328 SPIRIT DIGITAL

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SOFTWARE v 2

USER GUIDE

ZM0219 - Issue 3

SAFETY GUIDE

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SAFETY SYMBOL GUIDE

For your own safety and to avoid invalidation of the warranty all text marked with these Symbols should be read carefully.



CAUTIONS
Must be followed carefully to avoid bodily injury.



WARNINGS
Must be observed to avoid damage to your equipment.



NOTES
Contain important information and useful tips on the operation of your equipment.



IMPORTANT
Please read this manual carefully before connecting your Interface to the mains for the first time.

CE

This equipment complies with the EMC Directive 89/336/EEC

This product is approved to safety standards
EN60065:1994
UL6500:1996
CSA E65:1994

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Part No. ZM0219
Issue 3

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WARRANTY



1 **Spirit and Soundcraft** use trading divisions of Harman International Industries Ltd .

End User means the person who first puts the equipment into regular operation.

Dealer means the person other than Soundcraft (if any) from whom the End User purchased the Equipment, provided such a person is authorised for this purpose by Soundcraft or its accredited Distributor.
Equipment means the equipment supplied with this manual.

2 If within the period of twelve months from the date of delivery of the Equipment to the End User it shall prove defective by reason only of faulty materials and/or workmanship to such an extent that the effectiveness and/or usability thereof is materially affected the Equipment or the defective component should be returned to the Dealer or to Soundcraft and subject to the following conditions the Dealer or Soundcraft will repair or replace the defective components. Any components replaced will become the property of Soundcraft.

3 Any Equipment or component returned will be at the risk of the End User whilst in transit (both to and from the Dealer or Soundcraft) and postage must be prepaid.

4 This warranty shall only be valid if:
   a) the Equipment has been properly installed in accordance with instructions contained in Soundcraft's manual; and
   b) the End User has notified Soundcraft or the Dealer within 14 days of the defect appearing; and
   c) no persons other than authorised representatives of Soundcraft or the Dealer have effected any replacement of parts maintenance adjustments or repairs to the Equipment; and
   d) the End User has used the Equipment only for such purposes as Soundcraft recommends, with only such operating supplies as meet Soundcraft's specifications and otherwise in all respects in accordance Soundcraft's recommendations.

5 Defects arising as a result of the following are not covered by this Warranty: faulty or negligent handling, chemical or electro-chemical or electrical influences, accidental damage, Acts of God, neglect, deficiency in electrical power, air-conditioning or humidity control.

6 The benefit of this Warranty may not be assigned by the End User.

7 End Users who are consumers should note their rights under this Warranty are in addition to and do not affect any other rights to which they may be entitled against the seller of the Equipment.

IMPORTANT SAFETY INSTRUCTIONS

CAUTIONS

- **To avoid the risk of fire, replace the mains fuse only with the correct type and value fuse, as marked on the rear panel.**

- ATTENTION:- Afin de réduire le risque de feu remplacer seulement avec fusible de même type.

- **REPLACING MAINS FUSE**
  Switch the ON/OFF switch to the OFF position. Remove the mains lead from the connector. Use a small screwdriver to prise the fuse carrier from its location in the connector. Check the fuse and replace if necessary; also check that the voltage selection is correct for the mains supply level before switching the unit ON again.

  If the mains fuse fails repeatedly this may be because an electrical safety hazard exists. The unit must be taken out of service and referred to the Soundcraft/Spirit dealer from where the equipment was purchased.

- **THIS UNIT MUST BE EARTHED**
  Under no circumstances should the mains earth be disconnected from the mains lead.

- ATTENTION:-Cet appareil doit être branché à la terre.

- The wires in the mains lead are coloured in accordance with the following code:

Earth:	Green and Yellow (Green/Yellow - US)
Neutral:	Blue (White - US)
Live:	Brown (Black - US)

  As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

  The wire which is coloured Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol.

  The wire which is coloured Blue must be connected to the terminal in the plug which is marked with the letter N.

  The wire which is coloured Brown must be connected to the terminal in the plug which is marked with the letter L.

  Ensure that these colour codings are followed carefully in the event of the plug being changed.

- 

AVIS: RISQUE DE CHOC ELECTRIQUE
- NE PAS OUVRIR



- This unit is capable of operating over a range of mains voltages as marked on the rear panel. It is important to ensure that the correct mains fuse is fitted before switching on the unit.

WARNINGS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- This unit contains no user serviceable parts. Refer all servicing to a qualified service engineer, through the appropriate Soundcraft dealer.
- Do not use this apparatus near water.
- Clean only with a damp cloth.
- Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
- Do not install near any heat sources such as radiators, heat resistors, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. when the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way such as power-supply cord or plug is damaged., liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.
- It is recommended that all maintenance and service on the product should be carried out by Soundcraft or its authorised agents. Soundcraft cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel.



- Use only with a cart, stand, hood, bracket or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart apparatus combination to avoid injury from tip-over.

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SPIRIT DIGITAL 328 USER GUIDE

NB Before you go any further, please read this first page as it will tell you all you need to know about starting off with the Spirit Digital 328

From all of us to you

Thank you for purchasing the Spirit Digital 328 mixer, which is brought to you with much pride by Soundcraft. Your Spirit Digital 328 mixer has been manufactured exclusively by Soundcraft in the UK, combining state of the art technology with 25 years experience in professional console design. The Spirit range gives you premier audio quality and features whatever your mixing needs. We hope you enjoy using your Spirit Digital 328 mixer as much as we have enjoyed designing it!

