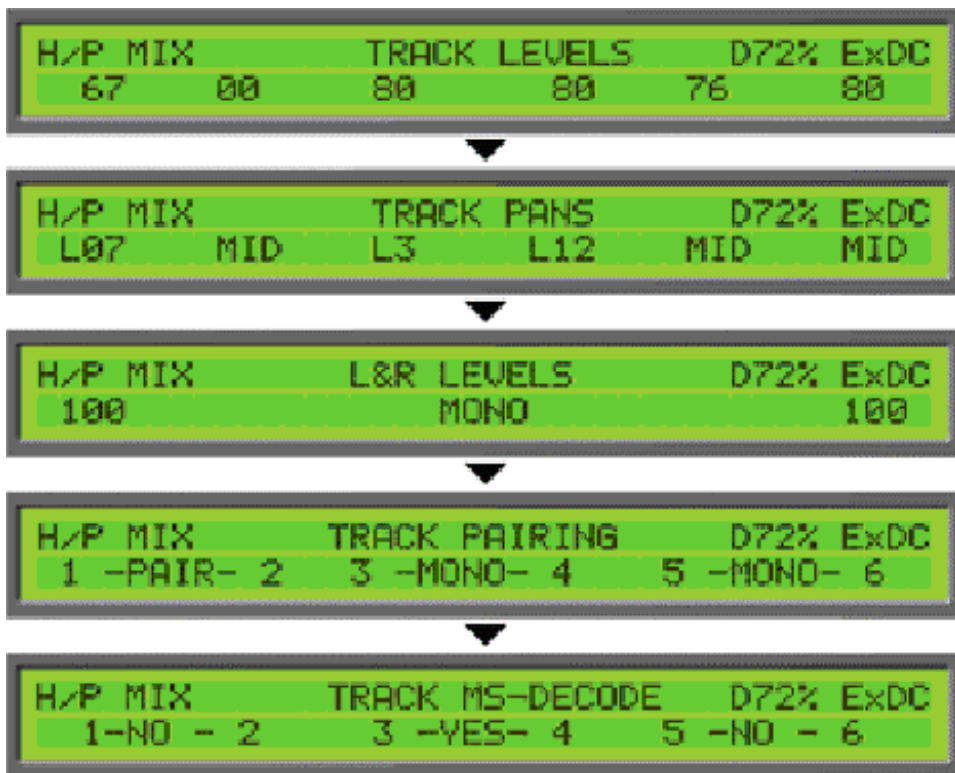

With these pages, you can create an independent, alternative headphone mix of the inputs.
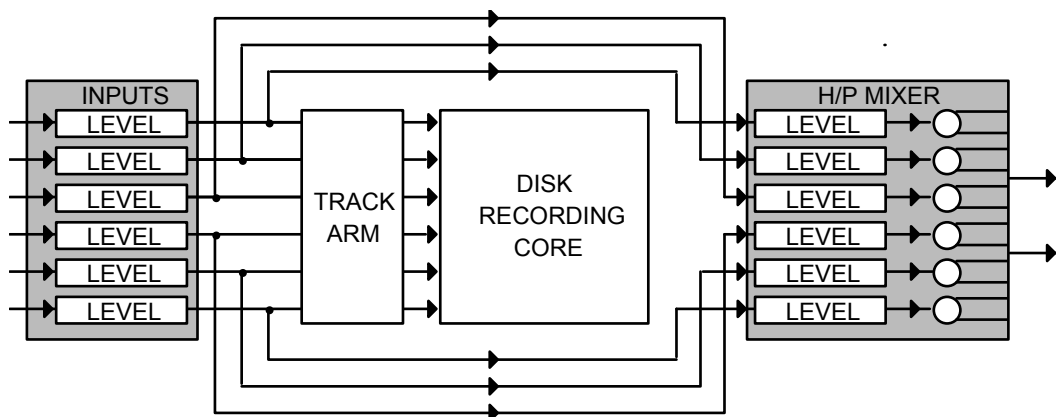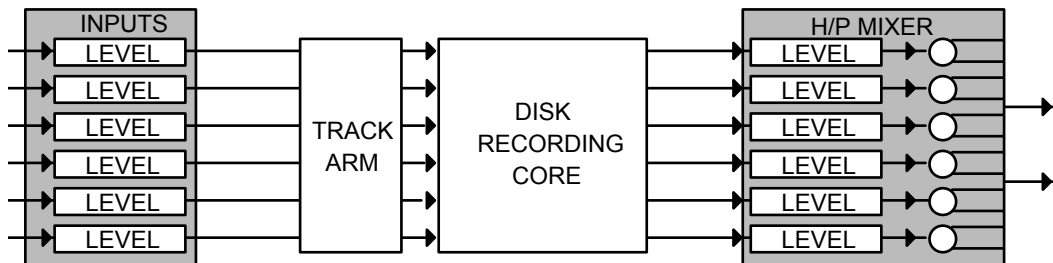

Settings made here will not affect signals being recorded to disk, only those being heard in the headphones (or through the top panel speaker). The parameters and functions are exactly the same as we have seen in the OUTPUT mixer mode. Please refer to page 31 for details.

If you press the HEADPHONES key when in TRACK mode, the following extra pages are available:

With these pages, you can create an independent and alternative headphone mix for the audio going to disk during record or coming off disk during playback.

HEADPHONE MIX IN 'TRACKS' MODE

Settings made here will not affect signals being recorded to disk, only those being heard in the headphones (or through the top panel speaker). The parameters and functions are exactly the same as we have seen in the OUTPUT mixer mode. Please refer to page 31 for details.

Using these headphone sub-mixers in conjunction with all the other mixers contained within the PORTADRIVE adds a lot of flexibility to the unit and you could, for example, have a certain mix going to disk, another mix going out through the MAIN and/or AUX L/R outputs, another mix going to the L/R tracks (via BUSMIX) and separate mixes for inputs and tracks in your headphone/speaker monitoring.

Headphone presets are automatically updated and saved whenever any changes are made.

MANAGING METADATA

The PORTADRIVE allows front panel as well as top panel editing of metadata (SLATE, TAKE and NOTES).

It is possible to edit any take's SLATE name either **before** or **after** it has been recorded.
It is possible to edit a take's NOTES at any time, before, after or even during recording.
It is possible to record the next TAKE into a previously created SLATE.

PORTADRIVE provides a 'universal' system that allows the user to work with both the USA and UK naming conventions, or in fact whatever naming system they wish.

Note - A PS2 keyboard can be used to enter text when operating from the front or top panels, but not both at the same time.

Description of types of Metadata

SLATE – This is the name of the slate or scene (or whatever you want to use it for) up to a maximum of 12 characters.

Examples:
- '270', '270 A', '270 B' . . . . . '270 Z', '270 AA', '270 AB' etc   [US convention]
- '001', '002', '003' etc   [UK convention]
- '270WT'   [Wild track]
- 'Movement', 'Song title', etc   [any name]

TAKE – This is a 3-digit number ranging from 001 – 999. This number is automatically controlled by PORTADRIVE as follows:-

- TAKE number increments by 1 each time record is instigated.
- TAKE number automatically resets to '001' if a new SLATE is created.
- If the next take to be recorded is in a previously created SLATE, then the TAKE number of the next take will be equal to the last take number in that slate + 1. So, if there were three takes in slate 001, the next take would automatically be take 004 in slate 001.
- If a take was recorded into the wrong slate (i.e. with the wrong slate name), then it is possible to edit its slate name i.e. move it to another slate. If the take is moved to a new slate, then its take number will default to '001'.
- If the take is moved to an existing slate, then its take number will default to the last take number in that slate +1.

NOTES – This is a text string up to a maximum of 50 characters, which the user can use to make any comments about a particular take.

Metadata uses

SLATE name, TAKE number and NOTES are stored in the description field of the Broadcast wave header and can be read by most professional applications including later versions of AVID.

SLATE name and TAKE number also form the structure of the PORTADRIVE audio file name.

Example based on take 3 of slate 123a from session (roll) 115

115s123a_T003_4.wav   **refers to track 4,**   **monophonic BWF**

Front Panel Editing.

Editing of metadata is performed in the EDIT INFO page accessed by holding the DISPLAY button for more than 1 second.

```
EDIT INFO [Press SOLO buttons to edit]
SLATE:B270AA        TAKE:004 [Next] NOTES
```

As can be seen from above EDIT INFO page, the bottom row of the front panel LCD shows the currently selected take. The above example shows we have selected take 4 (which happens to be the next take to be recorded) of slate B270AA.

To return to DISPLAY page 1, press the DISPLAY button.

RECORDING THE NEXT TAKE INTO AN EXISTING SLATE

In the EDIT INFO page, use rotary encoder 2 to select an existing slate. If you want to know what the take number of the next recording will be, use rotary encoder 4 to select the take number that is followed by '[NEXT]'. This displays the next take number.

Instigate RECORD by using the transport controls. The take will be recorded into the selected slate.

RECORDING THE NEXT TAKE INTO A NEW SLATE

In the EDIT INFO page, use rotary encoder 4 to select the take number that is followed by '[NEXT]'.

In the example above, the next take to be recorded is take 4 of slate B270AA.

Press SOLO2 to access the SLATE EDIT page

Let's assume that we want to change the next take to be recorded from B270AA, take 4 to B270AB, take 1.

Rotate rotary encoder 1 (SHIFT) to shift the cursor to the position of the character you want to change. Rotate clockwise to shift right and anti-clockwise to shift left.

The default starting position of the cursor is always the right-most character as it is this one that is most frequently going to be changed.

Rotate rotary encoder 2 (CHARA) to change the character in the selected cursor position. In this example, rotate it 1 step clockwise to change from 'A' to 'B'.

If you need to enter a number, rotary encoder 3 (<0-9>) can be used as a shortcut to numeric characters. Also, if necessary, use SOLO4 to delete a character.

Press SOLO6 to SAVE. The LCD will save and return to the EDIT INFO page which will now display the edited take i.e. SLATE: B270AB   TAKE:001[NEXT].

Instigating record will make take 001 of slate B270AB current and so the [NEXT] indicator will vanish.

Note - If you make a mistake in your edit, you can ABORT using the SOLO5 button – in this case the LCD will return to the EDIT INFO page without saving any changes.

MOVING A RECORDED TAKE TO A DIFFERENT SLATE (EXISTING OR NEW)

In the EDIT INFO page, select the SLATE name and TAKE number of the take that you want to move (edit) using rotary encoders 2 and 4 respectively.

Press SOLO2 to enter the slate EDIT page.

Enter a new slate name or name of an existing slate and then press SOLO6 to SAVE and return to the EDIT INFO page or press SOLO5 to ABORT the edit and return to the EDIT INFO page.

If SAVE (SOLO6) is pressed, the message 'Take moved' appears briefly in the LCD.

> Note - When you move a take to another slate, its new take number will be the last take number in that slate + 1. For example, if you move a take to a slate that already has takes 001, 002 and 003, then the moved take will become 004 in that slate.

ENTERING NOTES FOR A TAKE (BEFORE, DURING OR AFTER RECORDING)

In the EDIT INFO page, select the SLATE name and TAKE number of the take that you want to add/edit notes to, using rotary encoders 2 and 4 respectively.

Press SOLO6 to enter the take NOTES EDIT page.

Enter a maximum of 50 characters and then press SOLO6 to SAVE and return to the EDIT INFO page or press SOLO5 to ABORT the edit and return to the EDIT INFO page.

CIRCLING / UN-CIRCLING A TAKE

In the EDIT INFO page, select the SLATE name and TAKE number of the take that you want to circle / un-circle using rotary encoders 2 and 4 respectively.

Press SOLO4 to circle. 'TAKE CIRCLED' will be briefly displayed in the LCD and an asterisk will appear after the take number to indicate that the take is circled. To un-circle, press SOLO4. 'TAKE UN-CIRCLED' will be briefly displayed in the LCD and the asterisk will disappear.
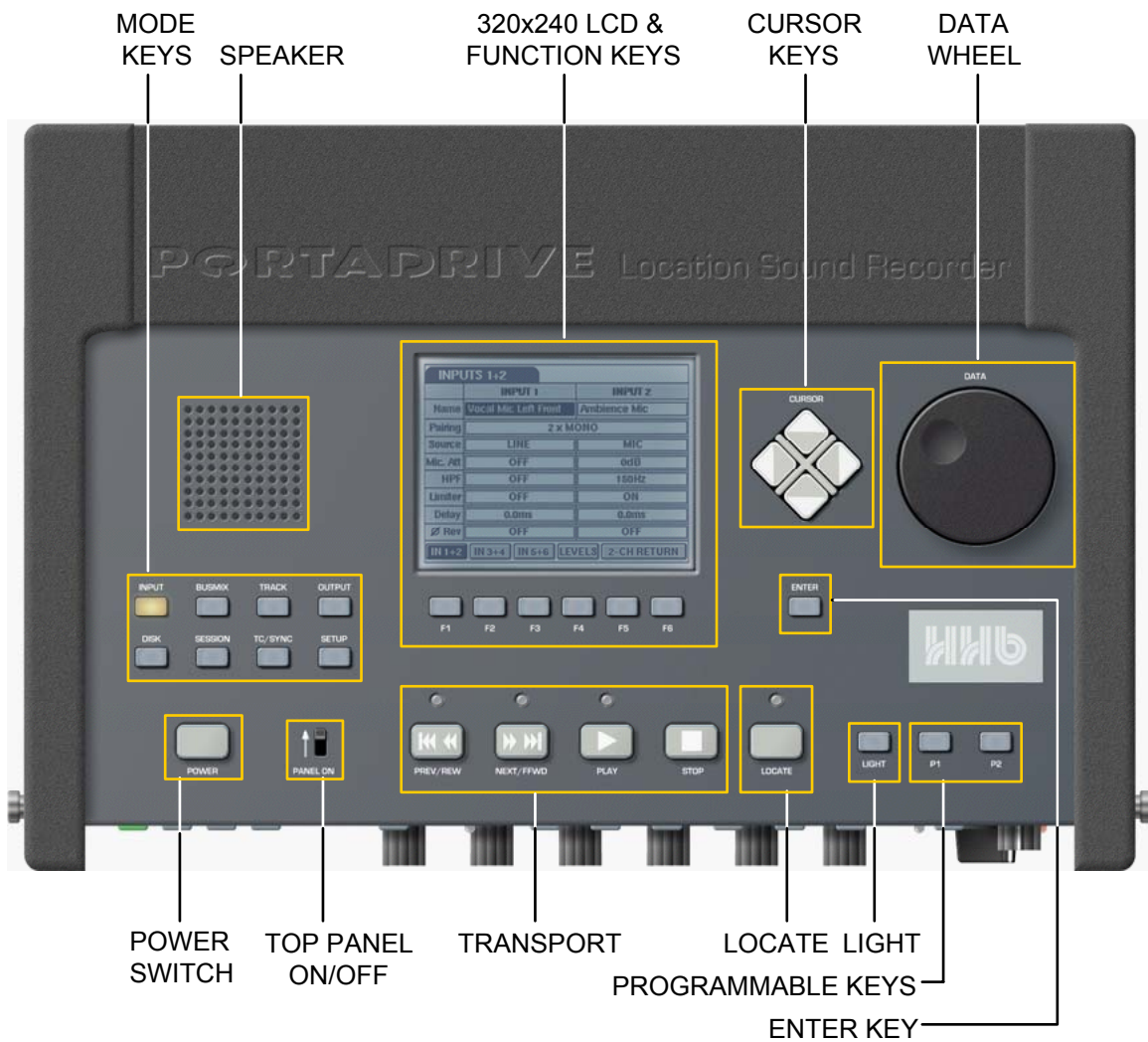
> Note -
> You can circle, as many takes as you like – there are no limitations.
> If the session is a FAT32/BWF/AES31 session, then when operating in TREE file structure a take that is circled will have the string '(Circled)' added to the associated take folder name, so that post are able to easily identify which takes are circled.
>
> When operating in FLAT file structure a take that is circled will have the character '@' added to the beginning of the name of each associated audio file located in the Audio Files folder.
>
> If the session is an HFS/SDII/PT5 session, then a take that is circled will have the character '@' added to the beginning of the name of each associated SDII audio file located in the Audio Files folder, so that post are able to easily identify which takes are circled.

PDR2000 TOP PANEL

MODE KEYS   SPEAKER   320x240 LCD & FUNCTION KEYS   CURSOR KEYS   DATA WHEEL

POWER SWITCH   TOP PANEL ON/OFF   TRANSPORT   LOCATE   LIGHT

PROGRAMMABLE KEYS

ENTER KEY

POWER SWITCH

This turns the PORTADRIVE on and off.

As a safety feature, to prevent the unit accidentally being switched on and hence draining your battery, to switch the unit on, the PANEL ON/OFF switch must be switched to the ON position. Now press the POWER key to switch the unit on. If the PANEL ON/OFF switch is not set to the ON position, the unit will not switch on when the POWER switch is pressed.

To switch the PORTADRIVE off, press the POWER key. However, to prevent the accidental loss of data, a prompt is shown asking whether you really want to shut down. If you respond YES, the unit goes through a 'shut down' procedure and so may take a couple of seconds to completely switch off. For safety reasons, the power switch is disabled during playback or recording.

TRANSPORT CONTROLS

The top panel transport controls allow you to play, rewind and fast forward through sessions. There is also a locate menu that allows you to move quickly around your session by various means. The keys are:

PREV/REW   When the PORTADRIVE is stopped; repeatedly pressing this key allows you to go back through all previous takes that have been recorded. If you press *and hold* this key, you will 'scroll' back through previously recorded takes. It sounds a bit complicated but it's just like the PREV key found on any CD player!

When the PORTADRIVE is playing back, pressing this key for more than half a second will cause the unit to rewind at x10 normal playback speed. Pressing this key for less than half a second will jump back to the previous take.

NEXT/FFWD   Basically, the opposite of the above! PREV/REW. When the PORTADRIVE is stopped, repeatedly pressing this key allows you to go forward through all takes that have been recorded and if you press *and hold* the key, you will 'scroll' through the takes.

When the PORTADRIVE is playing back, pressing this key for more than half a second will cause the unit to fast forward at x10 normal playback speed. Pressing this key for less than half a second will jump forward to the next take.

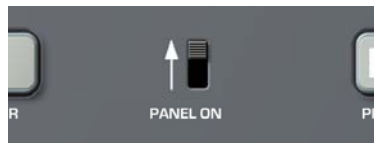PLAY   Will cause the unit to playback from the current timecode position.

STOP   Will stop playback

Note - The top panel STOP key has no effect during RECORD or RECORD LOCK.

LOCATE   This accesses the PORTADRIVE's locate functions. See page 113.

PANEL ON / OFF

This allows you to turn the top panel on and off as a safety feature to prevent inadvertent operation when using the front panel, and also to save power when the top panel is not required.

MODE KEYS

These eight illuminated keys provide access to the top panel's modes. These are:

INPUT   Provides access to the input mode where you can set input channel parameters.

BUSMIX   Provides access to the bus mixer where a stereo mix of the inputs can be set up.

TRACK   Provides access to functions and settings that relate to disk tracks.

OUTPUT   Provides access to the output section where you can set functions relative to the MAIN and AUX outs, the headphone / speaker monitoring, the digital outputs and the OUTPUT mixer.

DISK   Allows you to perform disk related actions such as formatting, copying, etc..

SESSION   Provides access to tools that allow you to create and manage your sessions.

TC   Provides parameters relevant to timecode synchronisation.

SETUP   Provides access to parameters that affect the PORTADRIVE generally.

Explanation of these modes can be found within the Top Panel Modes section of this manual (see page 50).

SPEAKER
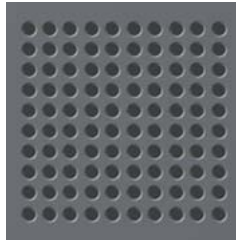
The top panel has a speaker for mono monitoring purposes. The speaker is not active when headphones are plugged in and/or the PORTADRIVE is recording.

The speaker output can be switched off in the SETUP/MISCELLANEOUS window (see page 104).

LCD

The large 320 x 240 LCD dominates the top panel and is where you see parameters and set their values. The screen is navigated using the CURSOR keys to the right of the LCD and parameters values are set using the DATA encoder.

Below the LCD are six keys, the function of which change according to the selected mode/screen.

CURSOR KEYS / DATA WHEEL

The cursor keys allow you to move around the LCD and select parameters and there value is set using the DATA wheel.

ENTER KEY

The ENTER key is used to confirm and commit certain operations; It is also used to 'open' name fields in order to name items (channels, sessions, takes, etc.) on the PORTADRIVE.

LIGHT KEY

This turns the LCD's backlight illumination on and off.

PROGRAMMABLE KEYS

These two keys can be programmed to provide quick, convenient access to functions. The function assigned to these keys is set in the SETUP PAGE on the top panel.

USING THE TOP PANEL SCREENS

The top panel LCD is navigated using the CURSOR keys and you can move up, down and from left to right. When a field or parameter is selected, the 'box' inverts and a value is set using the DATA wheel:
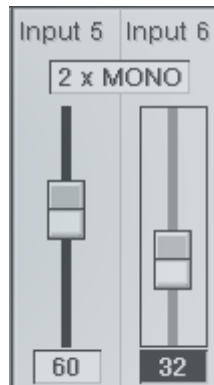
In this example, the cursor has been moved to Input 6's fader... adjusting the DATA wheel now will not only set the value in the 'box' but the fader graphic will move to show its position.

Some functions are not variable but are either ON/OFF. Others provide a list of options that you can select with the DATA wheel. It will all make sense once you've used the PORTADRIVE for a short while.

NAMING ITEMS ON THE PORTADRIVE

It is possible to name items on the PORTADRIVE. The kind of items that can be named are things like inputs, files, folders, sessions, locate markers and so forth.