The User Guide

This manual has been designed to make the time needed to get to know the Digital 328 as short as possible!

Every function of the 328's operation is covered in the manual. Please also refer to the two supplied booklets namely '**The Spirit Guide to Digital Mixing**' and '**The Spirit Guide to Mixing**' which cover most of the other questions you may have about mixing in both Live and Studio Recording applications.

Section 1	Introducing the Spirit Digital 328 - Key features and specifications
Section 2	Getting started straight out of the box
Section 3	Reference Section
Section 4	Automation Techniques
Section 5	Linked Consoles
Section 6	Software Upgrade
Section 7	Troubleshooting



Quick Start!
If you want to jump straight in, then flip forward to ***Section 2*** *'* ***Getting started straight out of the box****' but please skim through* ***Section 1*** *first to get an idea of what features the Digital 328 offers!*

1

Introducing The Spirit Digital 328

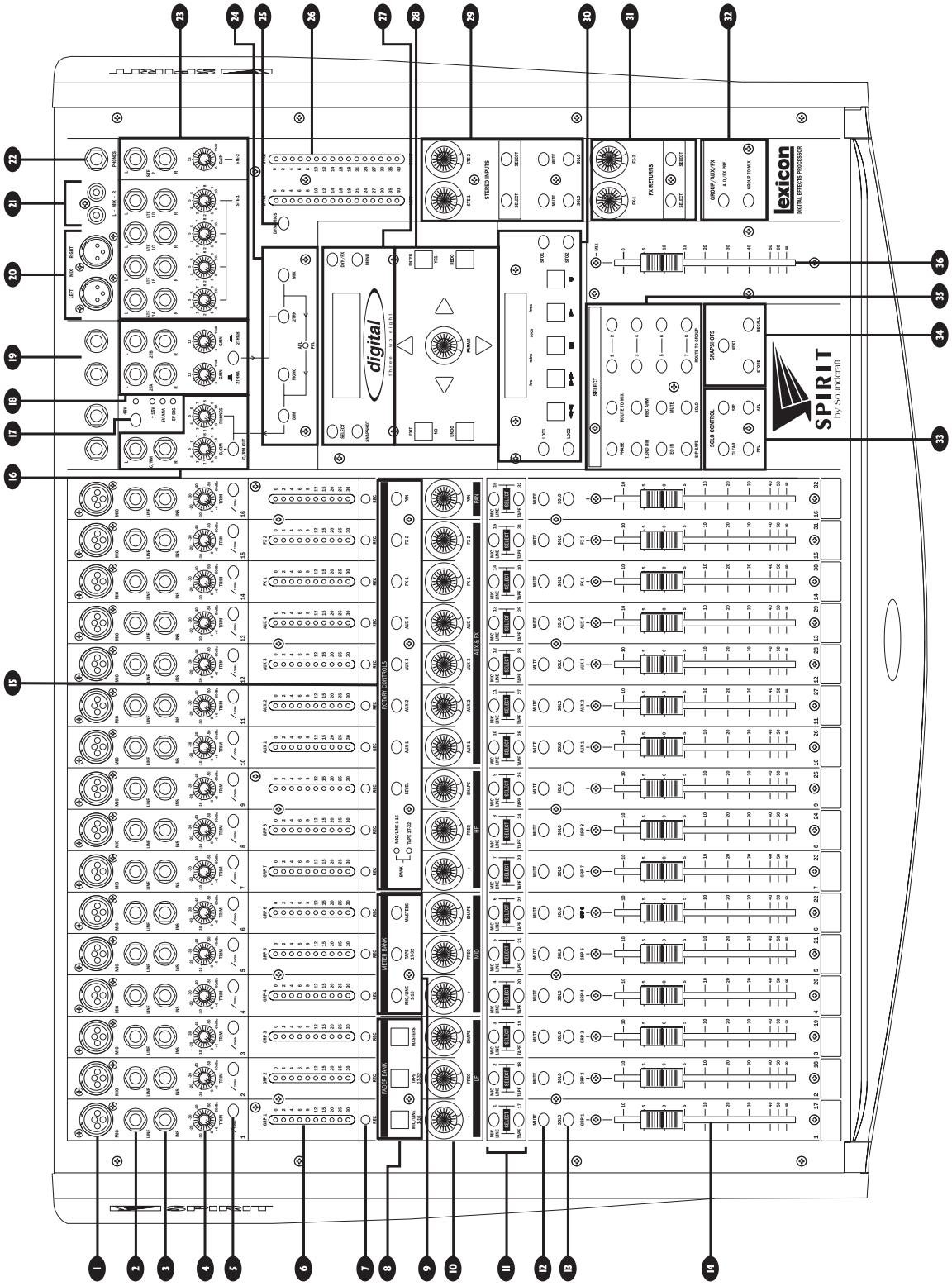
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THE SPIRIT DIGITAL 328 CONSOLE



1. Microphone Input
2. Line Input
3. Insert Point
4. Analogue Trim Pot
5. 100Hz Highpass Filter
6. Meter Bridge for Mic/Line Channels 1-16, Tape Channels 17-32, Group Outputs 1-8, Auxiliary Sends 1-4 and Internal FX Sends 1 and 2
7. Record Arm LED
8. Fader Bank Select Switches
9. Meter Bank Select Switches
10. E-Strip Rotary Encoders
11. Mic/Line Channels 1-16 and Tape Channels 17-32 Select Switches
12. Mute Switches for Mic/Line Channels 1-16 and Tape Channels 17-32
13. Solo Switches for Mic/Line Channels 1-16 and Tape Channels 17-32
14. Faders 1-16
15. Rotary Encoder Mode Switches
16. Control Room Outputs; Control Room Output Level Control and Phones Level
17. Global 48V Phantom Power Switch
18. Analogue 2 Track Inputs A and B; 2 Track Level Controls
19. Auxiliary Outputs 1-4
20. Balanced Mix Outputs (XLR)
21. Unbalanced Mix Outputs (RCA)
22. Phones Output
23. Stereo Input 1A - 1D and Stereo Input 2
24. Monitor Path Controls
25. Dynamics Switch
26. Main Output / Dynamics Gain Reduction Meters
27. LCD Panel and LCD Mode Switches
28. PARAM Encoder, Cursor Keys, EXIT/NO, ENTER/YES, UNDO and REDO Switches

29 Stereo Input 1 and 2 Control

30 Timecode Display and Transport Controls

31 FX Return 1 and 2 Control

32 AUX/FX Pre/Post and Group/Channel Link Switches

33 Solo Control Panel

34 Snapshot Control Panel

35 Select Panel for Channel Parameters

36 Mix Fader

INTRODUCING THE SPIRIT DIGITAL 328

Okay so what should a digital mixing console be? Should it be something that basically requires you to relearn the way you work on a mixer, with pages and pages of menus offering a lot of great features, but many that you will never really use? Perhaps it should have a combination of buttons and a data wheel where previously you found a simple pan control, or maybe it should have faders that can become auxiliary sends instead of good old auxiliary pots as before! No, we must disagree, we don't think this is the way to design a digital mixer at all.

Like you, we believed in a mixer that firstly, looked like a normal mixer, and secondly did not require hours of diligent study to get a signal in at one end, and out at the other! Speed is so important, both in the studio and at live performances/broadcasts, that we focused on this as our prime aim.

Like you we wanted dedicated pan controls on each channel plus simple and familiar functions like EQ In/Out, Phase In/Out, Channel Mute, dedicated Aux and FX send pots full metering and silky smooth 100mm long throw faders! Add to this fully parametric EQ - with real knobs - on every channel, two warm sounding Lexicon FX processors and two great assignable stereo dynamics processors, plus a few extras like 24 bit 128 x oversampling A/Ds and D/As, machine control, built in ADAT and TDIF 16 channel interfaces and more! Well, we had to do it! So we designed and built you the Spirit digital 328 mixer - enjoy it!

THE INS AND OUTS OF THE 328

Analogue Inputs

The Spirit Digital 328 offers 16 Mic/Line inputs, using Spirit's highly acclaimed Ultra Mic Pre-amps. A Global Phantom Power, applying 48V to all 16 Microphone inputs, is accessed by pressing the PHANTOM POWER switch.

All Mic/Line Inputs have an Insert point, Gain control and High Pass Filter. A further 5 Stereo Inputs are also available, and all of the above inputs feature 24 bit 128 x oversampling A/D converters. All have full access to the revolutionary E-Strip which offers 3 band fully Parametric Equalisation, 4 Auxiliary Sends, 2 Effects Sends (routed to 2 x internal Lexicon FX Processors) and a Pan control.

There are also two additional pairs of Stereo 2 Track Inputs for connecting playback machines such as cassette decks and analogue 2 track recorders.



The 2 TDIF inputs can also be converted to function as 8 additional analogue or 4 digital stereo AES/EBU inputs with the addition of Spirit's external rack mount converter boxes.

Digital Inputs

The 16 digital input channels on the rear of the 328 are accessed by two 8 Channel TDIF or ADAT Optical input connectors. There is also a dedicated AES/EBU Input, and S/PDIF Input for connecting CD, Minidisc and DAT Machines. All of these inputs have full access to the E-Strip which offers 3 band fully Parametric Equalisation, 4 Auxiliary Sends, 2 Effects Sends (routed to 2 x internal Lexicon FX Processors) and a pan control.



8 Analogue Group Outputs or 16 Analogue Direct Outputs can be achieved by the addition of Spirit's external rack mount converter boxes.

Analogue Outputs

The 328 offers an array of Analogue Outputs including MIX Outputs on balanced male XLR and unbalanced RCA phono plugs, 4 Auxiliary Outputs, Control Room Outputs on balanced jacks and a Headphone Output with it's own level control.

Digital Outputs

There are 16 digital output channels available via the 8 TRK A and 8 TRK B Outputs in the form of 2 TDIF ports and 2 ADAT output ports. Both TDIF outputs and both ADAT outputs are continually and simultaneously active. Either these can be configured as 16 Direct Outputs - sourced from Mic/Line Input Channels 1-16 - or alternatively as two paralleled 8 Bus Outputs sourced from the ROUTE TO GROUP buttons.

The AES/EBU and S/PDIF Stereo Digital Outputs can output signals from any of the following sources:

MIX Out,
AUX 1&2,
AUX 3&4,
FX 1&2 sends,
Groups 1&2,
Groups 3&4,
Groups 5&6,
Groups 7&8,
Control Room output.

The AUX OPTICAL OUT can source its output signal from either the Group Outputs or the MIX bus, AUX 1, 2, 3 and 4 sends and FX 1 & 2 sends.

Metering

The 328 has full metering of every input and output signal as standard - no need for an extra meter bridge here! The 10 segment bar graph meters have 3 easily selected modes that show either

MIC/LINE Inputs 1-16,
TAPE Inputs 17-32
GROUP Outputs 1-8, AUX Outputs 1-4 and FX Sends 1 and 2.