There is a standard process for naming these items:

When the cursor is on a name field, press the front panel ENTER key. This will 'open' the field, allowing you to enter the name. For example, in the case of naming a new folder, you would see this:
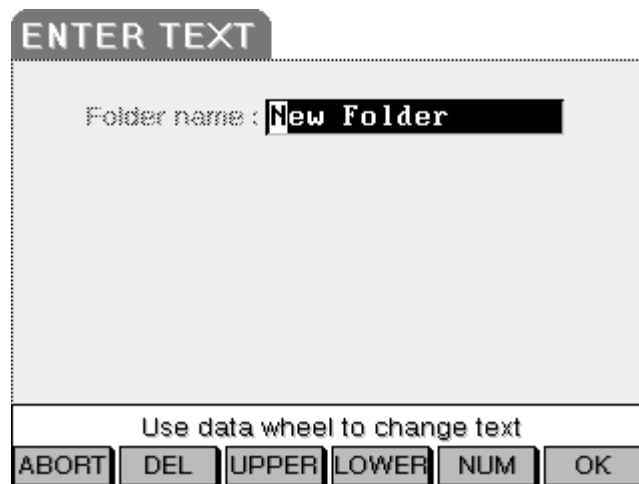
You can use the CURSOR </> keys to move around the field and you should use the DATA wheel to select the character(s). However, along the bottom of the screen are function keys to assist with naming. These are:

ABORT   Allows you to abort the naming process.

DEL   Allows you to delete characters entered in error (and/or to add spaces)

UPPER   Allows you to enter 'UPPER CASE CHARACTERS'

LOWER   Allows you to enter 'lower case characters'

NUM   Allows you to enter numbers 0 - 9.

OK   Confirms the name and closes the name field (you can also press ENTER again for this).

To facilitate easier naming, it is recommended you use a PS2 QWERTY computer keyboard (you may already have a spare one). To name something using an external keyboard, press ENTER on the PORTADRIVE's panel or the RETURN key on the keyboard (to open up the name field) and type the name in from the keyboard and confirm and enter the name by pressing RETURN (or the ENTER key on the PORTADRIVE again).

ABOUT THE TOP PANEL MODES
It may seem odd having two sets of seemingly identical mode select keys but the reason that some of the front and top panel modes are duplicated is for ease of use and to save you having to move from panel to panel to operate the PORTADRIVE.

Many of the functions on the top panel *are* a duplication of those we have already seen on the front panel but, with the larger LCD on the top panel, they can have a much more 'graphically rich' presentation.

The top panel, however, will typically be used for 'management' functions... things like disk formatting and general disk management, preparing for the session, naming input channels and setting up input parameters in preparation for the shoot, setting up the various mixers before (and/or after) the recording, checking and maybe naming/re-naming recordings, sessions, etc., copying disks and so on.

Note that as you change modes on the front panel, assuming that the top panel is switched on, so the equivalent mode on the top panel will also be selected. Similarly, as you change modes on the top panel, so the equivalent modes on the front panel will be selected. Of course, when switching modes on the top panel, the metering on the front panel changes accordingly. However, there is an option in the SETUP/MISC page that allows you to disable this 'linked' mode switching (LINK PANEL MENUS). See page 104.

When operating the PORTADRIVE from the front panel, it is suggested that you switch the top panel off. Not only will this help conserve battery power but will also prevent the possibility of inadvertently affecting some operation on the front panel.

INPUT MODE
Pressing INPUTS on the top panel shows this screen:

INPUTS 1&2	INPUT 1	INPUT 2
Name	Input 1	Input 2
Pairing	2 x MONO	
Source	MIC	MIC
Mic Att	0dB	0dB
HPF	OFF	OFF
Limiter	ON	ON
Delay	0 ms	0 ms
Ph. Rev		OFF

IN 1&2 | IN 3&4 | IN 5&6 | IN 7&8 | LEVELS | 2CHRT

To enter a name, move the cursor to the appropriate NAME field, press the ENTER key and enter a name of your choosing as described previously.

The input parameters are as follows:

PAIRING Adjacent inputs (e.g. 1+2, 3+4, 5+6) can be 'paired' so that either fader associated with those channels can be used to adjust their levels proportionally. Primarily, this is useful when using stereo signals. However, you may well find other uses for it. If there is an offset between the two channels' levels, this offset is retained as either channel is adjusted.

SOURCE You may select the input source for each channel in this page. The options are:

    INPUT 1: MIC, MIC48, LINE, AES1, SDIFL, OFF
    INPUT 2: MIC, MIC48, LINE, AES2, SDIFR, OFF
    INPUT 3: MIC, MIC48, LINE, AES3, OFF
    INPUT 4: MIC, MIC48, LINE, AES4, OFF
    INPUT 5: MIC, MIC48, LINE, AES5, OFF
    INPUT 6: MIC, MIC48, LINE, AES6, OFF

MIC ATT Microphone attenuation can be set on each channel to 0 (no attenuation), -15, -30dB.

    Of course, mic attenuation cannot be applied to digital inputs and when an input source is digital, the function is not shown.

    Similarly, if any channels are LINE inputs, mic attenuation cannot be applied.

MIC HPF This page allows you to apply a high pass filter to microphone inputs to filter out any unwanted low frequency elements. Each channel's filter can be set to OFF (no filter), 75Hz or 150Hz.

    The HPF cannot be applied to digital or line input sources and should any channels be set up in this way, the function is not shown.

LIMITER   The channel limiters can be switched on and off in this page. However, it also possible to 'gang' pairs of limiters on adjacent channels, or all six channels. The full range of options are OFF, ON, GANG 2 (Adjacent channels are ganged) and GANG 6 (all six input limiters are ganged).

In the case of the 'ganged' selection, when one channel has this selection, its adjacent channel is automatically ganged to its neighbour. For example, in the case of selecting this option on Channel 1, Channel 2 will automatically be ganged; in the case of selecting this option for Channel 4, Channel 3 will automatically be ganged. It is recommended that stereo-paired channels use the 'ganged' selection.

The limiters can only be applied to mic or line signal sources. If a channel uses a digital input source, the function is not shown.

DELAY   It is possible to introduce delay of up to 200ms to each channel.

PH. REV   It is possible to phase reverse any of the odd-numbered input channels.

The other channels (3-6) are selected using F2 and F3. The other channels' parameters are all identical and require no special description here. However, the exception is INPUTS 7 and 8 (F4):
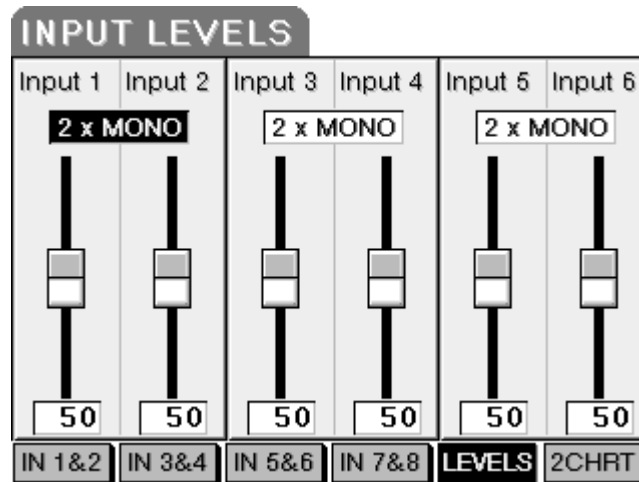

The channels can also be named in the usual way (move the cursor to the NAME field, press ENTER and use the data wheel to enter a name.... or use an external keyboard).

The source options are 2CH RETURN, AES 7&8 or OFF.

Pressing LEVELS (F5) shows the input mixer screen:

Here, you can see and adjust the level of inputs 1-6. You can adjust levels by moving the cursor to the level value shown below the faders and use the DATA wheel to set levels or you can use the front panel's encoders.

Note - To use the front panel encoders, the input levels page must be selected on the front panel. This will happen automatically if the top and front panels are 'linked'. Set LINK PANEL MENUS to 'ON'

If you use the DATA wheel method, you will note that (assuming the front panel is showing the main INPUT LEVEL screen) the values on the front panel LCD will update as will the collar of LEDs around the encoders as you change the setting on the top panel. The converse is also true and you will see the faders and their values updating if you set the levels from the front panel encoders.

In this page, you can also set the pairing of adjacent channels.

Pressing 2-CH RETURN (F6) will display this screen:
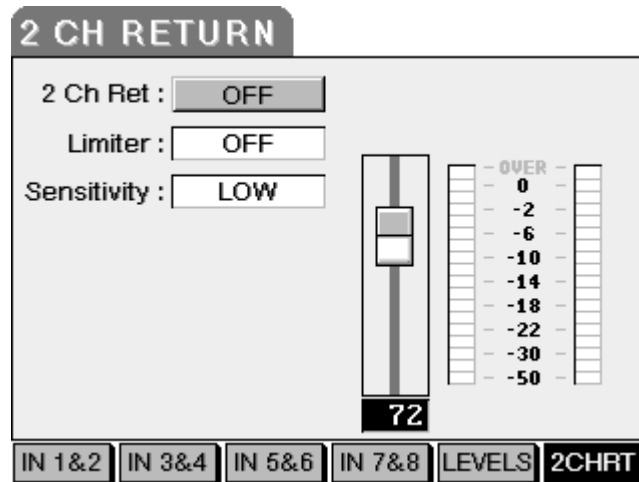
The 2-CHANNEL RETURN is a separate stereo line input on the side of the PORTADRIVE that can be used to feed stereo signals into the PORTADRIVE's stereo L/R tracks or used purely as a method for monitoring a return feed, say from a camera.

The page shows the level control for this stereo input as well as simple metering. To set the level for the 2-CHANNEL RETURN, move the cursor to the level value field below the fader and use the DATA wheel to set a value.

The options are:

2 CH RET   OFF or ON. Simple as that! Setting to OFF will help to reduce power consumption.

LIMITER   It is possible to apply limiting to the 2-CHANNEL RETURN input. The options are OFF or GANGED (because it is a stereo input, the 'on' option for the limiter is automatically GANGED in stereo).

SENSITIVITY You can set the operating level for the 2-CHANNEL RETURN input. The options are HIGH (-10dB) or LOW (+4dB).
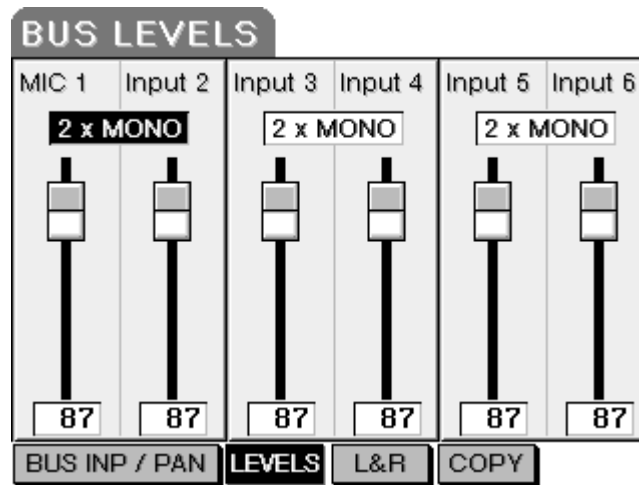
BUSMIX MODE
Pressing BUSMIX shows this screen:
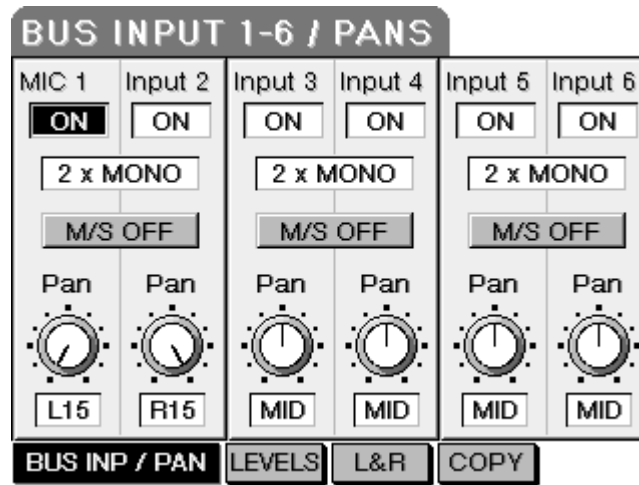
Here, you can set parameters relative to the bus mixer's inputs. Each channel can be switched on or off (useful as a MUTE function) and each pair of channels can be paired and/or have MS decoding applied. Each channel can also be panned.

Pressing LEVELS shows this screen:

Here you can set the levels for each of the bus mixer's channels. Adjacent inputs can also be paired.

Pressing BUS L/R will show this screen:
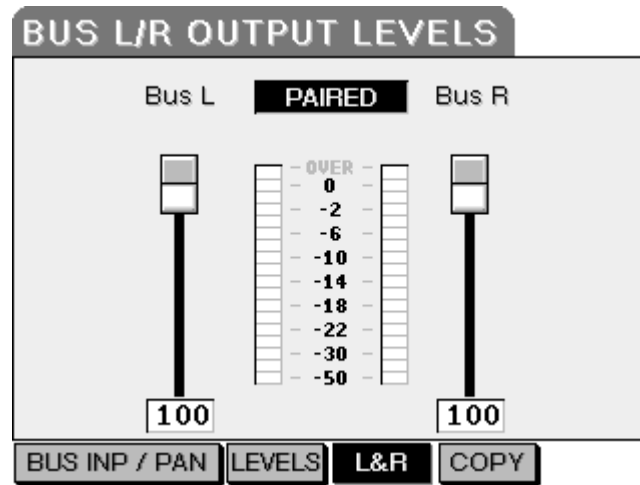
Here, you can set the L/R output level of the bus mixer. The screen also shows the bus mixer's L/R output levels.
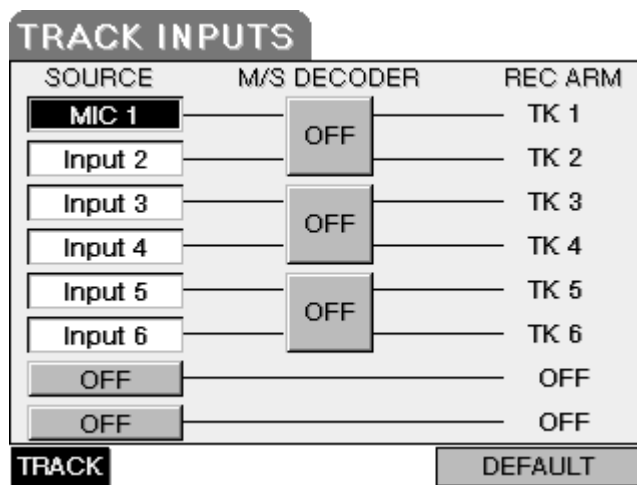
By pairing the L/R outputs, it is only necessary to adjust one of the 'faders' and both will change. However, they can be adjusted independently by setting the parameter to MONO X 2.

The COPY function on F5 allows you to copy the settings between the various mixers. See page 65.

TRACK MODE

Pressing TRACKS will show this screen:

This page is used to select an input source for the disk tracks. By default, these are Inputs 1-6 (*) but these may be changed according to requirements. The input sources are:

Track 1:	INP1	BUS L	OUTL	OFF
Track 2:	INP2	BUS R	OUTR	OFF
Track 3:	INP3	BUS L	OUTL	OFF
Track 4:	INP4	BUS R	OUTR	OFF
Track 5:	INP5	BUS L	OUTL	OFF
Track 6:	INP6	BUS R	OUTR	OFF

(*) The actual input source for these selections depend on what is set as the input source in the INPUT mode (i.e. MIC, MIC48, LINE, etc.).

Each pair of tracks may also have MS decoding applied.

The L/R tracks can take the following as their input source:

Left:	INP7	BUSL	OUTL	OFF
Right:	INP8	BUSR	OUTR	OFF

If you make any changes, which you don't like, you can quickly revert to the default settings by pressing F5/6.

Track Arming notes when using BWF formats.

BWFm

There are no limitations. Any number or combination of tracks can be armed for each take in a session. For example, take 1 could have all 8 tracks armed, take 2 could have just tracks 2,5 and 7 armed and take 3 could have tracks 1,2,4,5,8 armed etc.

BWFp

If you set a group of tracks to polyphonic for a session, then it is not possible to individually arm/disarm the tracks within that polyphonic group between each take. It is only possible to arm/disarm the whole group between each take. The main reason for this is to ensure that the original track number is maintained when importing into a current AVID system.

A few examples:-

If you set TRACKS 1-X to 6 X POLY, then tracks 1-6 will all be armed if any one of the tracks 1-6 is armed. Only if you disarm (turn off) all tracks 1-6, then all tracks 1-6 will be disarmed.

If you set TRACKS 7&8 to 2 X POLY, then tracks 7&8 will both be armed if either one them is armed. Only if you disarm (turn off) both tracks 7&8, then both of them will be disarmed.

If you set TRACKS 1-X to MONO and TRACKS 7&8 to 2 X POLY, then you will be able to individually arm/disarm any of the tracks 1-6 between each take without limitation. Tracks 7&8 will both be armed if either one them is armed. Only if you disarm (turn off) both tracks 7&8, then both of them will be disarmed.

Reminder: Tracks are armed or disarmed in the front or top panel TRACK menu.

OUTPUT MODE
Pressing OUTPUT shows this page:
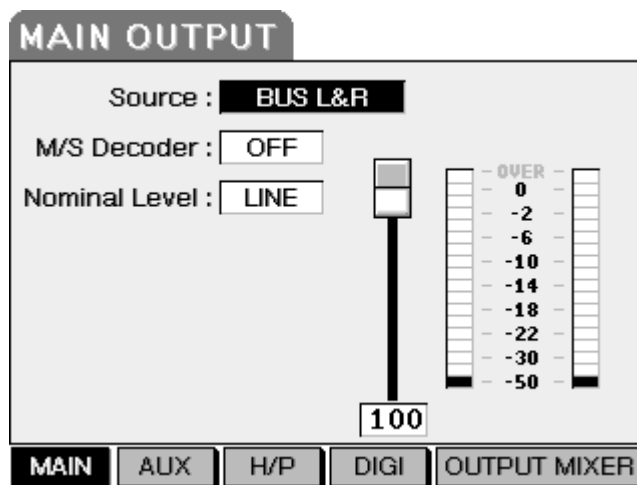
Here, you can set certain parameters relative to the MAIN outputs. The parameters are:

SOURCE   This allows you to select an input source to feed the MAIN L/R output and
                    what is selected here is what will be heard through the MAIN outputs. The
                    source options are:

                    OUT L&R   The L/R outputs of the OUTPUT mixer
                    BUS L&R   The L/R outputs of the BUS MIXER
                    INPUTS 1&2   Inputs 1 and 2
                    INPUTS 3&4   Inputs 3 and 4
                    INPUTS 5&6   Inputs 5 and 6
                    INPUTS 7&8   Inputs 7 and 8
                    2CH RETURN
                    TRACKS 1&2   Tracks 1 and 2
                    TRACKS 3&4   Tracks 3 and 4
                    TRACKS 5&6   Tracks 5 and 6
                    TRACKS L&R   Whatever is set as the source for the L/R tracks
                    OFF (*)

                    The TONE and SLATE can also be routed to the MAIN output. This is set in
                    the top panel SETUP mode. See pages 98 and 99 respectively.

                    (*) When both the MAIN and AUX input sources' are set to OFF, the output
                    path electronics are turned off thus saving power. As such, if you are not
                    using both the MAIN and AUX outputs, switching both sources to OFF will
   conserve battery life.

MS DECODER   You can switch MS decoding on or off. This can be useful if, for example, inputs 1 and 2 are an MS pair of microphones and it is necessary to feed an MS decoded signal through the MAIN outputs.

NOMINAL LEVEL   Selects a nominal output level. This can be LINE (+4) or MIC (-50).

Use the stereo fader to adjust the overall level of the MAIN outputs.

The 18-segment meters give an indication of the level of the L and R channels of the MAIN or AUX outputs.

Pressing AUX (F2) will show this screen:
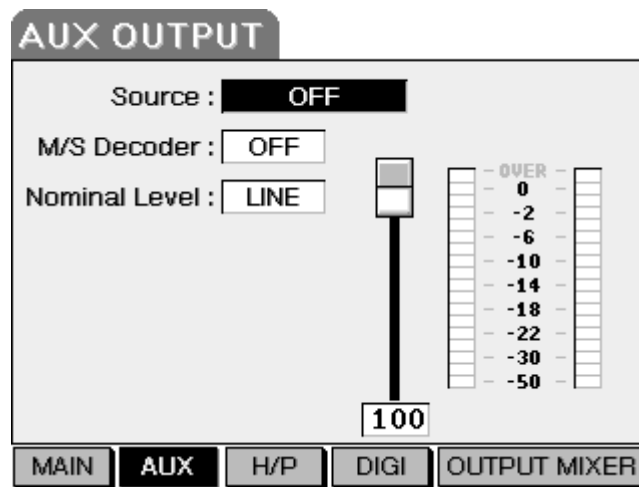
Here you can set parameters relative to the AUX outputs. The parameters are exactly the same as those described for the MAIN output screen.

Pressing H/P (headphones) shows this screen:

```
╔══════════════════════════════════════╗
║     HEADPHONE OUTPUT                  ║
║                                        ║
║        Preset : │   USER 1    │       ║
║        Source : │ BUSMIX L&R  │       ║
║    M/S Decoder : │   STEREO    │      ║
║                                        ║
║ Solo Switch Style : │   AUTO    │     ║
║        Solo Level : │    87     │     ║
║                                        ║
║  Error Beep Level : │    50     │     ║
║                                        ║
║                         │   OK   │    ║
╚══════════════════════════════════════╝
```

Here, you can set how the headphone (and speaker) monitoring will function. The parameters are:

PRESET   On the PORTADRIVE, it is possible to store and recall six preset monitoring configurations. This feature allows you to quickly select different signal sources in the headphone monitoring for checking signals. confidence monitoring, etc.. The presets only affect monitoring and do not affect signals being recorded to disk. You can select one of the presets in this field, which will then allow the preset to be programmed and also activate the settings in this preset to the headphones.