Under normal operation, the Stereo Output Meters will display the stereo mix bus - in mono when the MONO switch is pressed. When the 2 TRK switch is illuminated the Stereo Output Meters will display the 2-Track return inputs. When any channels are soloed the solo bus will be displayed and the Gain Reduction Level and Gate Open/Closed will be displayed when the DYNAMICS switch is illuminated.

Faders

The 100mm long throw faders found on the 328 work just as you would expect on an analogue console. There are 4 modes of operation for the channel faders according to the FADER BANK selection:

- MIC/LINE 1-16 - Faders control the level of the MIC/LINE Inputs 1-16
- TAPE 17-32 - Faders control the level of the TAPE Inputs 17-32.
- MASTERS - Faders control output level of GROUP 1-8, Master output level for AUX 1, 2, 3 or 4 and Master output level for FX 1 and 2.
- MIDI controller mode - When none of the FADER BANK buttons are selected the 16 channel faders and 16 ROTARY CONTROLS function as programmable MIDI controllers.

E-Strip

The E-Strip is a feature unique to the Digital 328 and works just like a conventional analogue channel strip rotated through 90°. The E-Strip has 3-band fully Parametric Equalisation, 4 AUX Sends, 2 internal FX Sends and a PAN control which are available for use on the MIC/LINE and TAPE channels, Stereo Input 1&2 and FX Return 1&2.

The E-Strip can also be configured to work as 16 dedicated Level controls for MIC/LINE Inputs 1-16 or TAPE Inputs 17-32, or as dedicated controllers for AUX Send level 1, 2, 3 and 4, FX Send level 1 and 2 or PAN controls.

Lexicon Effects Processors

The Digital 328 features two built in Lexicon Stereo FX Processors that include Reverb, Delay, Chorus and Flange effects and are accessed from FX Sends 1&2. The two dedicated Effects Returns - FX 1 and FX 2 - control the amount of effect sent to the Mix Outputs.

Stereo Dynamics Processors

There are two Dynamics Processors that can be configured for either Mono or Stereo operation, and can be applied to the Mic/Line and Tape Channels, the Stereo Inputs 1&2, the FX Returns 1&2 and the Mix Outputs.

Snapshot and Dynamic Automation

The Digital 328 has two different types of automation namely 'SNAPSHOT' and 'DYNAMIC AUTOMATION' which give maximum flexibility to the user. Complete recall of all console settings can be stored in up to 100 'SNAPSHOT' memory locations for recall either manually or against incoming SMPTE or MIDI Timecode.

Recording via MIDI to a MIDI Recording device, such as a sequencer, allows complete DYNAMIC AUTOMATION of all the functions found on the 328 except for the input gain controls and 100Hz Highpass Filters.

Machine Control

The Machine Control section of the 328 can be used to control various recording devices including Hard Disk Editors, Sequencer Packages, Audio Tape Machines and Video Tape Machines. This is achieved using MMC (MIDI Machine Control), RS422 or MIDI Note On/Note Off.

Audio quality

All analogue inputs and outputs on the 328 have the same crystal clear 24 bit 128 oversampling Analogue to Digital and Digital to Analogue (A/D and D/A) converters, ensuring wide dynamic range and superb sonic performance.

2

Getting Started Straight Out Of The Box

In this Section:

Let's get started! 13

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Okay let's make some noise! 13

Using the 'E-strip' for Equalisation, Panning, Aux sends and adding Effects 14

Let's add some reverb 14

Okay now for some Compression 15

Storing the settings in the 'SNAPSHOT' memory locations 16

GETTING STARTED STRAIGHT OUT OF THE BOX!

If you are one of those people who just has to 'get your hands dirty' before you read through the Reference Manual then this section is for you!

The goal of this short section is to take you quickly through the basic features of the Digital 328.

We will get a signal in on Channel 1, route it to the Mix outputs, add some EQ, and then add some Reverb and a Compressor, and finally store all the settings we have made as a 'Snapshot'

LET'S GET STARTED!

Right, so you've managed of get the 328 out of the box! Congratulations, you've passed the first test and can move on from here!

Plug the power cable into the nearest plug socket (you'd be amazed how many people get this bit wrong!) and switch the 328 on. You will see very quickly that every light on the mixer lights up briefly. Don't worry this is perfectly normal, and is all part of the boot up procedure which should take about 30 seconds to complete. Once the boot up is complete and Mr Munch has reached the end of the screen, the 328 is ready to go!



AUDIO HOOK-UP

For the purpose of this section we will assume that there is a microphone plugged into MIC Input 1 and an amplifier with some speakers connected to the Left and Right Control Room (C/RM) outputs 16.

OKAY LET'S MAKE SOME NOISE!

Before starting, make sure that the Control Room Out (C/RM) level control 16 is fully down (anti-clockwise!), and the MIX fader 36 set at 10. You should also check that the C/RM CUT switch is not activated. If the CLEAR switch in the SOLO panel is illuminated, press it to ensure that no channels are soloed.

- Press the 'SELECT' button for MIC/LINE Channel 1 11 (It should illuminate with a cool shade of green!) to put the channel into 'SELECT' mode. Make sure that the 'ROUTE TO MIX' button in the 'SELECT' panel 35 is selected.

- Pull the Channel 1 Fader 14 fully down, and press the MUTE switch 12 (This should prevent any chance of a sudden feedback howl, if your microphone happens to be to close to your speakers!)

- Plug in a Microphone, and if it requires 48v Phantom Power, press the 48V button 17 .