SOURCE   It is possible to select a variety of sources to listen to through the headphones. The source options are:

BUS L&R	The L/R outputs of the BUS MIXER
OUT L&R	The L/R outputs of the OUTPUT mixer
MAIN OUT	Duplication of the MAIN L/R outputs
AUX OUT	Duplication of the AUX L/R outputs
INPUTS 1&2	Inputs 1 and 2
INPUTS 3&4	Inputs 3 and 4
INPUTS 5&6	Inputs 5 and 6
INPUTS 7&8	Inputs 7 and 8
2CH RETURN	
TRACKS 1&2	Tracks 1 and 2
TRACKS 3&4	Tracks 3 and 4
TRACKS 5&6	Tracks 5 and 6
TRACKS L&R	Whatever is set as the source for the L/R tracks
FOLLOW METERS	

The 'FOLLOW METERS' option is the one that will be used in most circumstances. With this selected, the source will be the currently selected mode (i.e. INPUTS, BUSMIX, TRACKS, OUTPUT). In this way, the headphone (and top speaker) monitoring will follow the metering so that what you're seeing on the meters is what you're hearing in your headphones or on the speaker. However, by pressing HEADPHONES and changing the SOURCE field, you can quickly override this to monitor any signal within the PORTADRIVE.

M/S DECODER Allows you to select a decode option for the current preset.

> STEREO
> MONO BOTH
> MONO R
> MONO L
> MS

SOLO SWITCH STYLE This allows you to select different ways of using the front panel SOLO keys. These are:

> LATCHING When you press the SOLO key, it will illuminate, the selected channel will be solo'd and will remain solo'd until the key is pressed again to switch SOLO off.

> MOMENTARY The selected channel will only be solo'd while the SOLO key is being held.

> AUTO If you 'stab' a SOLO key (i.e. press it quickly), the action will be latched - i.e. it will stay solo'd until such time as the key is pressed again. However, if a SOLO key is pressed *and held*, the action will be momentary and the channel will only be solo'd while you hold the key.

SOLO LEVEL This allows you to set the level of the solo'd signal. The range is MUTE / 1-99 / MAX

.

ERROR BEEP LEVEL A warning beep can be turned on so that whenever there is any type of error a beep will sound in the headphone monitoring.
The ERROR BEEP LEVEL control is located in the OUTPUT/HP page. Use the data-wheel to control the settings.

> Options: OFF, 1-99, MAX

If the SOURCE field is set to 'FOLLOW METERS', additional function keys are available that allow you to set a separate mix for the headphone output:
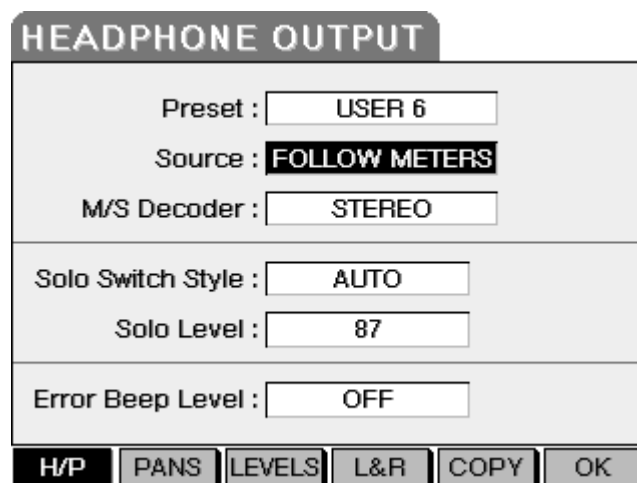
The headphone mixer allows you to access separate mixers for the inputs and tracks that allow you to set alternative personal headphone mixes for these sources.

When in INPUT mode, the monitoring signal flow is as follows:
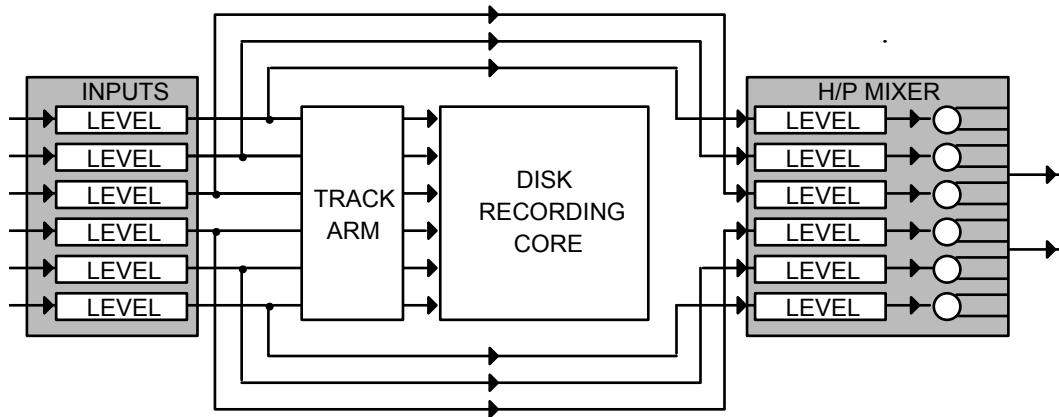
The headphone output mixer takes a feed from the inputs. In this way, you can create an alternative input mix on the headphones / speaker safe in the knowledge that what's going to disk is safe.

When in TRACK mode, the monitoring signal flow is as follows:
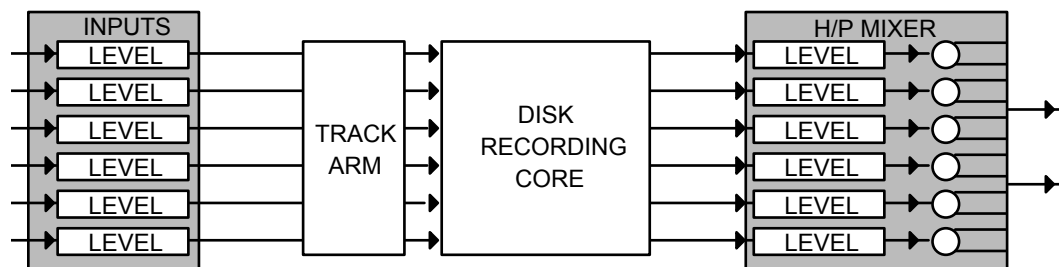
HEADPHONE MIX IN 'TRACKS' MODE

Settings made in the headphone mixer will not affect signals being recorded to disk, only those being heard in the headphones (or through the top panel speaker).

In either case, the headphone mixing facilities are identical and are discussed next.

Pressing H/P MIXER will show this screen (in this example, INPUTS is selected but the functions are identical if the source is TRACKS):

In this page, you can set an alternative stereo mix for the headphone / speaker monitoring. You can switch channels on or off, you can pair adjacent channels and you can independently pan channels. You can also apply M/S decoding to pairs of adjacent channels.
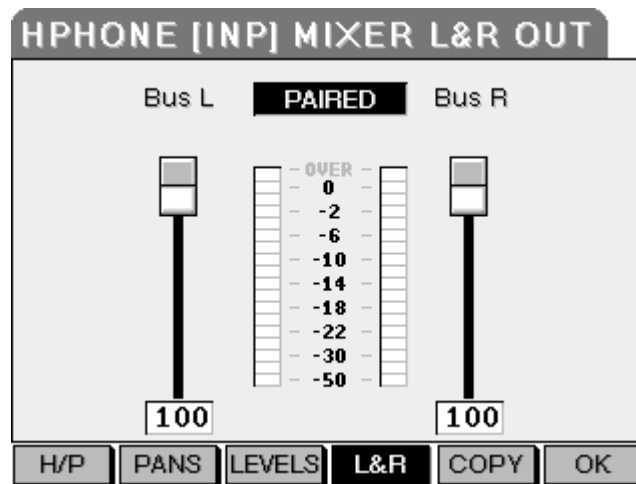
Pressing LEVELS (F3) shows this screen:
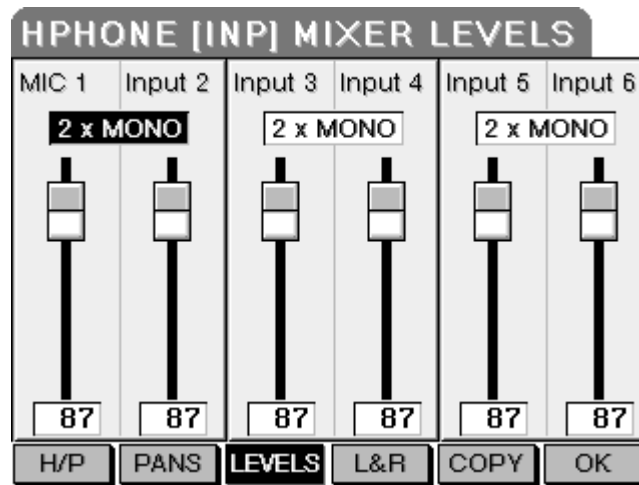
Here you can set the levels for the channels. You can also pair tracks if you want.

Pressing OUT L/R (F4) shows this screen:

Here, you can set the master stereo level for your alternative headphone / speaker monitor mix.

The L/R channels can be paired to act as a single, master stereo fader. You can also see the master L/R meters.

The input to the headphone mixer, if headphone FOLLOW mode is selected, will always follow the selected 'primary' mode (i.e. input, track, output, etc.) so what you will hear in the headphones is what's being controlled and metered in the selected 'primary' mode. You have the ability to set up a headphone mix for the input signals and the track signals. In this way, with the various 6 into 2 mixers contained within the PORTADRIVE, you can have one mix (BUSMIX) going to two disk tracks from the inputs, a totally separate mix (OUTPUT) of the track outputs in the MAIN L/R outputs, and another mix (HPHONE) on the headphones / speaker. Why is this useful? Well... one mix could be sent to the director via the MAIN outputs, another to the internal stereo L/R tracks via the BUSMIX whilst you have your own personal mix on headphones. It's all designed to be as flexible as possible. What follows is an extremely simplified block diagram of the PORTADRIVE:
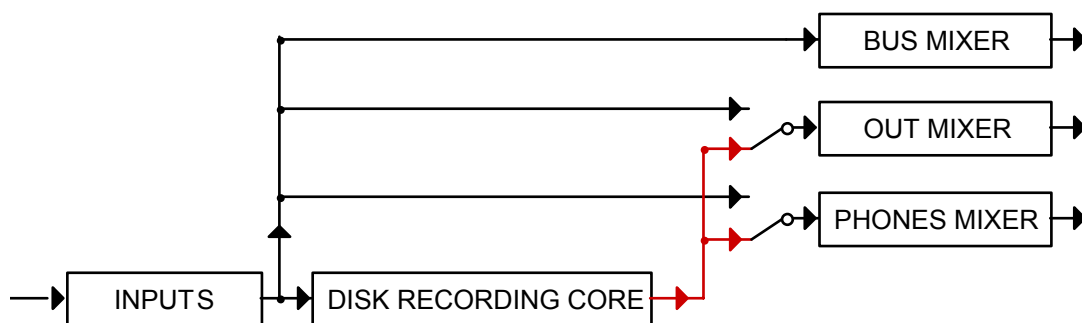

The input paths feed via the track routing the disk-recording core and each of the various mixers can independently have as their source a feed from the input paths or the inputs/outputs of the tracks. The outputs of the bus mixer and the output mixer can feed the tracks via the track routing and/or the MAIN and/or AUX outputs (the headphone mixer, of course, is hardwired to the headphone output / speaker).

With that in mind, the COPY function on F5 allows you to copy the settings between the various mixers. Pressing COPY will show this screen:
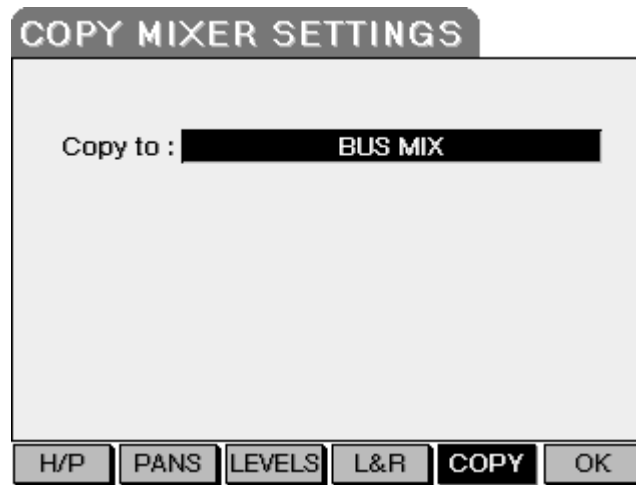
Select the destination mixer you wish the headphone mix to be copied to.

Once you have set up your alternative headphone / speaker mix, press OK (F6). You will be returned to the MAIN OUTPUT page:
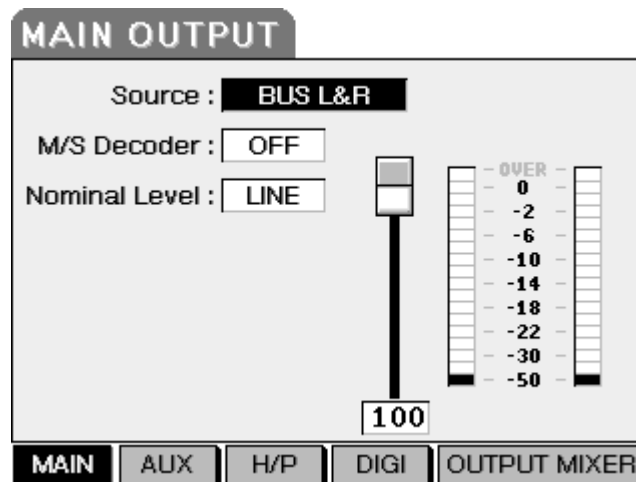
Pressing DIGI will show this screen:

Here, you can set parameters that relate to the PORTADRIVE's digital outputs. The parameters are:

ST. & AES 78 SOURCE   This allows you to select the input source for the digital outputs (in other words, allows you to select what will be output through this connector). The options are:

        OFF   No output

        MAIN OUT   The audio source selected for the MAIN outputs will be output through the digital output.

        AUX OUT   The audio source selected for the AUX outputs will be output through the digital output.

        TRACK L&R   The L&R tracks (tracks 7+ 8) will be sent to the digital output.

Note - The signal on the AES outputs 7&8 on the DB25 connector is the same signal as routed to the stereo SPDIF/AES outputs. If you want to output all eight-disk tracks 1-8 via the DB25 connector, then the ST&AES78 DIGOUT SOURCE must be set to TRACKS L&R.

AES 1-6 SOURCE   The multi-pin DB25 AES connector can take as its output source disk tracks 1-6. During playback, you will hear the output of the track; during record (or when the unit is stopped), you will hear the disk tracks inputs. You can also switch this option to OFF - this actually turns the AES circuitry off and so can help to conserve power if the multi-channel DB25 connector is not being used.

FORMAT   Allows you to set the format of the digital audio appearing at the digital outputs. The options are:

        PRO   Professional AES/EBU.

Note - This option can also be used with consumer devices but you should check that device's documentation for compatibility details.

        CONSUMER   SPDIF (60958). This is best suited for use with consumer digital audio devices equipped with phono digital I/Os. When this option is selected a further option becomes available: CATEGORY CODE. This can be set to GENERAL, DAT or CD.

OUTPUT BIT DEPTH   Allows you to set the bit depth of the output signal between:
16 bit; 20 bit and 24 bit words.

DITHER   The dither ON/OFF function only appears when you select Output Bit Depth to be 20-bit or 16-bit.

DISK MODE
Pressing DISK will show this screen:
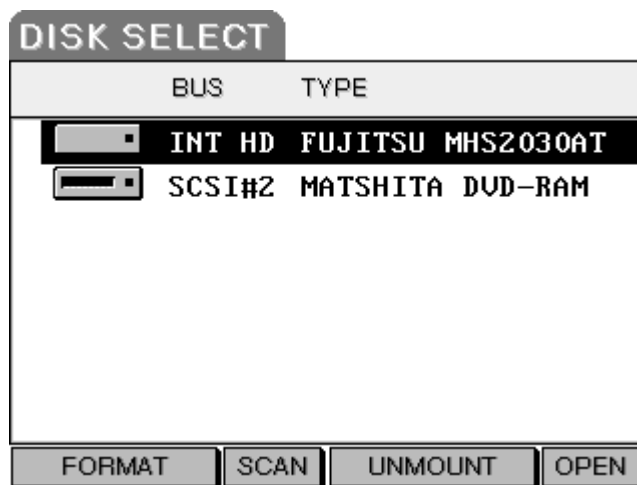
This shows a typical PORTADRIVE with just an internal drive installed. However, a more advanced setup with external drives connected would show more drives. Drives are selected using the CURSOR UP/DOWN keys and opened using the OPEN key on F6.

Various icons are used to show the type of drive being used.

          Indicates that the drive is a hard disk.

          Indicates that the drive is a removable type.

          Indicates that the drive is a DVD or CD-ROM

The soft keys across the bottom give you access to various disk related functions. These are:

FORMAT   Allows you to format the disk so that it is ready for use with the PORTADRIVE. See page 71.

SCAN   This can be useful if, for example, you switched the PORTADRIVE on and *then* switch any connected external drives on afterwards.

                      With the drives powered down, the PORTADRIVE won't, of course, 'see' them when you enter the DISK mode. After switching them on, however, pressing SCAN will scan the SCSI bus and will refresh the drive list to show any external drives that may be connected.

                      SCAN is also useful if removable drives have been swapped over.

IMPORTANT NOTE - YOU CANNOT 'HOT SWAP' SCSI DRIVES!!

Once the PORTADRIVE is powered up, you cannot just plug a drive into to the SCSI connector like, for example, plugging in another mic. Neither can you unplug a SCSI drive when the PORTADRIVE is switched on. Doing so may damage the PORTADRIVE and / or the drive.

This is not a limitation of the PORTADRIVE but an electrical restriction imposed by SCSI.

Under no circumstances should you switch the PORTADRIVE on and *then* plug in a SCSI drive.

Similarly, when the PORTADRIVE is switched on, you should never unplug a drive.

You *might* just get away with it but there is every chance that you won't and you run the risk of damaging your PORTADRIVE and/or the disk drive and also potentially lose data.

Any external drives you plan to use MUST be switched off and connected beforehand with the PORTADRIVE switched off. Once everything is connected, then - and only then - should you apply power and the rule of thumb is that the external drives should be switched on first followed finally by the PORTADRIVE.

If, however, you happen to switch the PORTADRIVE on first and *then* switch any external drives on afterwards, use the SCAN function.

UNMOUNT DISK   When swapping removable media, it is necessary to 'unmount' the drive before removing or ejecting it.

                       You should always unmount a disk before ejecting or physically removing a disk to reduce the risk of data loss.
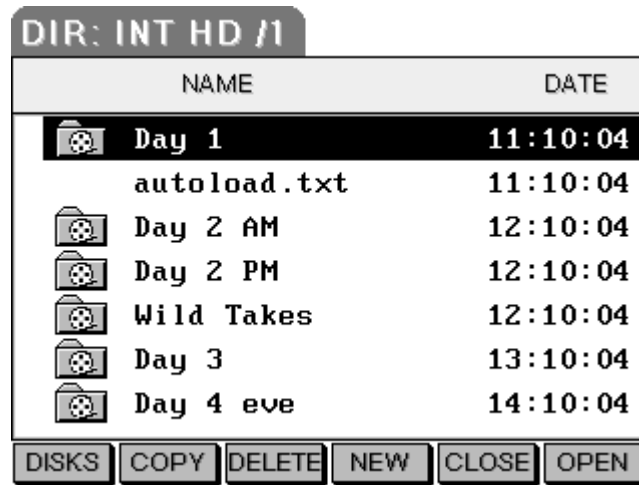
OPEN   Pressing this 'opens' the selected drive. It is the equivalent of double clicking on a disk icon on a Mac or Windows PC. Pressing OPEN will show you the contents of the selected drive. For example:

               The first level down from the main DISK page is the partitions page. If you have formatted your drive to have multiple partitions, you will see these as 'virtual drives'. The above example screen shot shows a drive with a single partition.

To see the contents of a partition, press OPEN again. You will see something like this:

```
┌─────────────────────┐
│ DIR: INT HD /1      │
├─────────────────────┴───────────┐
│      NAME              DATE      │
├─────────────────────────────────┤
│ [■] Day 1           11:10:04    │
│     autoload.txt    11:10:04    │
│ [■] Day 2 AM        12:10:04    │
│ [■] Day 2 PM        12:10:04    │
│ [■] Wild Takes      12:10:04    │
│ [■] Day 3           13:10:04    │
│ [■] Day 4 eve       14:10:04    │
├──────┬─────┬──────┬─────┬─────┬──────┤
│ DISKS│ COPY│DELETE│ NEW │CLOSE│ OPEN │
└──────┴─────┴──────┴─────┴─────┴──────┘
```

Repeatedly pressing open will take you down further into the disk hierarchy.

FORMAT DISK
Before a disk can be used on the PORTADRIVE, it has to be formatted, a process that arranges the disk in a way that is suitable for use.

PRO TOOLS V5 (SDII) or AES31 (BWF)

The following table provides a description of the two possible format groups (including audio file formats) available within PORTADRIVE:

	DISK FORMAT	AUDIO FILE FORMAT	SESSION FORMAT	NOTES
GROUP 1 (FAT32)	FAT32	BWFm	AES31-3	FAT32 – compatible with PC and MAC. BWFm – Broadcast wave compatible with virtually all modern workstations AES31-3 – compatible with SADIE, NUENDO, PYRAMIX, INDAW etc
GROUP 1 (FAT32)	FAT32	BWFp	AES31-3	FAT32 – compatible with PC and MAC. BWFp – Broadcast wave file containing multiple audio tracks.
GROUP 2 (HFS)	HFS	SDII	PRO TOOLS V5	HFS – compatible with all MAC systems SDII – sound designer 2 audio files Pro Tools V5 – compatible with any version 5 or 6 Pro Tools system.

The disk format determines which format group is selected.

Examples

- If the user wishes to record BWF audio files, then they must ensure the disk being recorded to is formatted FAT32.
- If the user wishes to record SDII audio files, then they must ensure the disk being recorded to is formatted HFS.
- If the user wishes to record a Pro Tools session, then they must ensure the disk being recorded to is formatted HFS.
- If the user wishes to record an AES31-3 session, then they must ensure the disk being recorded to is formatted FAT32.

If a disk is formatted FAT32, then you are instructing PORTADRIVE to automatically record BWF audio files and an AES31-3 session file.

The AES31-3 session file is denoted by an '.adl' suffix. ADL stands for Audio Decision List and is a simple text document that contains all the necessary information to allow direct interchange (without the need to import individual files on to a timeline) of sessions between any compliant workstation or audio equipment.

The use of the AES31-3 file (adl) is optional – you can quite happily ignore it and just use the BWF files if you prefer.

> **NOTE –**
> **THE BWF FILES ARE COMPATIBLE WITH ALMOST ALL KNOWN PROFESSIONAL WORKSTATIONS**

If a disk is formatted HFS, then you are instructing PORTADRIVE to automatically record SDII audio files and a PRO TOOLS V5 session file.

The PRO TOOLS V5 session file is denoted by a 'pt5' suffix and contains all the necessary information to allow direct interchange (without the need to import individual files on to a timeline) of PORTADRIVE sessions with any Mac based Pro Tools system, version 5 or higher.

The use of the PRO TOOLS V5 file (pt5) is optional – you can quite happily ignore it and just use the SDII files if you prefer.

To format a disk, first select the drive in the main DISK page (above) and press DISK FORMAT. You will see the following screen:

As the screen informs you, proceeding will erase all data on the drive - proceed with caution.

Once a drive has been formatted, there is no way to retrieve the data that was previously stored on the drive. Also, there is no way to stop the formatting process once it has begun and it is not possible to undo the operation after the process has completed.

If there is the slightest doubt, press CANCEL [F1/F2]

There are two parameters on this page. These are:

FORMAT TYPE

Allows you to format the disk as FAT32 or HFS. You should select FAT32 if the disk is to be used with AES31 sessions. You should select HFS if the disk is to be used for Pro Tools version 5 sessions.

NUMBER OF PARTITIONS

It is possible to divide a disk up into 'partitions' - i.e. smaller 'virtual drives'. You don't *have* to do this but it can be useful if you want to keep different projects separate (although this can just as easily be done using folders of course).

To format a disk with partitions, simply set a number on this field. The drive will be divided accordingly. For example, if you have a 40Gb drive and you set a value of 4 here, after the formatting process is complete, you will end up with 4 x 10Gb partitions. If you set 10 here, you will end up with 10 x 4Gb partitions. If you set a value of 1, you will have 1 x 40Gb partition (in other words, the whole drive will be just one big partition). When a drive is formatted with partitions, each partition will show up as a separate drive in the main DISK SELECT page.

Special care must be taken when formatting a drive that has previously been formatted with partitions. For example, you may have a drive that has been partitioned into four equal partitions. To all intents and purposes, you have four separate 10Gb drives and, in practice, they will appear and behave like separate drives except....

**** It is not possible to separately format an individual partition ****

Using the above example, should you select one of the drives in the list, proceeding with the format will also wipe (erase) all data from the other two partitions.

NAVIGATING DISKS

Back in the main DISK page, pressing OPEN (F6) will open the selected disk and you will see the selected drive's partitions (if any). When a drive/partition is opened, you will see something like the following screen:

Different file types are used which are denoted graphically with easily recognisable icons as follows:

SESSION — This is the collection of recordings that make up your project or 'session'. Think of it much like a reel of multi-track tape that contain your day's recordings.

SCENE — A session will typically contain any number of scenes.

TAKE — This folder type is created every time you make new recording and contains the raw audio files. One file is created for each track that is enabled when recording in BWFm or SDII audio formats. When recording in the BWFp format, a single polyphonic file is created.

AUDIO: — This icon indicates that the file is an audio file (the raw recordings used in a session). A session typically contains many audio files.

ADL — This file contains all the pointers that ensure that the recordings play at the correct times on the correct tracks. This is an AES31-3 interchange file that allows PORTADRIVE sessions to be directly imported into many DAWs

FOLDER — A folder can contain sessions, raw recordings or even further sub-folders that contain these items. Folders allow you to organise your work more logically. For example, you could have a folder called 'MY SHOOT' and in this folder you could have the sessions for each day's recording.

TEMPLATE — This icon indicates a file containing a bank of 10 User Templates. Using multiple Template files (.tpl) enables an unlimited number of User Templates to be stored.

Alongside each file type (session, folder or audio file), you will see the 'last modified' date... that is, the date of the last time the file was modified in any way.

DISK / FILE HIERARCHY

Across the bottom of the screen, the keys show functions pertinent to disk and file operations. They are:

DISKS   Takes you back to the 'disk list' page.

COPY   Allows you to copy items.

DELETE   Allows you to delete items. If you press this key, you will receive a prompt:

NEW   Allows you to create new sessions or folders. See page 79.

CLOSE   Allows you to close folders.

OPEN   Allows you to open files.

               To open any of the files, move the cursor to the required item and press OPEN (F6).

               When the selected file is a .ADL file, pressing open will activate the associated session (the previously active session will be autosaved and closed). Also, you will be taken to the SESSION mode – see page 81.

               When the selected file type is a folder, pressing OPEN will open the folder and you will see its contents. If the folder contains further sub-folders, they can also be opened in the same way. Folders can be closed using the CLOSE key on F5. If you try to close a folder that is already closed, you will be prompted accordingly.

               Takes cannot be 'opened' as such but the takes folder can be opened to view the audio within the take folder. Takes and Audio files are shown in the file list purely for information and for other 'management' tasks such as copying and deleting.

The hierarchy of the file structure allows the user to choose how the audio files are stored on a FAT32 format disk, thereby enhancing import flexibility into post.
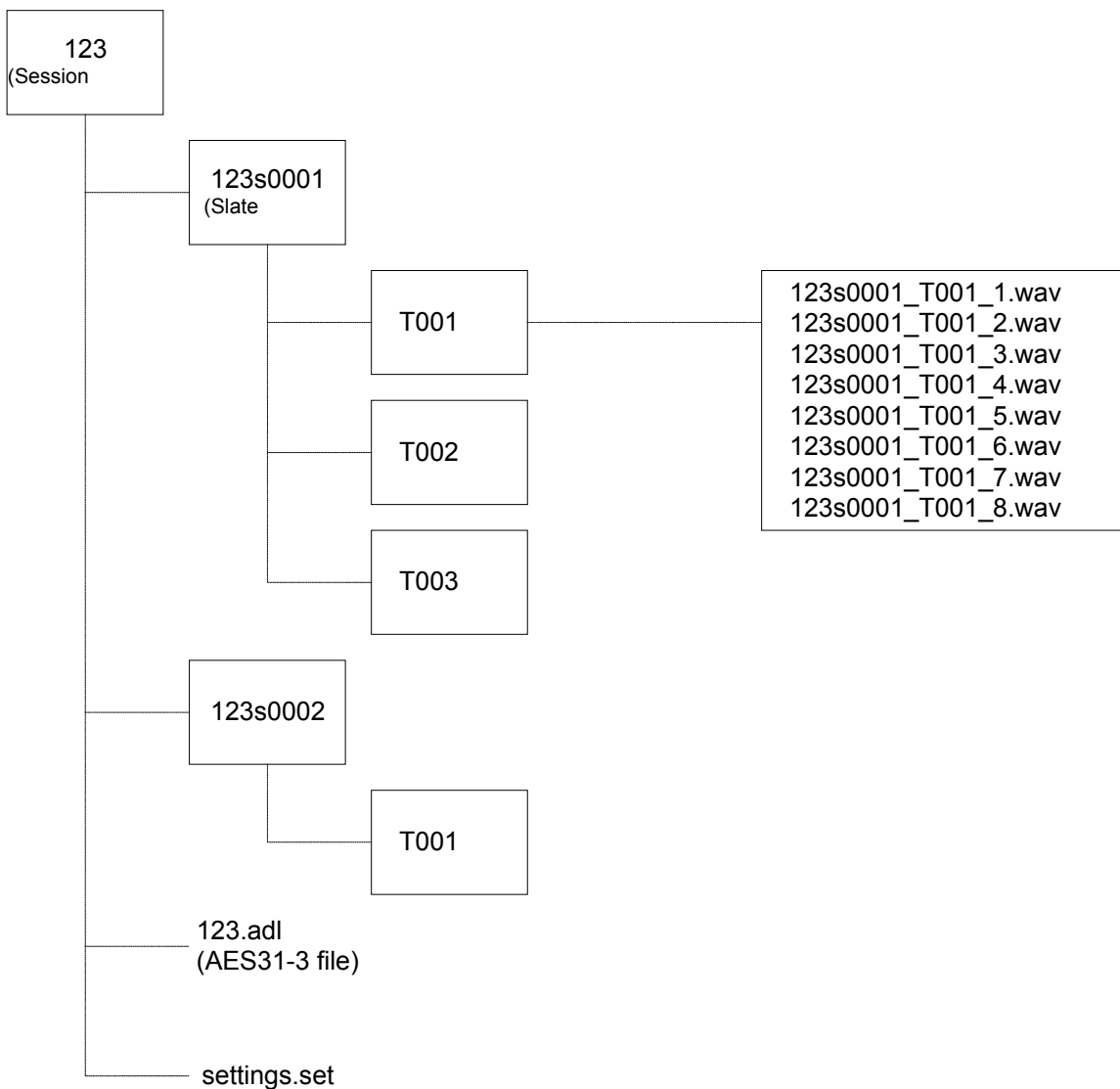
The user is able to select which structure is used when creating a NEW SESSION:

TREE

This is a simple and organised directory structure which makes for easy navigation and copying of individual SLATES and TAKES.

Here is an example of TREE structure for a session called '123'. In this example, the user has input slate names in the following format,

<SESSION name><s><SLATE number>

```
123
(Session
    │
    ├── 123s0001
    │   (Slate
    │       │
    │       ├── T001 ──── 123s0001_T001_1.wav
    │       │             123s0001_T001_2.wav
    │       │             123s0001_T001_3.wav
    │       │             123s0001_T001_4.wav
    │       │             123s0001_T001_5.wav
    │       │             123s0001_T001_6.wav
    │       │             123s0001_T001_7.wav
    │       ├── T002      123s0001_T001_8.wav
    │       │
    │       └── T003
    │
    ├── 123s0002
    │       │
    │       └── T001
    │
    ├── 123.adl
    │   (AES31-3 file)
    │
    └── settings.set
```
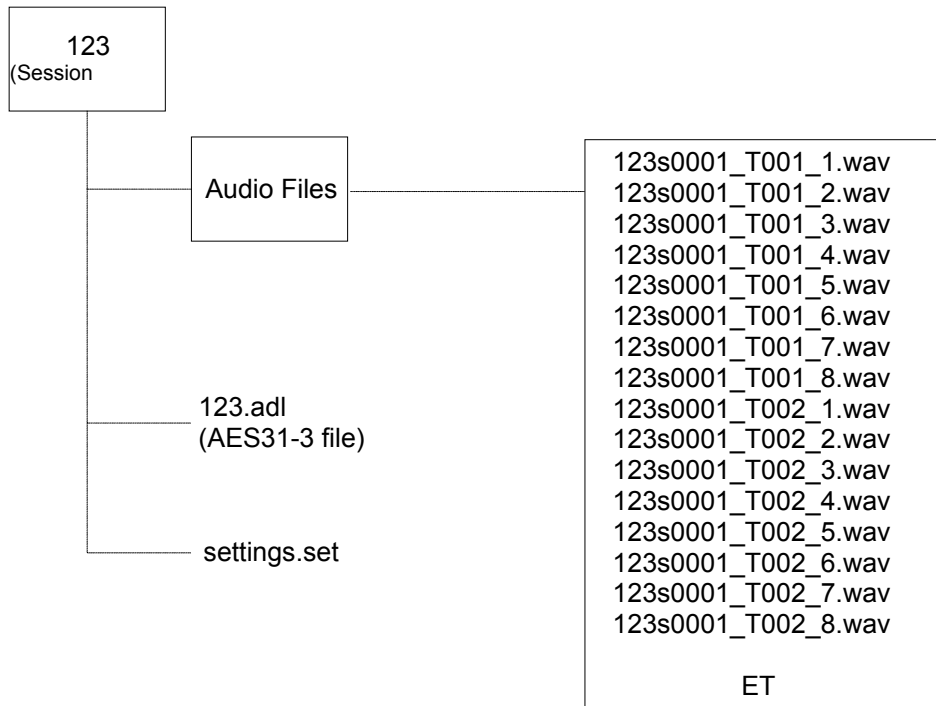
FLAT

In the FLAT structure, all audio files are stored inside a folder called 'Audio files'.
Some audio products find it easier to import audio files when they are located in a single directory.

Here is an example of FLAT structure for a session called '123'. In this example, the user has input slate names in the following format:-
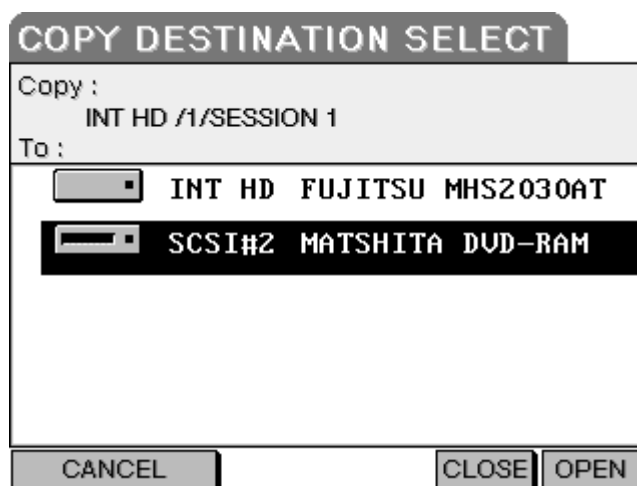
<SESSION name><s><SLATE number>

```
123
(Session

                Audio Files ───────── 123s0001_T001_1.wav
                                       123s0001_T001_2.wav
                                       123s0001_T001_3.wav
                                       123s0001_T001_4.wav
                                       123s0001_T001_5.wav
                                       123s0001_T001_6.wav
                                       123s0001_T001_7.wav
                                       123s0001_T001_8.wav
                                       123s0001_T002_1.wav
                123.adl                123s0001_T002_2.wav
                (AES31-3 file)         123s0001_T002_3.wav
                                       123s0001_T002_4.wav
                                       123s0001_T002_5.wav
                                       123s0001_T002_6.wav
                settings.set           123s0001_T002_7.wav
                                       123s0001_T002_8.wav

                                              ET
```

COPYING ITEMS
Each of the DISK pages has a copy function that allows you to copy items. You can copy items between different disk drives, different partitions or you can copy items around on the same disk.

To copy an item, you must first select the item you want to copy in the usual way using the CURSOR UP/DOWN keys. Pressing COPY will now show something like this:

```
╔══════════════════════════════════════╗
║ COPY DESTINATION SELECT               ║
╟──────────────────────────────────────╢
║ Copy :                                ║
║     INT HD /1/SESSION 1               ║
║ To :                                  ║
║   ┌────────┐                          ║
║   │      ·│  INT HD  FUJITSU MHS2030AT║
║   └────────┘                          ║
║   ┌────────┐                          ║
║   │▬▬▬▬  ·│  SCSI#2 MATSHITA DVD-RAM  ║
║   └────────┘                          ║
║                                       ║
║                                       ║
║                                       ║
║ ┌─────────┐        ┌─────┐┌─────┐     ║
║ │ CANCEL  │        │CLOSE││OPEN │     ║
║ └─────────┘        └─────┘└─────┘     ║
╚══════════════════════════════════════╝
```

The selected item is shown at the top of the page and the destination is shown below. In this example, you can see that the file "48KHZ" on Partition 1 of the Internal hard drive is going to be copied to a DVD RAM disk that is connected via SCSI.
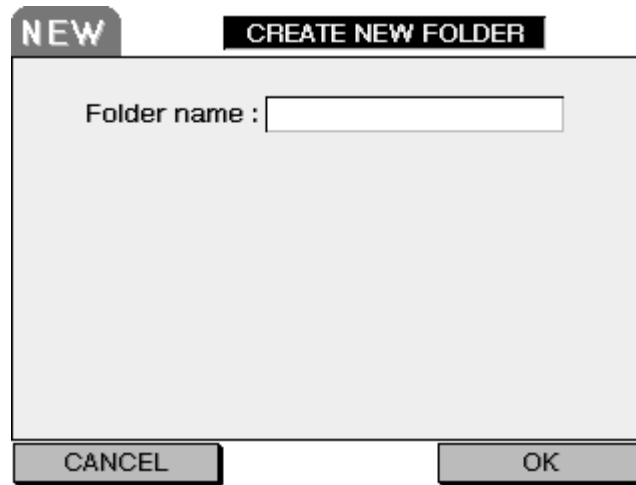
To navigate around the destination location, press OPEN and select the destination in the usual way. Once the destination has been chosen, press OK.... the item selected for copy will be copied to the selected destination and you will see a progress display. At any time, you can press CANCEL to abort the process.

The COPY process allows you to copy everything from one disk to another, one partition to another, a partition from one disk to another disk right down to copying a single audio file to a different (or new) folder..... simply select the item you want to copy and then select the destination you want to copy it to.

Of course, it is also possible to take the disk to a Mac or PC and manage your recordings there. The drive will appear as a drive on the Mac desktop or in Windows Explorer and you can move files around in the usual way. A detailed description is beyond the scope of this Operator's Manual however but if you have used a Mac or PC before, you should have no trouble!
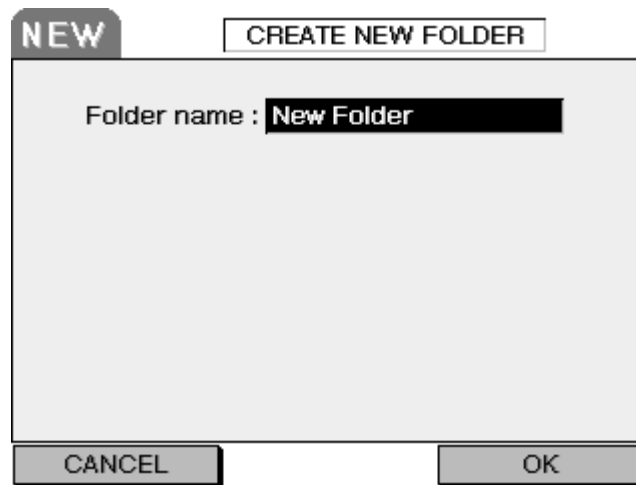

CREATING A NEW FOLDER OR SESSION

To create a new folder, press NEW (F4). You will see this screen

```
┌─────────────────────────────────────────────┐
│ NEW        ┌─ CREATE NEW FOLDER ─┐           │
│            └─────────────────────┘           │
│     Folder name : ┌──────────────────┐       │
│                   └──────────────────┘       │
│                                              │
│                                              │
│                                              │
│                                              │
│                                              │
│  ┌──────────────┐        ┌──────────────┐   │
│  │   CANCEL     │        │     OK       │   │
│  └──────────────┘        └──────────────┘   │
└─────────────────────────────────────────────┘
```

You can select whether to create a new folder or a new session using the DATA wheel.

Choose CREATE NEW FOLDER (as shown above) and move the cursor down to the FOLDER NAME field:

```
┌─────────────────────────────────────────────┐
│ NEW        ┌─ CREATE NEW FOLDER ─┐           │
│            └─────────────────────┘           │
│     Folder name : ┌──────────────────┐       │
│                   │ New Folder       │       │
│                   └──────────────────┘       │
│                                              │
│                                              │
│                                              │
│                                              │
│  ┌──────────────┐        ┌──────────────┐   │
│  │   CANCEL     │        │     OK       │   │
│  └──────────────┘        └──────────────┘   │
└─────────────────────────────────────────────┘
```

To enter a name, press ENTER. The name field will 'open':

```
┌─ENTER TEXT─────────────────────────────┐
│                                         │
│      Folder name : NEW FOLDER           │
│                                         │
│                                         │
│                                         │
│                                         │
│                                         │
│                                         │
│          Use data wheel to change text  │
│ ABORT │ DEL │ UPPER │ LOWER │ NUM │ OK  │
└─────────────────────────────────────────┘
```
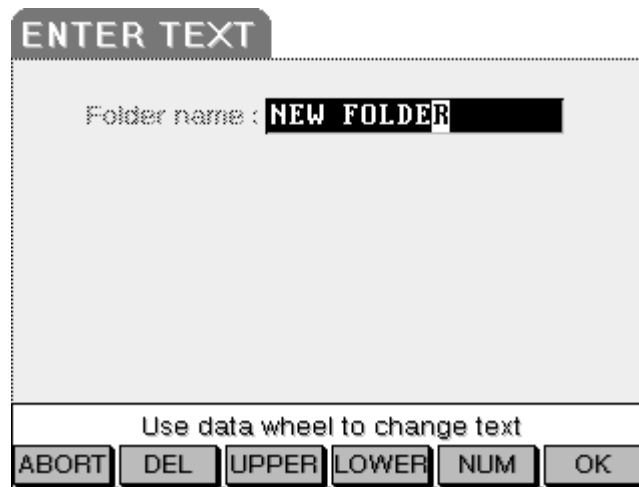
You can enter a 12-character name in the usual way. Press ENTER again to confirm the name and close the name field.

To create a new session, choose CREATE NEW SESSION in the topmost field. See page 87 to find details on creating a new session.

SESSION MODE
Pressing SESSION will show this screen:
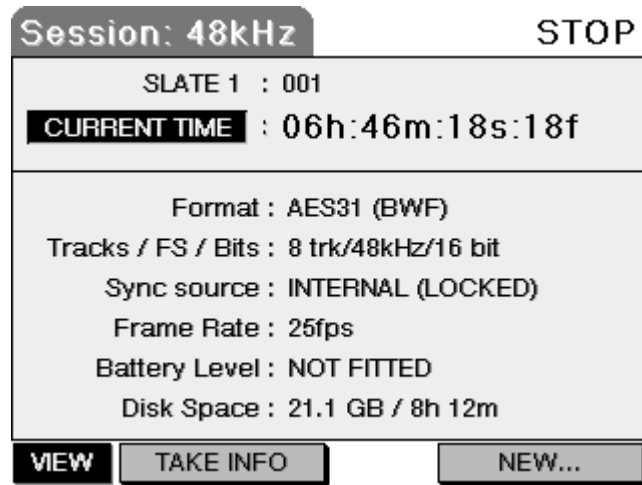
Here you can see essential information about the currently active session and its takes. The current session is shown top left. The fields are:

TAKE XXX   The take number is shown (where XXX is the take number). An associated SCENE number will also be shown to the take name's left.