- Make sure that both the FADER BANK 8 and METER BANK 9 selector switches are set to MIC/LINE 1-16. (This ensures that the faders are controlling level from MIC/LINE inputs 1-16 and the meters are showing input level for MIC/LINE inputs 1-16)

- Turn the TRIM control slowly until a good level is seen on the Channel 1 Input Meter 6 . (As a guide your loudest peaks should occasionally light the last Red LED. This will ensure good signal to noise ratio)



If you have bought this mixer second hand (and are lucky enough to still have the user manuals) then you might want to re-initialise the 328. This will return the console to the original factory settings it had when it left the factory, DELETING ALL STORED DATA.
To do this:

- *Switch off the mixer*
- *Hold down the left and right cursor keys simultaneously*
- *Now switch on the mixer again whilst holding down the two cursor keys.*
- *Keep holding down the arrow keys until the LCD display reads 'Hard reset to factory defaults' then you can let go of the arrow keys and allow the boot up procedure to finish.*
- *The mixer is now reset to where it was when it left the factory. The User libraries for the FX, Dynamics, Snapshots and MIDI Controllers have been deleted.*

NOTE:
If you wish to recall the Factory Default state without deleting all stored data, you must hold all four cursor keys on boot up. The LCD will display 'Soft reset to Factory Defaults'.

- Now de-select the Channel 1 MUTE button 12 and bring up the Channel 1 fader level. You should now see level showing in the LEFT/RIGHT output meters 26. (If there is no level check that the 'DYNAMICS' button 25 is de-selected.)

  The reason for this is simply that the Stereo Output meters can show the stereo output level, or Gain Reduction and Gate Open/Close for the Dynamics Processors if the Dynamics button is selected.

- Once you have a good amount of level on the LEFT/RIGHT output meters, turn up the C/RM level control 16 to hear the signal in your speaker system.

Great! Let's get a little more creative!

USING THE E-STRIP FOR EQUALIZATION, PANNING, AUX SENDS AND ADDING EFFECTS

Now that you have some audio running through the console, let's check out the E-Strip

(See Section 3.B - for an in depth look at this unique 328 feature)

- When you press the 'SELECT' button 11 on Channel 1 the E-Strip instantly becomes active for that channel. You now have access to 3 band EQ, 4 AUX sends, 2 FX sends and a PAN control. These functions operate just as you would find on an analogue console and will remain at their current setting even if you select another channel.

- Pressing the 'SELECT' button 27 in the MASTER section will set the LCD to display precise value adjustments for any of the controls found on the E-Strip. The LCD will automatically follow to display whichever control you adjust. With the LCD in this mode, the PARAM encoder will also be automatically active for the control being adjusted on the E-Strip.



It is always good practice to send as much signal as possible into the effects processors from the individual FX Sends on the channels, and have the level of the FX Return at a lower level. This way a good Signal to Noise Ratio (SNR) is achieved.

LET'S ADD SOME REVERB TO THE SIGNAL

Adding a reverb effect to a signal is just like working with an external effect processor, but without the need for cables! There is also the added bonus of keeping the signal in the digital domain at all times. As you would expect we will need to send a signal into the effects processor and blend the return signal into the mix. Let's do it!

- Firstly press the DYN/FX button 25 .
- Use the PARAM encoder 28 or the st arrow keys to select the **FX 1 Presets** menu - it will flash when selected.
- Press the ENTER/YES button and the **< FX Presets > Factory/User** menu comes up.
- Press the ENTER/YES button again to bring up the library of preset effects and choose Hall Reverb using either the PARAM encoder or the st arrow keys, then press the ENTER/YES button to load your chosen effect.
- Press the MASTERS button on the METER BANK panel. This will switch the bar graph meters to display the output levels of Groups 1 - 8, FX 1&2 and Auxes 1 - 4 so that we can see the level of signal being sent to FX Processor 1 from the FX 1 Send of Channel 1. Ensure that the FX 1 master send fader (fader 14) is at 0dB.
- Turn the FX RET 1 control fully down.
- Make sure that MIC/LINE Channel 1 is still selected, and using the FX 1 control slowly raise the FX 1 control until you see a good amount of signal showing on the Bargraph meter labeled FX 1.
- Now turn up the level of FX RET 1 to blend the amount of Reverb you want routed to the mix bus.

OKAY NOW FOR SOME COMPRESSION

The two high quality Dynamics Processors built into the 328 can be applied to the signal in the usual way i.e. by feeding the full signal to the input of the processor and returning the output back to the same channel. Let's do it!

- Press the DYN/FX button and use the PARAM encoder or the ▲▼ arrow keys to select the DYN 1 menu - it will flash. It will also show the currently active Dynamics Processor type.
- Press the ENTER/YES button. The LCD display will show either **<DP * Bypass *>** or **<DP 1ALGORITHM>**.

  Below this line the currently active Dynamics Processor will be shown.

  Pressing the ◀ ▶ arrow keys together will toggle the Bypass function on and off. This determines whether or not the currently selected Dynamics Processor is active or bypassed.

- Use the ▲▼ arrow keys or the PARAM encoder to select the Compressor and press the ENTER/YES button.
- Use the ▲▼ arrow keys to select the **SCH : Channel #XX** menu page.

- Now use the PARAM encoder to select Channel #1(MIC/LINE Input 1) and then press the ENTER/YES button to select it.

- You may now use the st arrow keys to step through the different parameters for the Compressor, and the PARAM encoder to adjust settings such as Knee, Threshold, Ratio, Attack, Release, Makeup.

- If you want to look at the Gain Reduction level of the Compressor, press the DYNAMICS button next to the Stereo Output meters and the meters will now show Gain Reduction. Press the DYNAMICS switch again to meter the mix bus.

STORING THE SETTINGS IN THE 'SNAPSHOT' MEMORY LOCATIONS

All of the adjustments we have just made can be stored in the SNAPSHOT library for later recall. Let's do it!

- Press the SNAPSHOT button in the Master section. This will bring up the SNAPSHOT menu.

- Use the st arrow keys or the PARAM encoder to select SNAPSHOT memory location # 01. It will flash when selected.

Note: If you have a used mixer with previously stored SNAPSHOTS then press the EXIT/NO button to delete the existing SNAPSHOT. The LCD display will read 'Confirm Delete?' And the currently selected SNAP SHOT number. Press the ENTER/YES button to delete the SNAPSHOT.

- Now in the SNAPSHOTS section press the STORE button.

- The LCD display will read SAVED SNAPSHOT and then revert to showing SNAPSHOT #001

- To give the SNAPSHOT a name press the ENTER/YES button and use the ◀ ▶ arrow keys to select the character you want to change, and the PARAM encoder to select the desired letter or number. Characters can be deleted from left to right by pressing and holding the left cursor key and then pressing the right cursor key once for each letter to be deleted. Similarly, characters can be deleted from right to left by pressing and holding the right cursor key and then pressing the left cursor key once for each letter to be deleted.

- Press the ENTER/YES button to store the new name.

For more information on Snapshot parameters, refer to **Sections 3G and 3J Part 5.15**.

Well that's it! You have now successfully completed a basic overview of how the Digital 328 operates!

Section 3 of this manual gives an in depth view of all of the functions available on the 328. Be prepared for a new audio experience.

3

Reference Section

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3A

The Inputs and Outputs

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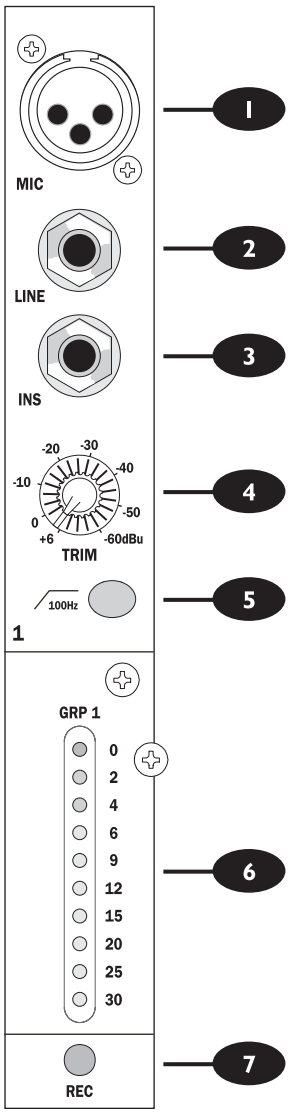
Part 2 - The Rear panel Inputs and Outputs 26

PART 1 - THE FRONT PANEL INPUTS AND OUTPUTS

Mic/Line Inputs 1-16

The 16 analogue inputs on the 328 comprise of a Microphone input, Line input, Insert point, Trim control and High Pass Filter (HPF)

After the High Pass Filter, 24 bit A/D conversion takes place and from here on the signal is handled entirely in the digital domain until it reaches one of the analogue output stages.



1 MIC INPUT

The microphone input accepts XLR type connectors and is designed to accept a wide range of BALANCED or UNBALANCED signals up to +28dBu (66dB of Gain range). For optimum performance use professional balanced microphones, such as Condenser, Dynamic or Ribbon types with balanced cables. The 48V Phantom Power switch can be used to power Condenser microphones or Direct Injection (DI) boxes if required.

2 LINE INPUT

The Line Input is BALANCED and accepts 3 pole ¼" (TRS) jack plugs.

Use this input for Keyboards, Drum Machines, Synthesisers, Samplers or Guitars.

Although the Line input is BALANCED it will accept UNBALANCED sources as well.

3 INSERT POINT

The insert point is UNBALANCED and is derived Pre-fade and Pre-EQ/pre-Dynamics. It allows for the connection of outboard equipment such as Compressors, Gates or Equalisers for additional signal processing. For the correct method of making up insert cables for use with the 328 please consult Appendix E of this manual.

4 TRIM (PRE-AMP SENSITIVITY)

This knob sets how much of the source signal is sent to the rest of the console. Aim to get a good, strong signal into the 328 without clipping (distorting) the signal. Setting the TRIM to '0' will give unity gain for use with Line level signal sources. Because the TRIM control is analogue, its position is not stored with Snapshot data.

5 100HZ HIGH PASS FILTER (HPF)

Pressing this button activates a 100Hz High Pass Filter (HPF) which has a steep 18dB per octave bass roll off characteristic. When selected the HPF will cause low frequencies below 100Hz to be reduced rapidly, and is very useful for reducing rumble on stage or popping on microphones. This function is analogue and will not be stored with Snapshot data



DO NOT plug microphones into the XLR 'MIC' inputs when the 48V Phantom Power button is switched in. DO NOT connect unbalanced microphones to the XLR 'MIC' inputs whilst the 48V Phantom Power is switched on. To avoid damage to the mixer or external devices DO NOT switch the 48V Phantom Power switch on or off unless the Mic/Line faders are DOWN. Microphones that do not require Phantom Power may be used with Phantom Power switched on if correctly balanced cables are used. Ensure that the microphone is connected before switching on the Phantom Power.