TAKE TIME   The options are CURRENT TIME, REMAINING TIME or ELAPSED TIME.

FORMAT   Shows the current format. This will be either AES31 (BWF files) or PRO TOOLS (SD2 files). This is set by the DISK format of the current drive in the PORTADRIVE.

TRACKS /FS / BITS   Shows the current number of tracks used in the session and the session's sample rate and bit-depth.

SYNC SOURCE   Displays the current synchronisation status.

FRAME RATE   Displays the current system timecode frame rate.

BATTERY LEVEL   Shows the current battery charge.

DISK SPACE   Shows the amount of free disk space in Gbytes and hours/minutes.

Pressing TAKE INFO shows this screen:

The Metadata fields here can be edited allowing you to add, create and rename scenes and takes and also add your own comments about the recording.

SLATE NAME	Shows you the current scene name. You can name the scene if you want using the usual naming process - press ENTER, enter a 12-character name and press ENTER again to confirm the name and close the name field. You cannot rename a scene but you can make a new scene utilising the last take in the current scene, this allows for the situation where a take is made in the wrong scene location.
TAKE	Shows the currently selected take. It is possible to 'circle' a take. That is, if you imagine a typical logging sheet where you might draw a circle around the take you want to use, this is the equivalent. Takes are circled using the CIRCLE key (F4).
COMMENTS	You can enter your own comments about the take in this field. Comments of up to 50 characters can be accommodated.

The function keys are as follows:

INC SLATE NO	Allows you to create a new scene by incrementing the last character of the scene name by 1 (if in numerical incremental mode) or by sequential letters of the alphabet – if in alphabetical mode (A->B->C etc). See page 104 for further information.
CIRCLE	Allows you to 'circle' a take for future reference.
OK	Pressing this will enter your comments and return you to the main SESSION page

MANAGING METADATA

The PORTADRIVE allows front panel as well as top panel editing of metadata (SLATE, TAKE and NOTES).

It is possible to edit any take's SLATE name either **before** or **after** it has been recorded.
It is possible to edit a take's NOTES at any time, before, after or even during recording.
It is possible to record the next TAKE into a previously created SLATE.

PORTADRIVE provides a 'universal' system that allows the user to work with both the USA and UK naming conventions, or in fact whatever naming system they wish.

> Note - A PS2 keyboard can be used to enter text when operating from the front or top panels, but not both at the same time.

Description of types of Metadata

SLATE – This is the name of the slate or scene (or whatever you want to use it for) up to a maximum of 12 characters.

Examples:
- '270', '270 A', '270 B' . . . . . '270 Z', '270AA', '270AB' etc   [US convention]
- '001', '002', '003' etc   [UK convention]
- '270WT'   [Wild track]
- 'Movement', 'Song title', etc   [any name]

TAKE – This is a 3-digit number ranging from 001 – 999. This number is automatically controlled by PORTADRIVE as follows:-

- TAKE number increments by 1 each time record is instigated.
- TAKE number automatically resets to '001' if a new SLATE is created.
- If the next take to be recorded is in a previously created SLATE, then the TAKE number of the next take will be equal to the last take number in that slate + 1. So, if there were three takes in slate 001, the next take would automatically be take 004 in slate 001.
- If a take was recorded into the wrong slate (i.e. with the wrong slate name), then it is possible to edit its slate name i.e. move it to another slate. If the take is moved to a new slate, then its take number will default to '001'.
- If the take is moved to an existing slate, then its take number will default to the last take number in that slate +1.

NOTES – This is a text string up to a maximum of 50 characters, which the user can use to make any comments about a particular take.

Metadata uses

SLATE name, TAKE number and NOTES are stored in the description field of the Broadcast wave header and can be read by most professional applications including later versions of AVID.

SLATE name and TAKE number also form the structure of the PORTADRIVE audio file name:

XXXXXXXXXXXX_TNNN_YPZ.wav

XXXXXXXXXXXX is the user definable maximum 12-character text entered in the slate field.
NNN is a take number between 001 and 999
Y is the base track number
P = if present, indicates that the audio file is polyphonic (BWFp)
Z = if polyphonic, then indicates the number of tracks interleaved with the file.

Examples based on take 3 of slate 123a from session (roll) 115

115s123a_T003_4.wav	**refers to track 4,**	**monophonic BWF**
115s123a_T003_1.wav	**refers to track 1,**	**monophonic BWF**
115s123a_T003_1P6.wav	**refers to tracks 1-6,**	**polyphonic BWF**
115s123a_T003_7P2.wav	**refers to tracks 7-8,**	**polyphonic BWF**
115s123a_T003_1P4.wav	**refers to tracks 1-4,**	**polyphonic BWF**

EDITING METADATA

Top panel editing of Metadata is performed in the TAKE INFO page of the SESSION menu.

RECORDING THE NEXT TAKE INTO AN EXISTING SLATE

In the TAKE INFO page above, use the cursors to navigate to the SLATE NAME option box

Use the data-wheel to select an existing slate.

Tip:
If you want to know what the take number of the next recording will be, cursor to the Take option box and use the data-wheel to select the take number that is preceded by the label NEXT TAKE.

Instigate RECORD from the transport control. The take will be recorded into the selected slate.

RECORDING THE NEXT TAKE INTO A NEW SLATE

In the TAKE INFO page above, use the data-wheel to select the take number that is preceded by the label NEXT TAKE.

Cursor to the SLATE NAME option box and press ENTER.

Type in the new slate name/number and press ENTER to save.

Press ABORT (F1) if you make a mistake and you don't want to save.

Instigating RECORD from the transport control will now record take 001 of the new slate.

MOVING A RECORDED TAKE TO A DIFFERENT SLATE (EXISTING OR NEW)

In the TAKE INFO page, select the SLATE name and TAKE number of the take that you want to move (edit) using the cursor keys and data-wheel.

Cursor to the SLATE NAME option box and press ENTER.

Type a new slate name or the name of an existing slate and then ENTER to SAVE.

Press ABORT (F1) if you make a mistake and you don't want to save.

If ENTER is pressed, the message 'Take moved' appears briefly in the LCD.

Note - When you move a take to another slate, its new take number will be the last take number in that slate +1. For example, if you move a take to a slate that already has takes 001, 002 and 003, then the moved take will become 004 in that slate.

ENTERING NOTES FOR A TAKE (BEFORE, DURING OR AFTER RECORDING)

In the TAKE INFO page, select the SLATE name and TAKE number of the take that you want to add/edit notes to, using the cursor keys and data-wheel.

Cursor to the NOTES option box and press ENTER.

Enter a maximum of 50 characters and then press ENTER to SAVE or press ABORT (F1) if you make a mistake and you don't want to save.

CIRCLING / UN-CIRCLING A TAKE

In the TAKE INFO page, select the SLATE name and TAKE number of the take that you want to circle / un-circle using the cursor keys and data-wheel.

Press CIRCLE (F5) to circle. 'Circled' will appear to the right hand side of the Take option box to indicate that the take is circled. To un-circle, press F5 again. 'Circled' will disappear.

Note –
You can circle, as many takes as you like – there are no limitations.
If the session is a FAT32/BWF/AES31 session, then when operating in TREE file structure a take that is circled will have the string '(Circled)' added to the associated take folder name, so that post are able to easily identify which takes are circled.

When operating in FLAT file structure a take that is circled will have the character '@' added to the beginning of the name of each associated audio file located in the Audio Files folder.

If the session is an HFS/SDII/PT5 session, then a take that is circled will have the character '@' added to the beginning of the name of each associated SDII audio file located in the Audio Files folder, so that post are able to easily identify which takes are circled.

CREATING A NEW SESSION

Pressing NEW... [F5/6] in SESSION MODE will show this screen:

```
┌─ NEW SESSION ──────────────────────┐
│                                    │
│   New session name : │ 48kHz     │ │
│   Based on template : │ 4-2 MODE (Preset) │ │
│   Stereo Tracks 7&8 : │  SAME SESSION  │ │
│   Audio file layout : │     FLAT      │ │
│   Current folder: INT HD /1        │
│ ─────────────────────────────────  │
│        Format :    AES31 (BWF)     │
│   Sample rate, FS : │    48kHz     │ │
│       Bit depth : │    24-bit     │ │
│  Tracks 1-X: │ 6 x POLY │ 7&8: │ MONO │ │
│   │ CANCEL │           │   OK   │   │
└────────────────────────────────────┘
```

Here, you can define certain settings that apply to the session you are creating. The parameters are:

NEW SESSION NAME   Allows you to name the session. To enter a name, press ENTER to open the naming field, enter a name in the usual way and press ENTER again to confirm the name and close the field.

BASED ON TEMPLATE   It is possible to use one of six factory presets (listed on page 118) or one of ten 'user' presets as the basis for your new session. Select as (or if) appropriate. If you don't want to use a template, select NONE - this will create a new session with the current PORTADRIVE settings.

Note - User presets are created in the Top Panel SETUP windows (page 106).

STEREO TRACKS 7&8   Allows two sessions to be recorded simultaneously to any destination disk, internal or external. Tracks 7&8 can be recorded in a separate session to tracks 1-6 if required. See page 89 for further details on Multi-Session Support.

When creating a new single session with all tracks, set STEREO TRACKS 7&8 to SAME SESSION.

When creating a new multi-session, set STEREO TRACKS 7&8 to SELECT PARTITION….

Press the ENTER button on the top panel.

The SELECT DISK OR PARTITION page will be displayed.

Cursor to the required disk (internal or external) and press OPEN (F6).

Cursor to the required partition and then press F2/F3 (SELECT).

The page will return to the NEW SESSION page and will show in which partition and on which disk the Stereo Tracks 7&8 session (secondary session) will be created.

AUDIO FILE LAYOUT   Allows you to choose how the Session's audio files are stored on a FAT32 format disk. Either TREE or FLAT. See File Hierarchy, page 75.

CURRENT FOLDER	Shows the folder in which the new session will be placed. This can be changed by accessing the DISK menu and navigating to a different location.
FORMAT	This shows the session format (AES31 or Pro Tools) as determined by the disk format.
	AES31 sessions will always be created on FAT format disks.
	PRO TOOLS sessions will always be created on HFS format disks.
SAMPLE RATE / FS	Allows you to decide the session's sample rate. The options are:

44.1kHz
48kHz
88.2kHz
96kHz

All rates are available with a +/- 0.1% pull-up/pull-down.

Note – PRO TOOLS V5 format allows for a maximum sample rate of 48kHz +0.1%.
 AES31 format allows for any sample rate from 44.1kHz -0.1% to 96kHz +0.1%.

BIT DEPTH	Allows you to set the session's bit depth (16-bit or 24-bit).
TRACKS 1-X 7&8	Allows you to select between Broadcast Wave Monaural and Polyphonic formats. See Broadcast Wave Support.

When you have entered the values you require for your new session, press OK [F5/6] (or CANCEL [F1/2] to abort the procedure). You will then be prompted to create a NEW SESSION. The PORTADRIVE will automatically switch to SESSION mode.

Note - New sessions are always stored at the level navigated to in the DISK pages.

MULTI-SESSION SUPPORT

The PORTADRIVE allows the user to create two simultaneous sessions, one for up to 6 tracks (primary session) and one for tracks 7&8 (secondary session). The user has the ability to store both sessions in the same folder or on separate disks whereby tracks 7 and/or 8 can be recorded to an external disk such as DVDRAM or HDD. This is particularly useful for situations where only a mono or stereo mix is required for rushes i.e. picture edit and where the discrete tracks will be conformed at a later stage for dialogue editing.

In addition, by separating the stereo tracks into a separate session, it is very simple to backup just a stereo mix rather than all 8 tracks that may not be needed in the early stages of post-production. Of course, all 8 tracks can be backed up if required.

Notes –

1) Takes stored on the external disk will have the same metadata (time-code, slate, take, notes etc), as the associated takes stored on the internal disk.

2) If the partition selected is the same as that of the primary session (tracks 1-6), then the two sessions will be created side-by-side in the parent folder determined by the primary session's location – this is indicated by the 'Current folder' line in the NEW SESSION page.

3) If the partition selected is a different partition from that of the primary session (tracks 1-6), then the secondary session (tracks 7&8) will be created at the root level of the partition selected.

4) Multi-disk session recording limits the maximum number of tracks recorded internally to 6 (tracks 1-6).

5) It is not possible to record a PROTOOLS multi-disk session with DVDRAM as the external drive. This is because PORTADRIVE only allows FAT32 format for DVDRAM. However, it is possible to record a PROTOOLS multi-disk session with an external HD formatted HFS.

To view remaining space on the external disk for a multi-disk session, go to the DISK menu, select the external disk in the DISK SELECT page, press OPEN to view the remaining space (in GB) on the external disk partition.

___

Broadcast Wave (BWF) Support

The PORTADRIVE has the facility to record in either BWFm or BWFp modes, and selection of the recording BWF format is made via the NEW SESSION window.

'What is the difference between an interleaved (often referred to as polyphonic) broadcast wave file, BWFp and a mono broadcast wave file, BWFm?'

BWFm is a broadcast wave audio file which contains a single audio track.
So for example, if a particular take was recorded with 8 tracks armed, then this would result in 8 individual audio files, 1 for each recorded audio track. Each audio file has exactly the same timecode stamp, sample length and slate, take, note metadata allowing the files to be easily synchronised together within an editing workstation.

Advantages:
- Can be played back by virtually any wave-file player.
- No need to de-interleave – some audio editing workstations require that wave files are mono and must de-interleave an interleaved file into its constituent mono files before editing can take place. Mono file editing requires less processor overhead.
- Unlikely to reach the 4GB file size limit. A 96Khz, 24-bit take with 8 tracks can last up to approximately 4 hours.

Disadvantages:
- Requires an automated or manual system for synchronising the mono files that represent the individual tracks of a take.

Portadrive eradicates this disadvantage by recording sessions in AES31-3 format, an interchange format that allows individual mono files that make up a take to be automatically imported and placed in sync at the correct point on a workstation's timeline and on the correct track.

BWFp is a single broadcast wave audio file which contains a group of audio tracks.
So for example, if a particular take was recorded with 8 tracks armed, then this would result in a single audio file comprising of 8 interleaved audio tracks. No synchronisation of the individual tracks is necessary as they are bound together as one. The simplest example of an interleaved wave file is the stereo '.wav' file, the most common format for distribution of un-compressed stereo audio over the web.

Advantages:
- All tracks that make up the file are by default in sync thus simplifying syncing up in an AVID.
- More efficient when writing to slow optical disk formats.

Disadvantages:
- There is no guarantee that a workstation or audio software application will be able to playback the file directly in its interleaved state and thus must often go through an additional process of de-interleaving before editing can take place.
- Polyphonic file editing requires more processor overhead.
- More likely to reach the 4GB file size limit. A 96Khz, 24-bit take with 8 tracks can last up to a maximum of approximately 30 minutes.

Note - It is recommended that the sound mixer seeks advice from the production company and /or post-production as to whether to record in BWFm or BWFp format. If in doubt, use BWFm as this format can be read by virtually any workstation or audio software application.

BWF Format Selection

In the NEW SESSION page (SESSION/NEW), after naming and selecting your parameters for the session, select a BWF format from option boxes TRACKS 1-X and 7&8.

The options for each box are as follows:-

Tracks 1-X		Tracks 7&8	
MONO	(Any of tracks 1-6)	MONO	(Any of tracks 7&8)
2 X POLY	(tracks 1,2)	MONO	(Any of tracks 7&8)
3 X POLY	(tracks 1,2,3)	MONO	(Any of tracks 7&8)
4 X POLY	(tracks 1,2,3,4)	MONO	(Any of tracks 7&8)
5 X POLY	(tracks 1,2,3,4,5)	MONO	(Any of tracks 7&8)
6 X POLY	(tracks 1,2,3,4,5,6)	MONO	(Any of tracks 7&8)
8 X POLY	(tracks 1,2,3,4,5,6,7,8)	---	
MONO	(Any of tracks 1-6)	2 X POLY	(tracks 7,8)
2 X POLY	(tracks 1,2)	2 X POLY	(tracks 7,8)
3 X POLY	(tracks 1,2,3)	2 X POLY	(tracks 7,8)
4 X POLY	(tracks 1,2,3,4)	2 X POLY	(tracks 7,8)
5 X POLY	(tracks 1,2,3,4,5)	2 X POLY	(tracks 7,8)
6 X POLY	(tracks 1,2,3,4,5,6)	2 X POLY	(tracks 7,8)

Reminder – Tracks are armed or disarmed in the front or top panel TRACK menus.

TC MODE
Pressing TC / SYNC gives access to the timecode and synchronisation functions. You will see this screen:

```
┌─ T/C GEN ──────────────────────┐
│  ┌──────────────────────────┐  │
│  │   06h:52m:02s:04f         │  │
│  │  U-Bits : 00:00:00:00     │  │
│  └──────────────────────────┘  │
│                                 │
│   T/C Mode :  ▐ FREE RUN ▌     │
│   Frame rate : │   25   │       │
│       Level : │  1V P-P │       │
│  ───────────────────────────    │
│  Set Generator :│00h:00m:00s:00f││
│                                 │
│ ▐GEN TC▌ │UBITS│ │CHASE│ │JAM│ │
└─────────────────────────────────┘
```

The parameters are:

T/C MODE	Allows you to set the timecode source the PORTADRIVE will use as the time reference for recording. The options are:

	EXT TIMECODE	The PORTADRIVE will use the external timecode being received at the side panel's T/C IN connector.
	FREE RUN	The PORTADRIVE's timecode will be generated internally and free running.
	RECRUN	The PORTADRIVE will only generate timecode when recording.
	DISK TIMECODE	This selection will cause the PORTADRIVE to generate the selected recording's timecode.

FRAME RATE	Allows you to set the frame rate of the timecode. The options are 23.98, 24, 25, 29.97D, 29.97ND, 30D, 30ND.
LEVEL	Sets the level of the timecode generated by the PORTADRIVE. You can select 1Vp-p or 5V p-p.
SET GENERATOR	Allows you to set a start point for the PORTADRIVE's timecode generator. This is only available in FREERUN and RECRUN.

The timecode display shown at the top of the page always shows the current timecode count.

Pressing U BITS will show this screen:

In this page, you can set the user bits that will be generated through the timecode output. The parameters are:

U-BITS MODE   Three options are available: EXTERNAL (only if GEN TC is set to EXT TIMECODE), MANUAL and DATE/XX.

U-BITS INCREMENT   This feature applies to MANUAL and DATE/XX U-BITS modes. The range is 00 to 99 (decimal) for DATE/XX and 0 to 99999999 for MANUAL. OFF/ON - Increments user bits every time record is pressed.

SET GEN U-BITS   Type in a value in user groups 1-8 if U-BITS MODE is set to MANUAL. Type in a value in user groups 7&8 if U-BITS MODE is set to DATE/XX

Pressing CHASE (F4) will show this screen:
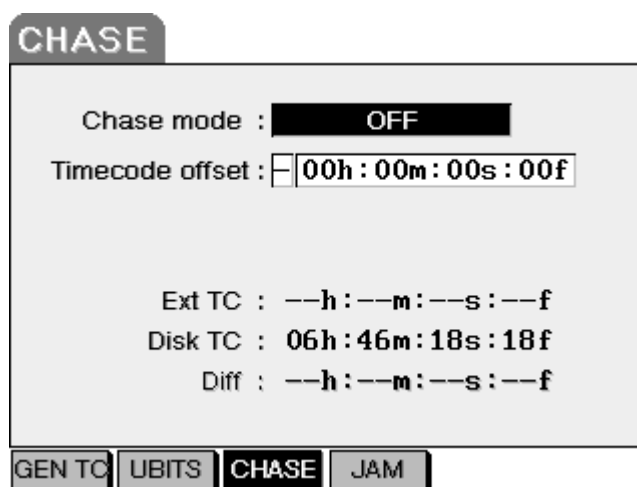
Here you can set how the PORTADRIVE behaves when chasing external time code.

> Note –
> CHASE functionality requires an incoming external TC signal to be connected to the PORTADRIVE Time-code LEMO socket.

CHASE MODE has three possible settings. These are:-

      OFF
      ONCE
      CONTINUOUS

When CHASE is set to either ONCE or CONTINUOUS, the T/C Mode setting in the GEN TC page is overridden.

CHASE MODE = OFF

        This is normal operation where the PORTADRIVE records audio on a timeline based on the timecode generated by the TC Generator and is dependant on the T/C Mode setting in the TC/GEN TC page (F1).

CHASE MODE = ONCE

        ONCE mode causes the PORTADRIVE to chase to the external TC signal at the instant that record or playback is instigated.
        In playback mode, this is useful for playback synchronisation with other visual/audio devices.
        In record mode, chase ONCE performs in the same way as normal operation with T/C mode set to EXT TIMECODE. In both of these modes, if external timecode drops out, the PORTADRIVE will free-wheel across the dropout and carry on recording.

CHASE MODE = CONTINUOUS

> CONTINUOUS mode causes the PORTADRIVE to chase continuously to the external TC signal. Thus PORTADRIVE's internal sample clock will adjust to remain in absolute sync with external code without the need for a separate sync signal such as video or word clock.
>
> In this mode, if the external code drops out, the PORTADRIVE will automatically stop recording as there is no longer any timecode signal to chase.
>
> In playback mode, this is useful for playback synchronisation with other visual/audio devices.
>
> In record mode, chase ONCE performs in the same way as normal operation with T/C mode set to EXT TIMECODE.

WARNING / ERROR MESSAGES

'SET GENERATOR MODE FAILED Rec/Play in progress'	When you try and change T/C Mode during recording if initial mode is FREERUN or EXT TC
'SET TIMECODE RATE FAILED Rec/Play in progress'	When you try and change Frame rate during recording if initial mode is FREERUN or EXT TC
'Timecode rate mismatch'	If the frame rate is not set to match the frame rate of the external TC signal
'Timecode receive error'	If the external TC signal is not connected or degraded.
'SET CHASE OFFSET FAILED Rec/Play in progress'	When you try and change the chase offset during recording.
'SET CHASE MODE FAILED Rec/Play in progress'	When you try and change the chase mode during recording.

Notes and Tips -

It is important to realise that in PORTADRIVE, timecode is not recorded continuously along with the audio. Instead, the timecode value at the start of recording is stamped into the header of the audio file. This means that if timecode from an external source were to drop out during recording (e.g. poor radio reception), then this will not have any adverse effect. PORTADRIVE will carry on recording in this mode.

PORTADRIVE will not enter record mode if there is an invalid timecode signal or if there is a frame rate setting discrepancy between PORTADRIVE and the external source TC. If you instigate recording without a valid TC signal, then PORTADRIVE will enter a 'Record standby' mode (the REC LED will flash) which waits for the TC signal to become valid, at which point, recording will commence.

Remote start recording using a valid time-code signal. If PORTADRIVE is set to EXTERNAL TC mode, CHASE ONCE or CHASE CONTINUOUS mode and record is instigated, PORTADRIVE will enter a 'record standby mode if there is not a valid timecode signal at the LEMO timecode input (the REC LED will flash and a 'timecode receive error' will be displayed).

As soon as the signal at the timecode input becomes valid, PORTADRIVE will automatically drop into record. This can be used as a method for remotely putting PORTADRIVE into record from an external device set to record run mode. E.g. a camera in record run mode only outputs valid code in record mode.

TIMECODE OFFSET   Allows you to set an offset between internal and external timecode.
Negative offsets indicate that the internal timecode will be behind the external timecode.

The offset is set by moving the cursor to the field and turning the DATA wheel until the required offset is set. You can use CURSOR </> to move around the timecode field. So, for example, if you need to offset the timecode by, say, 10 minutes, move the cursor to the 'mins' field and use the DATA wheel to dial in 10.

The fields at the bottom are purely for display only and are:

EXT TC   Shows the current external timecode

DISK TC   Shows the PORTADRIVE's 'disk' timecode

DIFF   Shows the difference between external and disk timecode

Pressing JAM (F5) shows this screen:

```
JAM

    Jam Source :  EXTERNAL

    Jam Mode :    MANUAL


    Ext U-Bits :  --:--:--:--
    Gen U-Bits :  00:00:00:00
        Ext TC :  --h:--m:--s:--f
        Gen TC :  06h:52m:22s:16f
          Diff :  --h:--m:--s:--f

GEN TC  UBITS  CHASE  JAM        SET
```

This page allows you to set how the PORTADRIVE jams timecode. Only one parameter is available:

JAM SOURCE There are two options:

> EXTERNAL   You can 'jam' the PORTADRIVE's timecode to external timecode, this will often be from a 'master' timecode source that is the reference for all audio and video recordings.

> TIME OF DAY Allows you to jam to 'time of day' (TOD) timecode from the real time clock in the PORTADRIVE, this has no reference to any external time.

Please note:

Jamming of TC and user bits is only possible if:

1) TC MODE in the GEN TC page is set to FREERUN. If any other TIMECODE MODE is selected, an error message will be displayed.

2) There is a valid SMPTE LTC signal at the timecode input. If there is no valid timecode, an error message will be displayed.

The rest of the JAM screen simply displays internal/external user bits and timecode status.

SETUP MODE
Pressing the SETUP KEY will show this screen: This mode is used to set the PORTADRIVE's system settings - i.e. settings that affect the way the unit operates.

```
┌─────────────────────────────────────────┐
│ ┌──────┐                                 │
│ │ TONE │                                 │
│ └──────┘                                 │
│     ┌───────────────────────────────┐   │
│     │  Frequency : ▐████1kHz████▌   │   │
│     │      Level : │     44      │   │   │
│     │       Type : │ CONTINUOUS  │   │   │
│     │     Switch : │   AUTO      │   │   │
│     ├───────────────────────────────┤   │
│     │ Routing :                     │   │
│     │   ┌─────┐  ┌─────┐  ┌─────┐   │   │
│     │   │ TK1 │  │ TK2 │  │ TK3 │   │   │
│     │   └─────┘  └─────┘  └─────┘   │   │
│     │   ┌─────┐  ┌─────┐  ┌─────┐   │   │
│     │   │ TK4 │  │ TK5 │  │ TK6 │   │   │
│     │   └─────┘  └─────┘  └─────┘   │   │
│     │   ┌─────┐  ┌─────┐  ┌─────┐   │   │
│     │   │ST.TK│  │MAIN │  │ AUX │   │   │
│     │   └─────┘  └─────┘  └─────┘   │   │
│     └───────────────────────────────┘   │
│ ┌────┐┌─────┐┌────┐┌────┐┌────┐┌────┐   │
│ │TONE││SLATE││PWR ││LCD ││SYNC││MORE│   │
│ └────┘└─────┘└────┘└────┘└────┘└────┘   │
└─────────────────────────────────────────┘
```

The first page allows you to set up the PORTADRIVE's internal tone generator. The parameters are:

FREQUENCY   Allows you to set the tone generator's frequency. Three options are available: 100Hz, 1kHz and 10kHz

LEVEL   Allows you to set the level of the tone generator.

TYPE   There are two options: CONTINUOUS and L-IDENT. CONTINUOUS selects that the tone is continuously fed to all the selected destinations With L-IDENT selected, the tone is muted for a quarter of a second every three seconds on all the left channel (odd numbered) destinations (EBU standard).

SWITCH   Allows you to select whether the action of the TONE key on the front panel is momentary (i.e. the tone generator will only be heard while the TONE key is held) or latched (i.e. it will sound when the TONE key is pressed and will remain on until the TONE key is pressed again).

                   Another option, AUTO, allows you to set the action of the TONE key so that if the key is very quickly 'stabbed', the tone generator is latched (i.e. remains on until the key is pressed again). If, however, the TONE key is pressed and held, the tone generator is only momentary whilst the key is held - as soon as you release the key, the tone generator will switch off.

ROUTING   Allows you to route the tone generator to tracks 1-6, the L/R tracks (ST.TK) and/or the MAIN and AUX output.

Pressing SLATE [F2] will show this screen:

```
 ┌──────────┐
 │ SLATE    │
 ├──────────────────────────────────────┐
 │          Gain : │      80      │      │
 │        Switch : │  MOMENTARY   │      │
 │                                        │
 │  Routing :                             │
 │        ┌─────┐   ┌─────┐   ┌─────┐     │
 │        │ TK1 │   │ TK2 │   │ TK3 │     │
 │        └─────┘   └─────┘   └─────┘     │
 │        ┌─────┐   ┌─────┐   ┌─────┐     │
 │        │ TK4 │   │ TK5 │   │ TK6 │     │
 │        └─────┘   └─────┘   └─────┘     │
 │        ┌─────┐   ┌─────┐   ┌─────┐     │
 │        │ST.TK│   │MAIN │   │ AUX │     │
 │        └─────┘   └─────┘   └─────┘     │
 └────────────────────────────────────────┘
  │TONE│ SLATE │PWR│ LCD │SYNC│MORE│
```
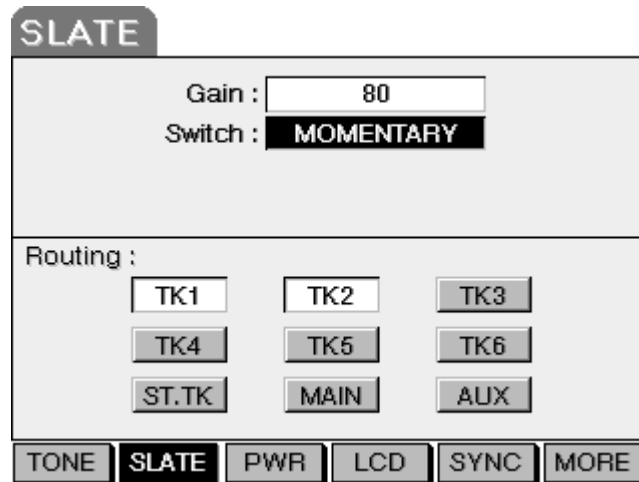
Allows you to set parameters relevant to the PORTADRIVE's internal microphone. The parameters are:

LEVEL   Sets the gain of the internal mic.

SWITCH   Allows you to select whether the action of the SLATE key on the front panel is momentary (i.e. the mic will only be heard while the SLATE key is held) or latched (i.e. it will be heard when the SLATE key is pressed and will remain on until the SLATE key is pressed again).

                       Another option, AUTO, allows you to set the action of the SLATE key so that if the key is very quickly 'stabbed', the mic is latched (i.e. remains on until the key is pressed again). If, however, the SLATE key is pressed and held, the mic will only be heard while the key is held - as soon as you release the key, the mic will switch off.

ROUTING   Allows you to route the tone generator to tracks 1-6, the L/R tracks and/or the MAIN and AUX output.

Pressing PWR [F3] displays this screen:

```
POWER MANAGEMENT

         Power Mode :   ANALOG AUDIO
        ─────────────────────────────

           Battery Level : NOT FITTED

      Power Source Voltage : 15.2V [Ext DC]

   HI/MID/LO Nominal Level :    14.4V

   TONE   SLATE   PWR   LCD   SYNC   MORE
```
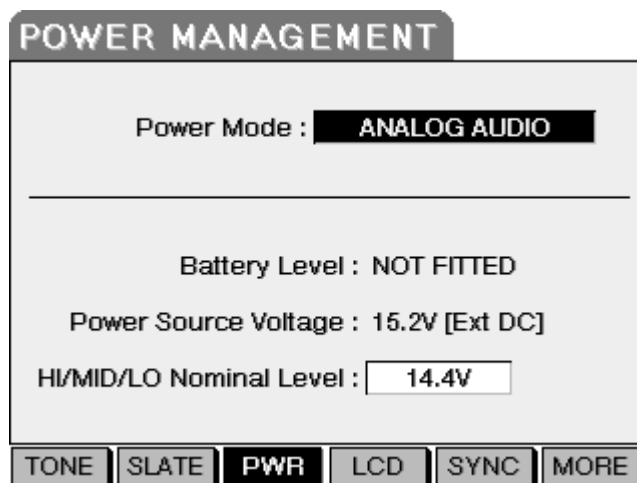
The functions on this page allow you to set parameters that affect the way the PORTADRIVE manages power. The parameters are:

POWER MODE
The power supply can supply enough current to power either the analogue audio circuitry or to charge the battery – it is not possible to charge the battery whilst the unit is switched on and the analogue circuitry is being used. This function allows you to switch the analogue audio circuitry off in order to charge the battery whilst the PORTADRIVE is switched on.
Please note the Power Mode box will not be accessible unless the PORTADRIVE is powered by an AC adaptor, and battery charging can only take place with the AC adaptor connected and turned on.

The options are:

ANALOGUE AUDIO
The analogue audio circuitry is switched on and battery charging is disabled.

BATTERY CHARGE
This allows charging of the supplied IDX NP-L50 battery in the PORTADRIVE, no other battery types can be charged in the unit. The analogue circuitry is switched off and it is possible to charge the battery when the PORTADRIVE is switched on. All the other (non analogue) functions of the PORTADRIVE are still active. The charging of a fully discharged battery will take approximately 8 hours.

BATTERY LEVEL
With the supplied IDX NP-L50 battery this gives an accurate reading of the power level in the battery. With any other NP batteries this will display a HIGH / MID / LOW charge reading, the reference point for this reading is set in the NOMINAL LEVEL box below.

Note that it is not possible to charge any battery other than the supplied IDX NP-L50 Li-ion re-chargeable battery.

POWER SOURCE VOLTAGE   This shows the source of the PORTADRIVE's power (i.e. Ext. DC, Ext. Battery or Battery) and the level of voltage being received.

HI/MID/LOW NOMNAL LEVEL   When batteries other than the supplied NP-L50 are being used the nominal reference voltage of the battery must be set here. The options are 12V, 13.2V and 14.4V.This allows the HI/MID/LOW display to read correctly and will also set the point of battery low warning and auto power off.

All the information is automatically generated when the supplied NP-L50 is used, as there is an internal data connection to the battery.

Pressing LCD displays this screen:
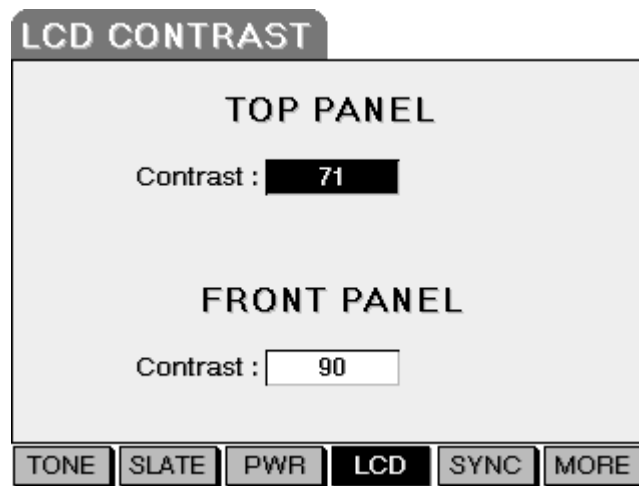
Here, you can set the contrast level of the top and front panels' LCD's.

Pressing SYNC will show this screen:
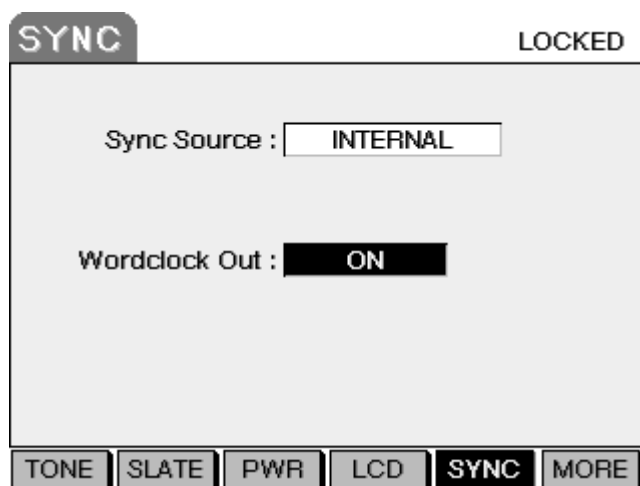
Here, you can set parameters relevant to digital synchronisation (not to be confused with timecode sync). The parameters are:

SYNC SOURCE   Selects the digital sync source. The options are:

INTERNAL   Runs from the PORTADRIVE's own internal crystal which is accurate to better than 1ppm.

WORDCLOCK   Syncs to wordclock in the range 44.1kHz - 96kHz through the BNC sync input.

PAL/SECAM   Will sync to PAL/SECAM video sync through the BNC sync input.

NTSC 29.97   Will sync to NTSC 29.97 through the BNC sync input.
NTSC 30   Will sync to NTSC 30 through the BNC sync input.

TRI-LEVEL   For syncing to high definition TV sync, the options being: TRI(274) 23.98, TRI(274) 24, TRI(274) 25, TRI(274) 29.97, TRI(274) 30, TRI(274) 50, TRI(274) 59.94, TRI(274) 60, TRI(296) 59.94, TRI(296) 60

AES12 / SPDIF12   Receives sync through AES inputs 1&2 or the SPDIF digital input depending on which of these is selected as input source for inputs 1&2.

AES34   Receives sync through AES inputs 3 and 4

AES56   Receives sync through AES inputs 5 and 6

AES78   Receives sync through AES inputs 7 and 8

WORDCLOCK OUT   PORTADRIVE can be used as a master sync source, and setting the Wordclock Out to 'ON' will output a wordclock signal at the current sessions sample rate.

Note -
If the sync source is set to WORDCLOCK, or any of the VIDEO formats a 75 ohm termination switch will be shown on the LCD display. This can be set to 'ON' (terminated) of 'OFF' (un-terminated).

Further pages are available by pressing the MORE key on F6:
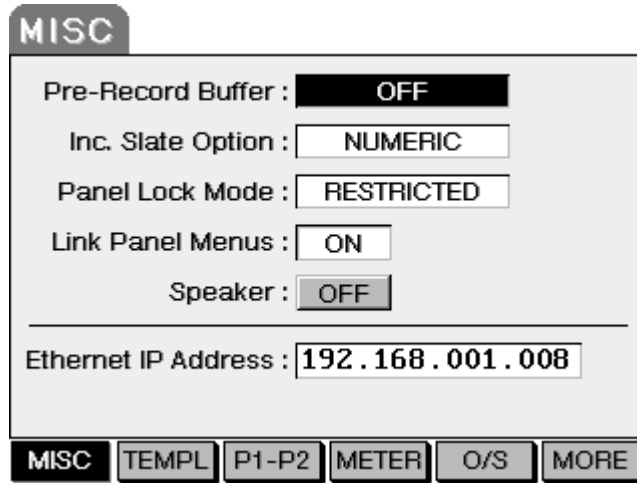
The first of these is the MISC page where you can set miscellaneous parameters that affect operation of the unit. They are:

PRE-RECORD BUFFER

When you start recording, it is possible by using the PRE –RECORD BUFFER to actually record information up to 10 seconds before the recording was started. When the PORTADRIVE is in STOP mode a solid state buffer memory is used to constantly store the incoming audio data, so that when recording is activated the data from this buffer is written to the disk at the beginning of the recording.

The PRE-RECORD BUFFER can be set to a value of 0 to10 seconds when operating at a sample frequency of up to 48kHz, and 0 to 5 seconds when operating at a sampling frequency over 48kHz.

	The PRE-RECORD BUFFER allows you set the size of the recording that will be made to the solid-state memory. The parameter is variable from OFF to 5 or 10 seconds in one second increments depending on the sampling frequency used.
INC. SLATE OPTION	When a new slate is created, you can select whether the name will increment numerically (i.e. Scene 1, Scene 2, Scene 3, 4, etc.) or alphabetically (Scene A, Scene B, Scene C, D, E, etc.).
PANEL LOCK MODE	Allows you to select which front panel features are enabled (or disabled) when the transport control is set to either STOP LOCK or REC LOCK.

PANEL LOCK MODE (continued):

The two modes are:
a) ALL - All controls are locked out
b) RESTRICTED - All controls are locked out **apart** from:-

> INPUT LEVELS
> BUSMIX LEVELS
> SOLOS
> H/P SHORTCUTS (hold ENABLE and press SOLO 1-6)
> GROUP
> MARK
> LIGHT
> DISPLAY pages 1&2

LINK PANEL MENUS	Allows you to set the PORTADRIVE so that when switching modes on one panel, the same mode will automatically be selected on the other.
SPEAKER	Allows you to turn the top panel speaker on or off. When switched on, the speaker can be used but note that it is muted when the PORTADRIVE is recording. OFF means that the speaker is permanently switched off.
ETHERNET IP ADDRESS	The PORTADRIVE has a 10/100 Ethernet port and files from the hard disk drive can be transferred or accessed via this port.

The Ethernet port has an IP address, which by default is 192.168.000.008

This address can be changed by moving the cursor in the IP address box and press enter, you can then change the accessed 3 digits with the data wheel. Changing to the other blocks of digits is accomplished with the cursor keys.

Each PORTADRIVE also has an individual MAC address.

There are two common ways that Ethernet interfacing will be used:

A **DIRECT** connection between a computer and the PORTADRIVE and with the PORTADRIVE connected to a **NETWORK**.

Set up for these is as follows:

DIRECT: The computer and the PORTADRIVE must be connected with a crossover Ethernet cable. Assuming the PORTADRIVE IP address is set to its default, the network IP properties should be set up to have an IP address of 192.168.000.XXX (where XXX is NOT 008) a subnet mask of 255.255.255.000 and no default gateway set. Then using a browser one can obtain access to the PORTADRIVE HDD by using the command FTP://192.168.000.008, this will give a display of the PORTADRIVE hard disk and files can then be accessed, transferred and copied in a normal way.

NETWORK: The PORTADRIVE must be connected to the network with a normal cable, and the IP address of the PORTADRIVE should be set to match the network settings in use. Assuming a network with the following IP address 160.090.100.XXX with a subnet mask of 255.255.255.000, the PORTADRIVE address should be set to the 160.090.100.XXX where XXX is a free subnet slot that is not in use elsewhere on the network. The Portadrive can then be accessed by FTP as above.

Using either of the above methods a network folder can be created that will allow direct access to the disk drive DATA.
There are many different network set-ups depending on the software in use, PORTADRIVE has been tested to work with Windows 98,2000,NT, ME, XP and all current Macintosh operating systems.

Pressing TEMPL will show this screen:

```
┌─────────────────────────────────────────┐
│ OPEN TEMPLATE                             │
│                                           │
│                                           │
│                                           │
│   Template Name :  2CH MODE (Preset)      │
│                                           │
│                                           │
│                                           │
│                                           │
│                                           │
│                                           │
│                                           │
│ OPEN  SAVE  COPY    CANCEL     OK          │
└─────────────────────────────────────────┘
```
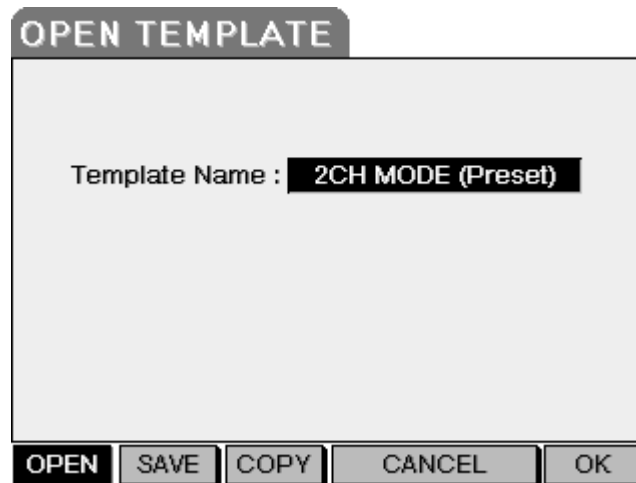
Templates can be called up at any time in order to quickly configure all the machine parameters to your requirements.

Furthermore, when creating sessions (see SESSION mode), it is possible to use these templates as the basis of the new session so that instead of entering values for the sessions settings over and over again each time a session is created, you can simply select an appropriate template for the purposes of the session you are going to be working on. There is provision for six factory templates (in ROM) – listed on page 118, and 10 user presets (in RAM) and any of these can be recalled and used to set up the PORTADRIVE or a new session quickly and easily.

It is also possible to save and load (archive) an unlimited number of banks of user templates to and from disk allowing the user the ability to build a library of user-template banks for use in different applications. Once template banks are stored on disk, they can be transferred if necessary to a computer for storage via docking station, Ethernet or USB. This function removes all barriers to how much automatic configuration of Portadrive is possible on location.