A Pre-fade, Pre-EQ send of a Mic or Line source can be output from the Insert point by using a lead with the Tip and Ring shorted together so as not to interrupt the signal path.



The TRIM control has a wide sensitivity range to cope with both Mic and Line inputs. With either a MIC or Line input connected start with the TRIM control fully anti -clockwise (+6) and adjust the level until the red '0' LED on the Input meter lights up occasionally during the loudest sections of the music. NB - If you are unfamiliar with how to set the input level on a mixing console, read through Section 2 'Getting Started Out Of The Box' in this manual for an explanation.

6 BARGRAPH METERS

Each input stage has a tri-colour, 10 segment, peak reading Bargraph meter. These meters can be switched globally using the 3 buttons found in the Meter Bank section to represent any of the following signals.

- Mic/Line Inputs 1-16 (Pre-fade, Post-EQ) by pressing the METER BANK button MIC/LINE 1-16
- Tape Inputs 17-32 (Pre-fade, Post-EQ) by pressing the METER BANK button TAPE 17-32
- Group Out 1-8, Aux Send 1-4 and FX Send 1-2 by pressing the METER BANK button MASTERS

7 REC (RECORD INDICATOR)

The red 'REC' LED is used in conjunction with recording devices that support MIDI MACHINE CONTROL (MMC). External recording devices can be put into record from the front panel of the 328. The current status of the recording devices tracks (1-16) can be monitored using these LED as follows:

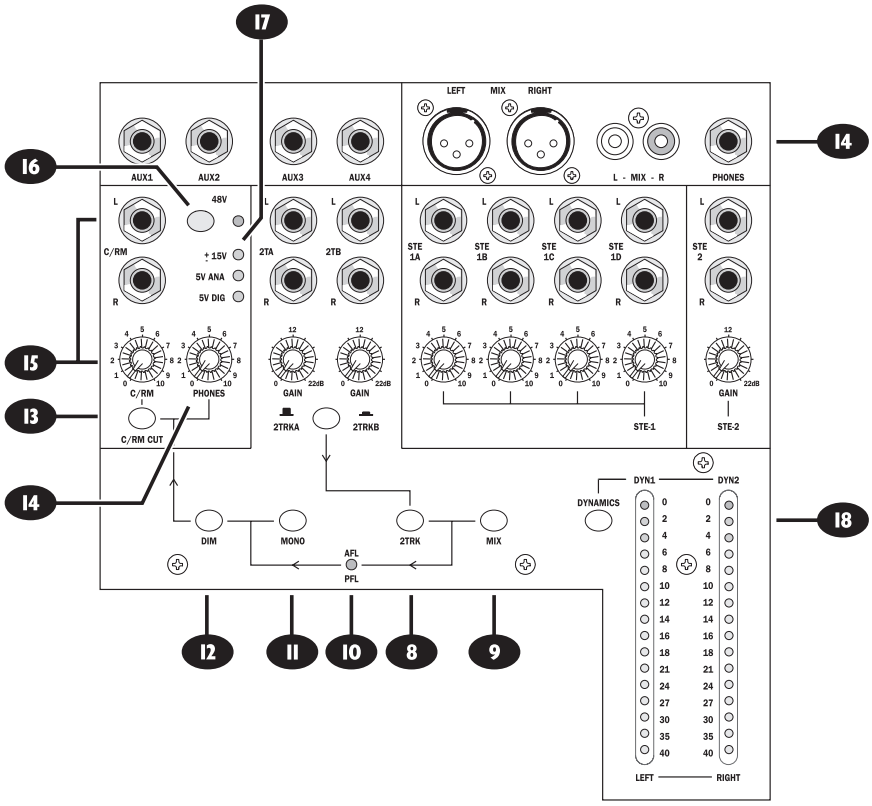
- When the LED is OFF the track is not in record mode
- When the LED is FLASHING the track is ready to record
- When the LED is ON the track is in record mode

(See **'Section 3C - The SELECT Panel'** for more information)

Monitor Section

The Monitor section of the 328 is where you will connect your studio monitor speakers, headphones and mix down machines.

You can also select in the Monitor section what source signal you will be listening to in your studio monitor speakers.



8 2TRK

Press 2TRK to feed the selected 2-track input (analogue A or B or digital 2-Track (see **Section 3 Part 5.9 and Section 3 Part 5.10**) to the C/RM and/or PHONES outputs.

9 MIX

Press MIX to feed the MIX L/R signal to the C/RM and/or PHONES outputs.

10 AFL/PFL LED

Whenever a SOLO button is active, the AFL/PFL LED illuminates to warn that the C/RM and PHONES outputs will be carrying the AFL or PFL signal instead of the normal source. (To clear all SOLOed channels, press the CLEAR button in the SOLO CONTROL section)

11 MONO

Pressing MONO sums the C/RM and PHONES outputs to MONO. This is useful for checking the mono compatibility of your mixes or for phase checking etc.

12 DIM

Pressing this button dims the C/RM and PHONES outputs by 30dB

13 C/RM CUT

When this button is pressed the control room output is muted. The PHONES output is unaffected.

14 PHONES

This control adjusts the level sent to the stereo PHONES output.

15 C/RM

This control adjusts the level sent to the C/RM (Control Room) output.

16 48V (PHANTOM POWER)

When this button is pressed 48V 'Phantom Power' is provided to the Microphone inputs, for powering professional condenser microphones or Direct Injection (DI) boxes. The 48V LED will illuminate to indicate that Phantom Power is on.