A template stores all the parameter configurations for the PORTADRIVE except session name, sample rate, bit depth, file hierarchy (Tree or Flat) and monophonic or polyphonic settings for tracks 1-6 and 7-8 (which should be set uniquely for each new session) and format (which is determined by the disk format).

To select a template from the current bank, simply rotate the DATA wheel until the required template is selected. Now press OK - the PORTADRIVE's parameters will be re-configured to those stored in the selected template. To cancel the procedure at any time, simply press CANCEL.

It is also possible to save your own templates for future use. Pressing SAVE [F2] will show this screen:

```
SAVE TEMPLATE

    User Template No :   2/10

    Template name : US Film

OPEN   SAVE   COPY    CANCEL     OK
```

Simply select the user memory where you want to store the template using the DATA wheel and press OK. You can, if you want, give the template a name - this is done by moving the cursor to the TEMPLATE NAME filed and entering a name of up to twelve characters in the usual way. Once saved, these templates can be recalled at any time in the OPEN TEMPLATE page.

COPYING a bank of 10 user templates to disk

Create, name and save up to 10 user templates in the normal way.
Access the SETUP/TEMPL menu on the top panel and press COPY, F3.
Enter a name for the bank of 10 user templates that you want to save to disk in the Template Bank name option box (12 characters maximum).
Navigate to the disk/directory where you would like to store the template bank, then press OK (F3).
Confirm YES (F5/F6). When the bank is stored, 'Copy Completed' will be displayed.
A template bank file is identified by the '.tpl' file extension.

LOADING a bank of 10 user templates from disk into PORTDRIVE

Note -
This process will replace the Portadrive's current bank of user templates.

In the top panel DISK menu, navigate to the '.tpl' template bank file of your choice.
When the '.tpl' is highlighted, press OPEN (F6).
Confirm YES (F5/F6). When the template bank has been loaded, 'Load completed' will appear briefly and the OPEN TEMPLATE page will then be displayed.
The 10 loaded user templates are now ready to use.

TOP PANEL MODES

Pressing P1-P2 shows this screen:
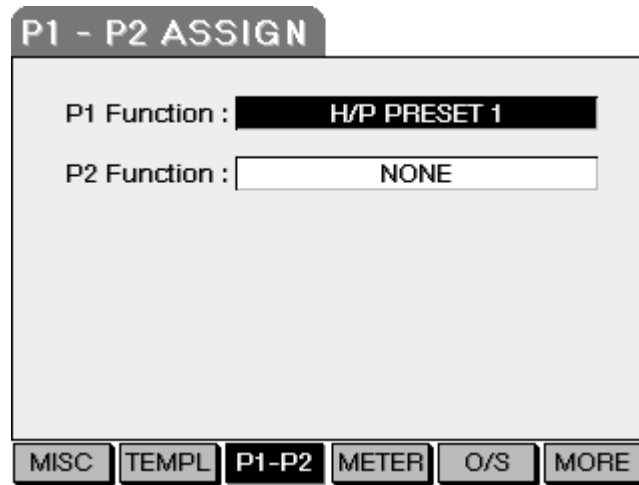
This page allows you to assign certain shortcut functions to the 'programmable' P1 and P2 keys:

The options for both fields are:

> NONE
> CIRCLE TAKE
> JAM
> SLATE
> TONE
> GROUP
> MARK
> PEAK RESET
> H/P PRESET 1-6

Pressing METER [F4] will show this screen:
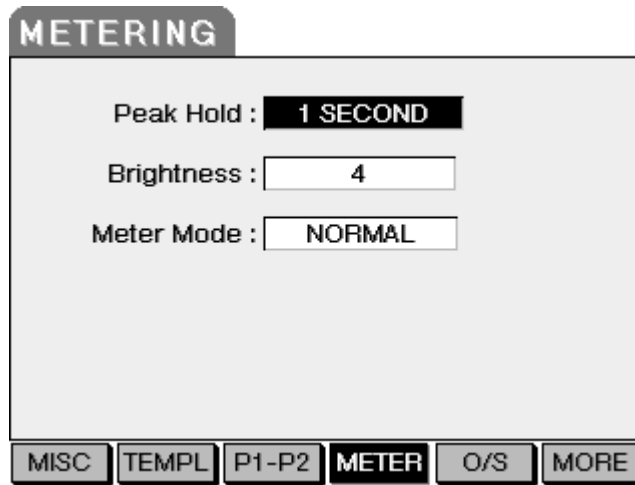
The parameters are:

PEAK HOLD   Allows you to set the peak hold time for the meters. The range is OFF (no peak hold) though 1-4 SEC (timed peak hold display) and ON (peak hold will be displayed until such time as the front panel RESET key is pressed).

BRIGHTNESS   Allows you to set the brightness of the front panel meters.

METER MODE   Allows you to select how levels on the meters will be displayed. The options are NORMAL and MOVING BAR. NORMAL will show all segments in the meters; MOVING BAR will only show the three highest level segments:
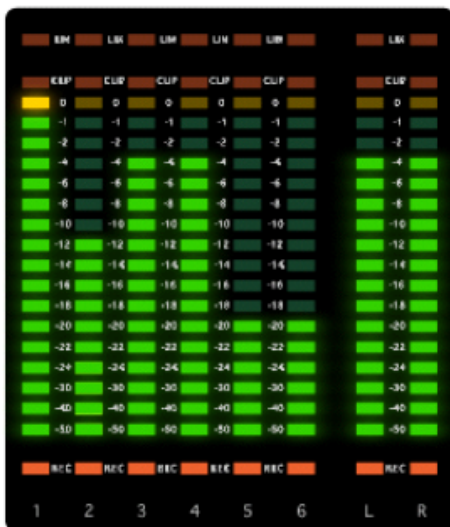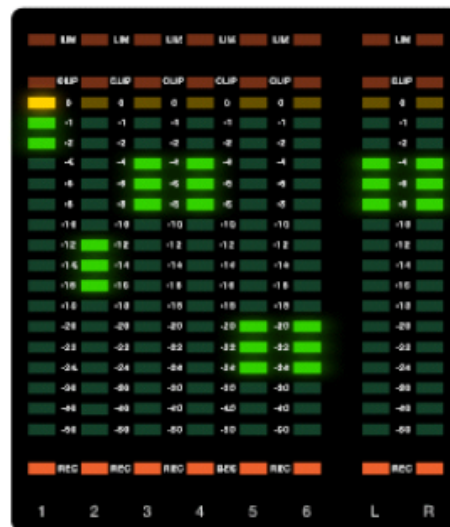
NORMAL   MOVING BAR

The MOVING BAR option is useful for preserving battery life as the meters draw less power with this selection.

Pressing O/S will show this screen:

```
OPERATING SYSTEM

        Software Version : v1.31
        _____

        Upgrade software from : Hard Drive



  CANCEL                    UPGRADE
```
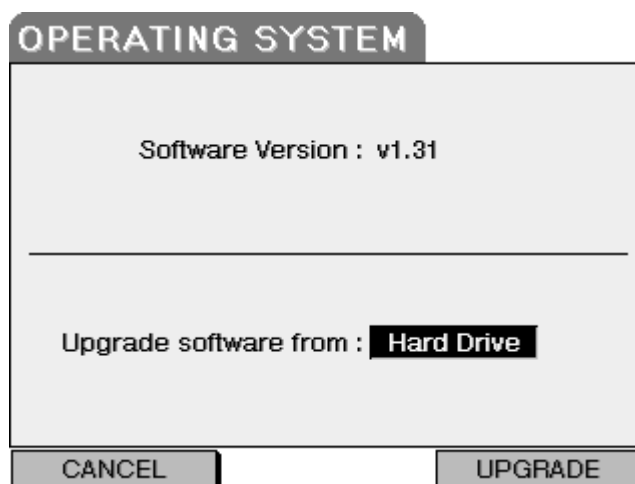
The current OS is shown in the upper half of the LCD.

You can also use this page to upgrade the PORTADRIVE's operating system. You can upgrade the OS from the PORTADRIVE's internal hard drive or over USB.

To upgrade the OS from the PORTADRIVE's hard drive, you will first have to copy the OS onto the hard drive, the OS must be copied to the root directory (not a subfolder) of the drive. This can be done by connecting the drive to a Mac or PC and copying the OS onto it. With the drive in the PORTADRIVE and, in the O/S page, select HARD DRIVE. Now press UPGRADE. The PORTADRIVE will locate the OS on the drive and automatically update the OS. Once the process is complete, you should reboot the PORTADRIVE to use the new OS. This process takes about 5 minutes.

> **DO NOT - UNDER ANY CIRCIMSTANCES -SWITCH THE PORTADRIVE OFF DURING THE UPGRADE PROCESS. MAKE SURE THE PORTADRIVE IS BEING POWERED FROM THE MAINS ADAPTOR, AND ENSURE A FULLY CHARGED BATTERY IS FITTED IN THE PORTADRIVE AND BE PARTICULARLY CAREFUL THAT THE MAINS CABLE ISN'T DISCONNECTED DURING THE PROCESS. IF THE UPGRADE PROCESS IS INTERUPTED IT IS POSSIBLE FOR THE PORTADRIVE TO BE INOPERABLE, AND THE ONLY METHOD OF CORRECTING THIS IS TO TAKE THE UNIT TO A SERVICE FACILITY**

To upgrade over USB, the PORTADRIVE needs to be connected to your Mac or PC with a USB cable. You will also need to have installed the OS Updater Software Updater for either platform. For the Windows platform you will also require PORTADRIVE USB drivers, which are available for Win 98 and Win 2000,ME and XP.

On the Mac/PC, launch the OS Updater - you will be prompted to select the appropriate OS file. Once selected, you are ready to proceed. Press UPGRADE on the PORTADRIVE to prepare it to accept the USB transfer. Now click on UPGRADE on the OS Updater on your Mac/PC. First, the file(s) will be transferred from the Mac/PC to the PORTADRIVE after which the PORTADRIVE will then install the file(s) it has received. Once the process is complete, you should reboot the PORTADRIVE to use the new OS.

> **DO NOT - UNDER ANY CIRCIMSTANCES - SWITCH THE PORTADRIVE OFF DURING THE UPGRADE PROCESS. DO NOT ATTEMPT TO USE THE PORTADRIVE OR MAKE ANY CHANGES TO ANY SETTINGS ON THE PORTADRIVE DURING THE UPGRADE PROCESS.**

For more details on upgrading the PORTADRIVE's OS and to download new software, please visit HHB's website at: http://www.portadrive.info

Pressing MORE again will show this screen:

In this page, you can set the PORTADRIVE's system date and time. These settings are stored as the 'creation date' with all recordings you make on the PORTADRIVE so it is important that these are set correctly. The parameters are:

DATE FORMAT   You can chose from the following options:

                     DD:MM:YY   17:07:03   17th July, 2003
                     MM:DD:YY   07:17:03   July 17th, 2003
                     YY:MM:DD   03:07:17   2003, July 17th

                     Use the DATA wheel to select the format you want to use.

SET DATE   This field allows you to set the date. To set the date, press ENTER to 'open' the field for data entry and use the DATA wheel to set values and the CURSOR </> to move around the field. When you have set the appropriate date, press ENTER again to confirm and close the field.

SET TIME   This field allows you to set the time. To set the time, press ENTER to 'open' the field for data entry and use the DATA wheel to set values and the CURSOR </> to move around the field. When you have set the appropriate time, press ENTER again to confirm and close the field.

Pressing SCSI will show this screen:
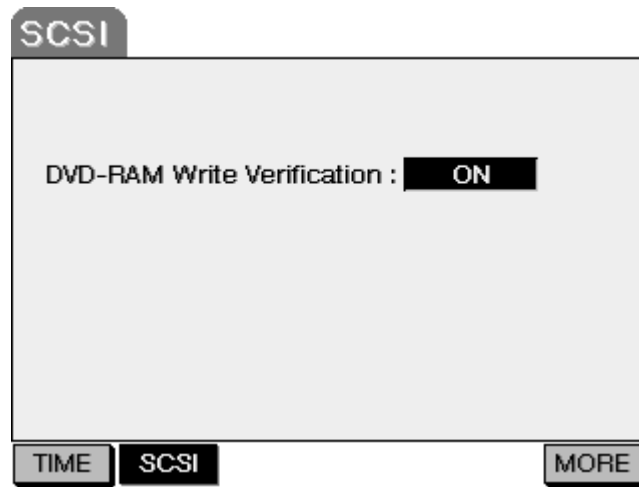
With VERIFICATION set to OFF the PORTADRIVE achieves 2x write/copy speeds to the optional DVDRAM drive (PDRDVDBU). The DVD-RAM Write Verification setting can only be changed when a DVDRAM drive is connected.

Pressing MORE again will return you to the first SETUP page (i.e. TONE).
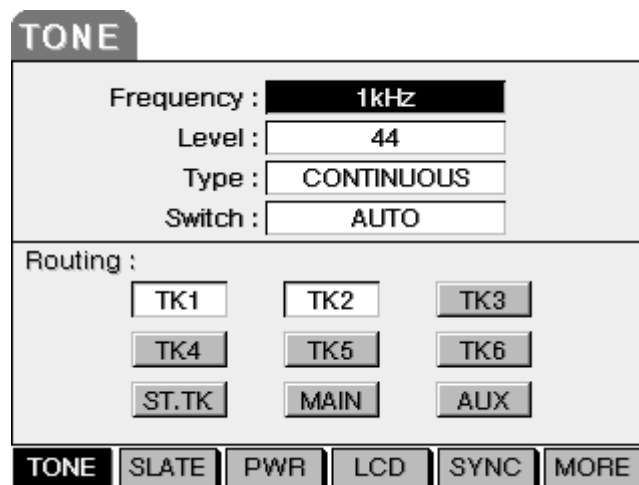
LOCATE

To the right of the transport controls, you will find the PORTADRIVE's LOCATE function.

Every time a new recording is made, a locate point is automatically placed at the start of the recording which you can locate to in order to find takes (recordings) quickly and easily.

Furthermore, it is also possible to manually mark locate points in real-time during recording or playback using the front panel MARK key:

The PORTADRIVE allows you to locate to takes, markers and also to specific timecode positions within a session. This flexibility allows you to move around a session quickly and easily for you to play and audition recordings you have made.

When you press the LOCATE key, you will see this screen:
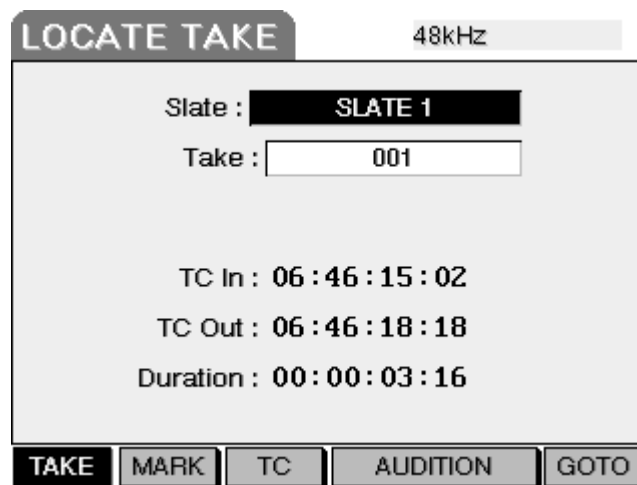
The first of the LOCATE pages is LOCATE TAKE.

In this page, you can select a take (i.e. a recording) to locate to. Use the DATA wheel to select the take you want to locate to and press GOTO [F6] to locate to it.

Pressing MARK [F2] shows this screen:

```
LOCATE MARKER        48kHz

         Marker :        1

         Name :   < No name >

     Timecode In :  06:46:18:18




  TAKE   MARK   TC                    GOTO
```

You can mark points in the recording using the front panel MARK key.

To locate to a mark, use the DATA wheel to select the mark in the MARK field and press GOTO to locate to it. The timecode position of the selected marker is shown.

You can also name markers if you want to - it's not compulsory but may help identifying markers when reviewing the session later on (or when the session is moved to a post-production environment). Move the cursor to the name field and press ENTER. The NAME field will 'open' and you can enter a 12 character name by moving around the field using the CURSOR </> keys and selecting the characters with the DATA wheel. Press ENTER to close the name field and enter the name. Alternatively, you can use an external QWERTY keyboard connected to the PS connector to make this easier.

The locate mark's original timecode position is shown in the T/C POSITION field but, if required, you can adjust this timecode position if you want.... it could be that you stabbed the MARK key a bit late or bit early during the actual recording. To adjust the locate mark's timecode position, move the cursor to the T/C POSITION field, press ENTER to 'open' the T/C POSITION field and use the CURSOR </> to move around the field - use the DATA wheel to adjust the timecode value. If you have an external QWERTY keyboard connected, you can simply type in a value - press RETURN to enter/confirm the entry.

Note –
Once you enter a new T/C POSITION value, this will be the new value for the selected marker.

The ability to change a marker's timecode position is provided so that you can 'fine tune' a marker's position for future reference. Normally, the facility will be used to move the marker backwards or forwards by a few frames... maybe a few seconds or so.

If you need to locate to a particular timecode position, you should use the T/C option on F3 (described next)

Pressing T/C [F3] shows this screen:
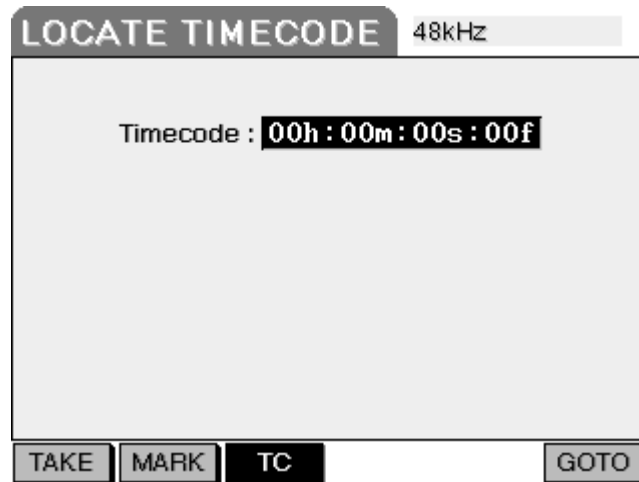
This locate option allows you to locate directly to a specific timecode location simply by entering an appropriate timecode value.

To enter a value, move the cursor around the field using the CURSOR </> keys and use the DATA wheel to set the value. Press GOTO to locate to the value you have entered

Alternatively, if you have an external QWERTY keyboard connected to the PORTADRIVE (recommended where possible), simply type in the timecode value and press RETURN - this will locate to the entered value.

Pressing T/C [F4/5] on the TAKE page selects AUDITION:

AUDITION allows the selected take to be played back from its beginning to its end regardless of whether another take shares part of the same region on the timeline.

Use the data wheel to select a particular take in the LOCATE TAKE page then press F4/5 to audition. To stop auditioning before the take is finished, press stop. If you press PLAY during AUDITION, there will be a brief pause before PORTADRIVE resumes playing back against the timeline.

During AUDITION, the front panel review led will flash and 'AUDITN' will be shown in the bottom right hand corner of DISPLAY page 1.

TRANSFERRING TO ANOTHER SYSTEM

The traditional process for recording audio to picture is that audio is recorded separately at the shoot alongside the visuals (film and/or video) on specialised audio recording equipment. All the material is recorded to a common timecode reference that allows it to be played back in sync later during the production chain.

The audio material recorded on location is typically transferred to a Digital Audio Workstation (DAW) for editing. If the audio was recorded on tape, this involves re-recording it onto the DAW. Disk based system have the advantage that audio files can be read directly on the DAW. With the PORTADRIVE, the removable drive caddy and optional Docking Station makes it easy to move disks and files recorded on the PORTADRIVE directly into other systems.

If multi-channel audio has been recorded on location, it is important not only to be able to transfer the audio files themselves in sync to the DAW but also additional information such as track placement and any metadata associated with each take. Even with other hard disk based location recorders, it can be a long and tedious process involving manual reference to log sheets to ensure audio material is transferred to the DAW correctly.

The PORTADRIVE simplifies this process by using Session based recording. This allows the drive to be taken to a DAW and the Session file loaded in one single operation complete with all audio, timecode, track assignments and other associated metadata.

As an example, consider the situation where the PORTADRIVE has been used with 'time of day' (TOD) timecode on location. If many 6-track recordings are made during the day, the diagram below shows how these recordings are arranged on a 24-hour timeline that represents the PORTADRIVE's Session:
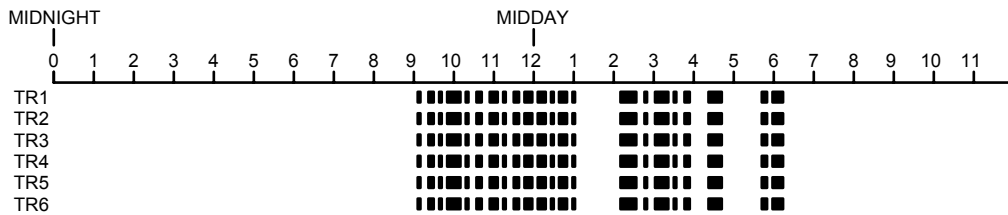
If you could zoom in on this, you would see the following:
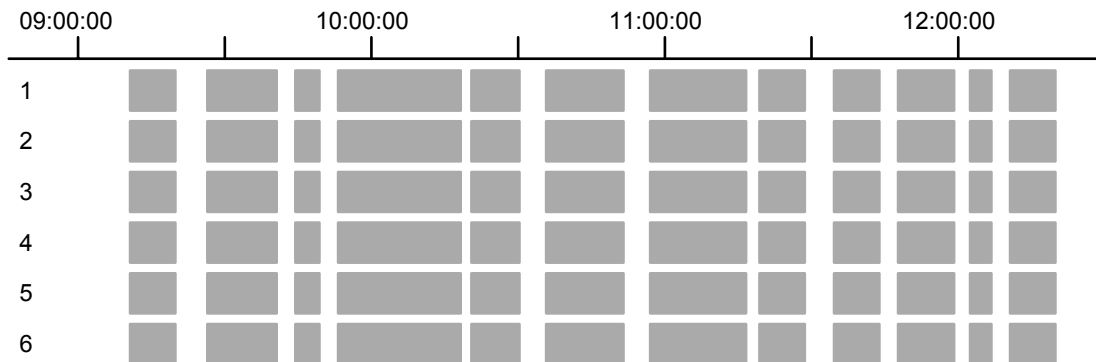
When the disk is transferred to a typical DAW and the session is opened, you would see (something like) this:
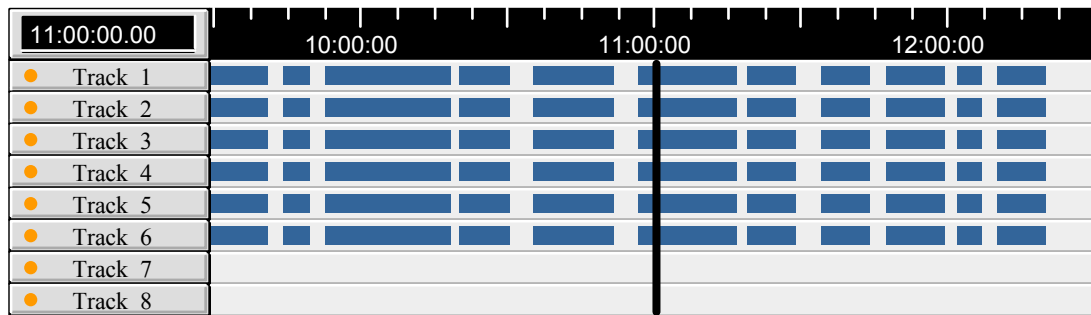
As you can see, the PORTADRIVE has fulfilled its role perfectly - it was used to acquire multi-track audio recordings in the field and its disk (or a copy / back up of it) was then taken and attached to a DAW where the session was loaded and immediately available for editing in the post-production environment, bypassing any manual transfer process.

However, please be aware that if several takes are recorded at the same timecode position, these will effectively all be at the same position on the Session's 24-hour timeline. When transferred to a DAW, only the top level take will be automatically loaded with the session (as a DAW can only play one piece of audio at any time on a particular track). This is not a major problem as all the takes are still on disk and can be retrieved manually and used if required.

As an example, consider the situation where several Takes are all recorded at the same timecode position of 01h:00m:00s:00fr:
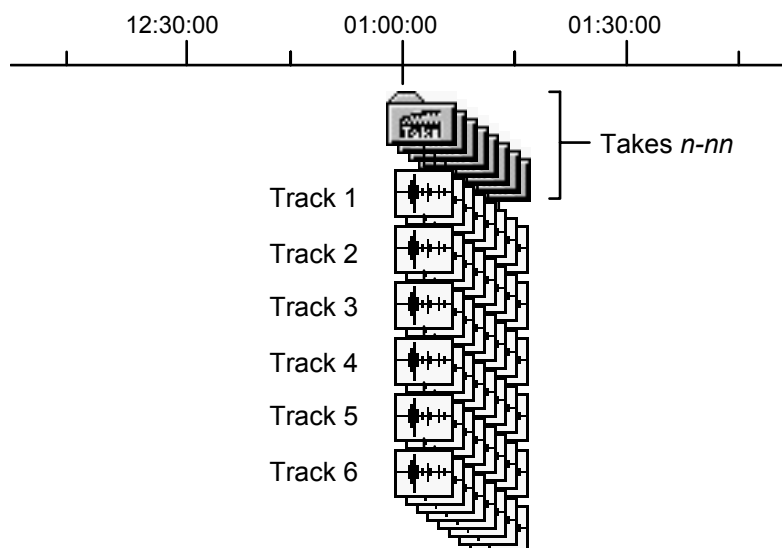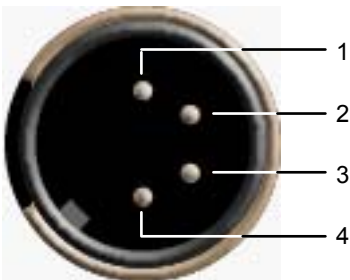
When this session is transferred to a DAW, what will be loaded (and seen on the display) is the top layer recorded at that time. However, if it felt that an earlier take is more appropriate, it is still possible to retrieve that from disk and substitute it.

TEMPLATES

FACTORY TEMPLATES	
Template	**Description**
2CH MODE	Emulates a traditional 2-channel recorder such as a PORTADAT etc. Inputs 1 & 2 are recorded direct to Disk tracks 1 & 2. No mixing necessary.
4-2 MODE	4 Microphone inputs mixed to disk tracks 1 & 2 - emulates a typical 4-channel mixer to DAT scenario.
5+1 MODE	5 Microphone inputs recorded discreetly to disk tracks 1-5 and a mono mix of the 5 microphone inputs recorded on disk track 7(L).
6+2 MODE	6 Microphone inputs recorded discreetly to disk tracks 1-6 and a stereo mix of the 6 microphone inputs recorded on disk tracks 7(L) and 8(R).
6-2 MODE	6 Microphone inputs mixed to disk tracks 1 & 2.
8CH DIG	8 AES Digital inputs recorded discreetly to disk tracks 1-8; Disk tracks 1-8 routed to 8 AES digital outputs.

CONNECTOR PINOUTS

DC POWER CONNECTOR (4-PIN XLR)
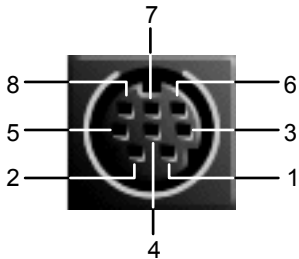
EXTERNAL DC SUPPLY

Pin 1	Ground
Pin 2	Not connected
Pin 3	12-18Vdc
Pin 4	Not connected
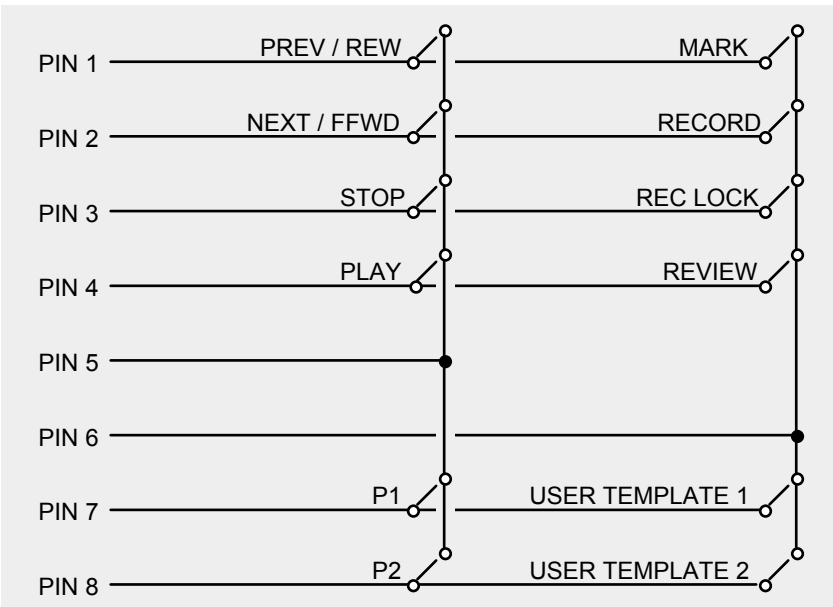
EXTERNAL BATTERY

Pin 1	Ground
Pin 2	Not connected
Pin 3	Not connected
Pin 4	12-18Vdc

PARALLEL REMOTE (8-PIN MINI DIN)

Pin 1	Scan 1
Pin 2	Scan 2
Pin 3	Scan 3
Pin 4	Scan 4
Pin 5	Return 1
Pin 6	Return 2
Pin 7	Scan 5
Pin 8	Scan 6

PIN 1 —— PREV / REW   MARK
PIN 2 —— NEXT / FFWD   RECORD
PIN 3 —— STOP   REC LOCK
PIN 4 —— PLAY   REVIEW
PIN 5 ——
PIN 6 ——
PIN 7 —— P1   USER TEMPLATE 1
PIN 8 —— P2   USER TEMPLATE 2

AES AUDIO I/O (25-PIN D-SUB)
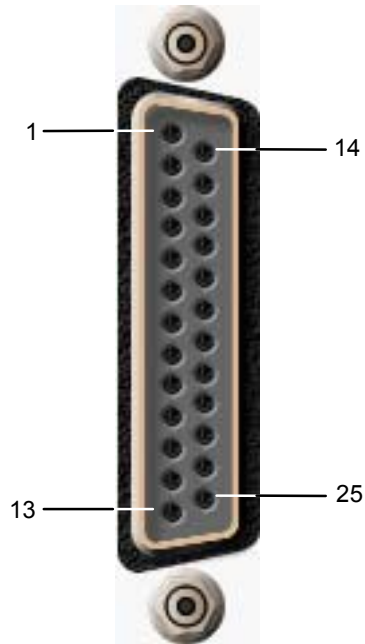
Pin 1	Ch 7/8 out +
Pin 2	Ground
Pin 3	Ch 5/6 out -
Pin 4	Ch 3/4 out +
Pin 5	Ground
Pin 6	Ch 1/2 out -
Pin 7	Ch 7/8 in +
Pin 8	Ground
Pin 9	Ch 5/6 in -
Pin 10	Ch 3/4 in +
Pin 11	Ground
Pin 12	Ch 1/2 in -
Pin 13	Not connected
Pin 14	Ch 7/8 out -
Pin 15	Ch 5/6 out +
Pin 16	Ground
Pin 17	Ch 3/4 out -
Pin 18	Ch 1/2 out +
Pin 19	Ground
Pin 20	Ch 7/8 in -
Pin 21	Ch 5/6 in +
Pin 22	Ground
Pin 23	Ch 3/4 in -
Pin 24	Ch 1/2 in +
Pin 25	Ground

TIMECODE CONNECTOR (5-PIN LEMO TC FEMALE CONNECTOR)
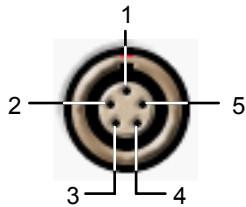
Pin 1	Ground
Pin 2	TC In
Pin 3	Open
Pin 4	Open
Pin 5	TC Out

RS422 9-PIN CONNECTION (9-PIN D-SUB FEMALE) - not currently
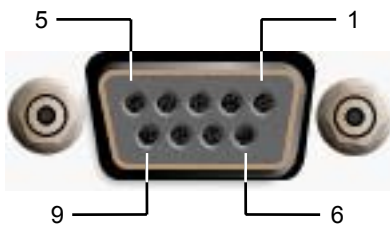
Pin 1	Frame Ground
Pin 2	Transmit A
Pin 3	Receive B
Pin 4	Receive common
Pin 5	No connection
Pin 6	Transmit common
Pin 7	Transmit B
Pin 8	Receive A
Pin 9	Frame ground

2 CHANNEL RETURN (5-PIN FEMALE XLR)

Pin 1	Ground
Pin 2	Left (hot)
Pin 3	Left (cold)
Pin 4	Right (hot)
Pin 5	Right (cold)

ANALOGUE AUDIO OUTPUT (3-PIN MALE XLR)

Pin 1	Ground
Pin 2	Hot
Pin 3	Cold

ANALOGUE AUDIO INPUT (3-PIN FEMALE XLR)

Pin 1	Ground
Pin 2	Hot
Pin 3	Cold
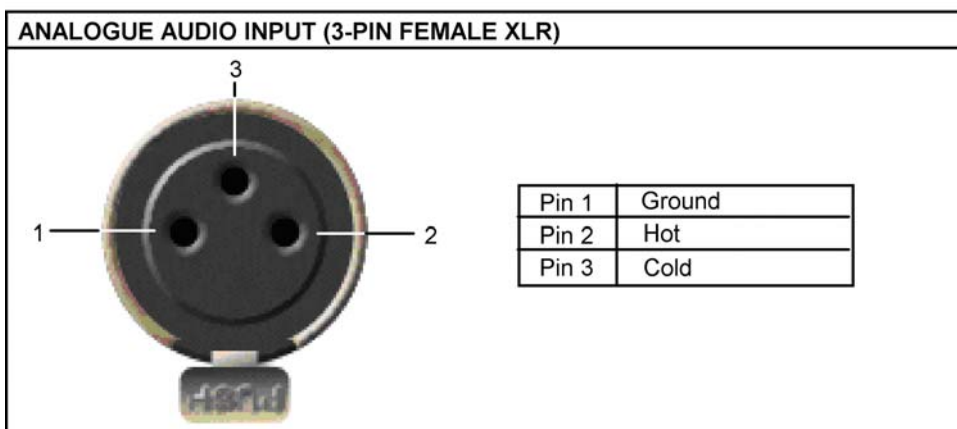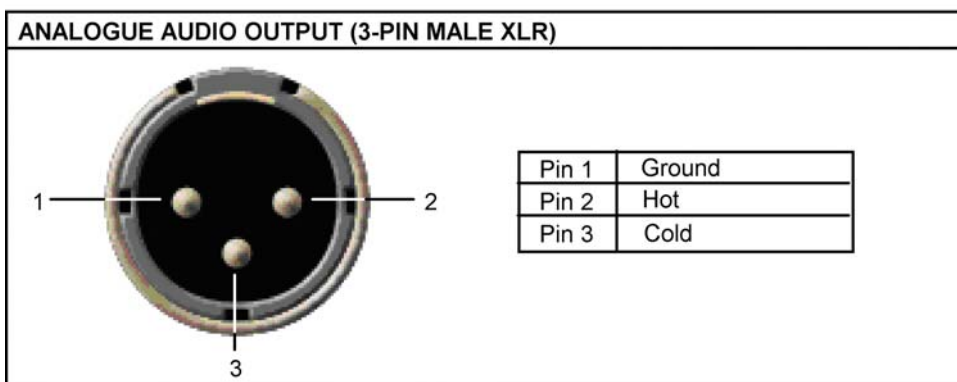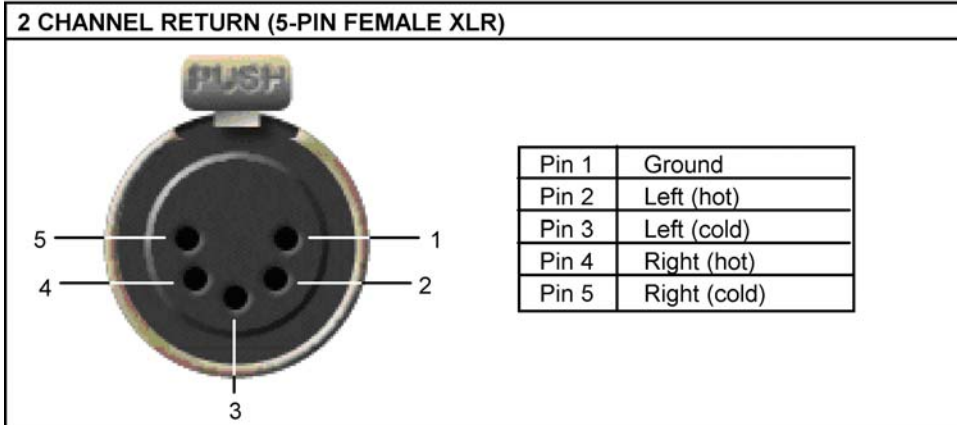
NOTES ON USING EXTERNAL SCSI HARD DISK DRIVES

WHAT IS SCSI?
SCSI (pronounced "scuzzee") stands for Small Computer Serial Interface and is used to connect up to eight disk drives together. It is a fast and reliable interface that is also widely used on many Macs and PCs that host DAWs such as Pro Tools. As such, it is an ideal interface for exchanging disk drives between systems. Whilst it is a fairly straightforward interface, there are some things you should be aware of for it to work correctly and reliably.

***** IMPORTANT NOTE *****

SCSI does not allow 'hot swapping' - that is, you cannot just connect or disconnect SCSI devices whilst they and/or the PORTADRIVE are switched on.

ALWAYS TURN OFF THE 'SYSTEM' (I.E. PORTADRIVE AND ANY CONNECTED SCSI DRIVES) WHEN CONNECTING/DISCONNECTING SCSI DEVICES. FAILURE TO OBSERVE THIS SIMNPLE RULE MAY RESULT IN DAMAGE TO THE DRIVE(S) AND/OR THE PORTADRIVE AND MAY ALSO RESULT IN LOSS OF DATA!

It is also recommended that any external drives are powered up before switching on the PORTADRIVE

SCSI IDs
Each drive in a SCSI chain MUST have its own unique SCSI ID number.

Every SCSI device has the facility to have it own SCSI ID number set. This is done in a number of ways depending on the drive in question - some have simple switches, others have small DIP switches whilst other use 'jumper' connections. Please consult your drive's documentation for details on how to set its SCSI ID number.

If one (or more) SCSI devices share the same ID number, the system will get horribly confused and will almost certainly result in erroneous or corrupt data transfer (or the system might just crash completely!). Therefore, please ensure that every drive that you may have connected in your SCSI chain has a unique SCSI ID number. It doesn't matter which SCSI ID number each device has just as long as each device's ID number is unique in the chain:

SCSI ID #7	Portadrive
SCSI ID #1	Drive 1
SCSI ID #3	Drive 2
SCSI ID #6	Drive 3
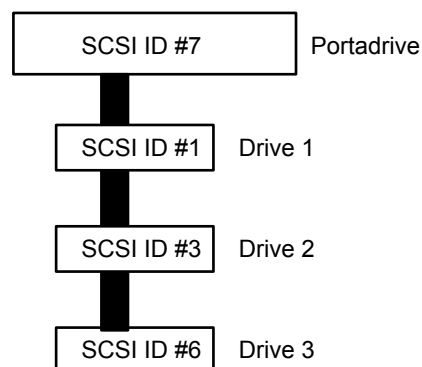
NOTE - The PORTADRIVE's own SCSI ID# is set to #7 at the factory and cannot be changed.

You must ensure that any SCSI device you connected is not set to SCSI ID#7.

SCSI CABLES

Always use high quality SCSI cables. Using cheaper SCSI cables may seem an attractive proposition but low quality cables can give rise to data errors.

The SCSI connection requires that every connection is individually grounded - always ensure that you use such cables.

TERMINATION

A chain of SCSI devices must be terminated at either end of the SCSI chain. Depending on the drive(s) you have, you may need to use terminating resistors or set a DIP switch or even change internal jumpers - please consult your drive's documentation.

The PORTADRIVE's SCSI interface is terminated. Any SCSI devices in between the PORTADRIVE and the last SCSI device in the chain must be un-terminated (this is done in a number of ways depending on the drive in question - please check the unit's documentation).

The last device in the chain <u>must</u> be terminated.

Portadrive	Terminated
Drive 1	Unterminated
Drive 2	Unterminated
Drive 3	Terminated
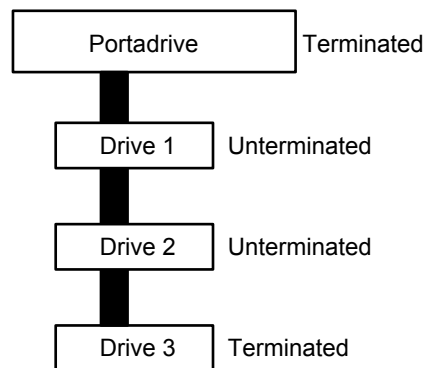
Incorrect termination may give rise to data errors and possibly corrupted data so please ensure it is done correctly. If you have any doubts, please contact your dealer who will be able to help.

CABLE LENGTH

The SCSI specification states that the total length of the SCSI chain must not exceed 6 metres. "Total length" means the length of the whole chain between the first and the last device and not the length of the cable between each of devices. SCSI chains that are longer than the specified length may cause data errors and possibly corruption of data.

Portadrive	
Drive 1	
Drive 2	6 metres total
Drive 3	
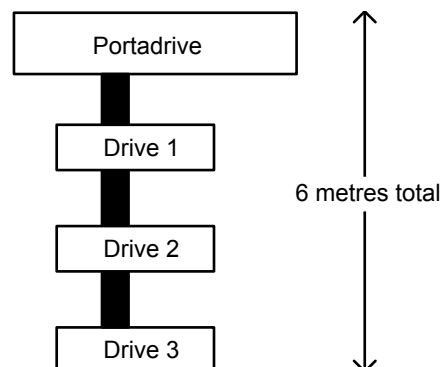
PORTADRIVE SPECIFICATIONS

Sampling frequency . . 44.1, 48, 88.2 & 96kHz (±0.1% for pull up/down) all ±1.0 ppm

Quantization levels   . . . . 16 & 24-bit

Pre-record buffer   . . . . . .10 seconds @ 24-bit/48kHz, adjustable from 1-10 seconds

Power supply (external) . . . . . . 12-18V DC: Universal 110-240V AC adaptor supplied

Recording time (battery)   . . . . ~2 hours with NP1 battery. (50 watt L-Ion)

Recording time (40GB disc)   . . . . . ~60hr, 2Ch 16-bit/48kHz; 4.8hr, 8Ch 24-bit/96kHz

Metering   . . . . 8 x18 segment LED meters with adjustable brightness and modes

Timecode . . . . .23.976 - 30FPS input and output on LEMO connector

Frequency Response   . . . . 5Hz - 20kHz ± 0.5dB (@48kHz)

Mic THD   . . . . Mic input 60dB gain @1kHz <0.02% 22Hz - 22kHz BW

Line THD   . . . . Line input 0dB gain @1kHz <0.002% 22Hz - 22kHz BW

EIN   . . . . ~ -128 dBu 'A' Wtd 22Hz - 22kHz BW @ 60dB GAIN Rs = 150 .

Mic input gain   . . . . . . Maximum gain 70dB - maximum input level before clip +2dBu

Line input gain   . . . . . . Maximum gain 18dB - maximum input before clipping +24dBu

Main & Aux output levels @ 0dBFS . . . . Line level +18dBu, Mic level –32dBu

Front panel display   . . . . 40 alphanumeric character x 2 row backlit and transreflective

Top panel display   . . . . 320 x 240 dot matrix backlit and transreflective

Dimensions (WxHxD)   . . . . 332 x 106 x 224mm / 13.1 x 4.2 x 8.8 inches

Weight   . . . . 5.2kg / 11.6lbs

All specifications subject to change   E&OE

INDEX