NOTE: To prevent damage to the mixer or external devices, do not connect microphones to the Mic inputs with the 48V power switched on, and only switch the 48V Power on or off when the output faders are DOWN! Microphones that do not require Phantom Power may be used with Phantom Power switched on if correctly balanced cables are used. Ensure that the microphone is connected before switching on the Phantom Power.

17 PSU INDICATORS

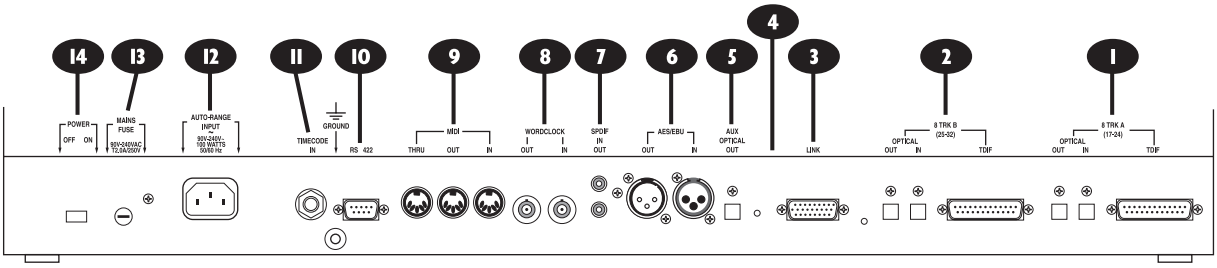
There are three green LEDs to monitor the status of the +/- 15V, 5V Analogue and 5V Digital power supplies. In normal operation all three LEDs should be illuminated.

18 BARGRAPH METERS

Two 16 segment Peak reading Bargraph Meters normally display the Mix L/R output level.

Pressing the DYNAMICS button on the left of the meters switches the meters to read either Gain Reduction (Compressor/Limiters) or Gate Open/Close (Gates /Expanders).

PART 2 - THE REAR PANEL INPUTS AND OUTPUTS



1 8 TRK A (17-24)

The 8 TRK A section on the rear of the 328 is an 8-channel bi-directional Digital I/O interface for connecting to recording devices or expansion boxes. There are two types of Digital I/O formats supported namely Tascam TDIF and ADAT Optical. Only one of the ADAT or TDIF inputs can be active at any one time for each port (see **Section 3J - Part 5.8 'Tape Port Select'** for set-up information). Both TDIF and both ADAT output ports are continually and simultaneously active. Signals connected to either the Tascam TDIF or ADAT Optical ports will be controlled by Tape faders 17-24.

- **TDIF (Tascam Digital Interface)**
  This 8-channel connector connects to machines fitted with a Tascam TDIF port. A TEAC specification TDIF cable is required. The cable is bi-directional and therefore carries the signal to and from the 328 TDIF ports.

- **ADAT Optical In (Alesis Digital Audio Technology)**
  This 8-channel connector connects to the Optical Out of machines fitted with ADAT Optical ports. An ADAT optical cable must be connected from the external ADAT device to the 328 ADAT input.

- **ADAT Optical Out**
  This 8-channel connector connects to the Optical In of machines fitted with ADAT Optical ports. An ADAT optical cable must be connected from the external ADAT device to the 328 ADAT input.

2 8 TRK B (25-32)

The 8 TRK B section on the rear of the 328 is an 8-channel bi-directional Digital I/O interface for connecting to recording devices or expansion boxes. There are two types of Digital I/O formats supported namely Tascam TDIF and ADAT Optical. Only one of the ADAT or TDIF inputs can be active at any one time for each port (see **Section 3J - Part 5.8 'Tape Port Select'** for set-up information). Both TDIF and both ADAT output ports are continually and simultaneously active. Signals connected to either the Tascam TDIF or ADAT Optical ports will be controlled by Tape faders 25-32.

- **TDIF**
  This 8-channel connector connects to machines fitted with a Tascam TDIF port. A TEAC specification TDIF cable is required. The cable is bi-directional and therefore carries the signal to and from the 328 TDIF ports.

- **ADAT Optical In**
  This 8-channel connector connects to the Optical Out of machines fitted with ADAT Optical ports. An ADAT optical cable must be connected from the external ADAT device to the 328 ADAT input.

- **ADAT Optical Out**
  This 8-channel connector connects to the Optical In of machines fitted with ADAT Optical ports. An ADAT optical cable must be connected from the external ADAT device to the 328 ADAT input.

3 LINK

Allows you to cascade two 328s together by using the Link cable available from Spirit. All Group and Mix bussing is summed together but the console Dynamics and FX 1/FX 2 remain separate.

See **Section 5** on linked consoles.

4 SOFTWARE DOWNLOAD SWITCH

This hidden switch is accessed using a small implement such as a small plastic pointer (never push any conductive material into the hole to activate the switch), and is used during the process of updating software into the 328. (For more information see **Section 6**)

5 AUX OPTICAL OUT

The third ADAT Optical output may be configured as a digital auxiliary output for effects units that use ADAT optical I/O, or alternatively it can be configured as 8 extra digital Group outputs.

(See **Section 3J - Part 5.8 'Tape Port Select'** for set-up information)

6 AES/EBU DIGITAL IN AND OUT

- **AES/EBU IN**
  Stereo AES/EBU signals from external devices such as DAT, CD or MD players should be connected here. The destination of this input can be selected via the MENU to any of the following: -

  STE 1,
  STE 2,
  FX return 1,
  FX return 2,
  2TRK.

(See **Section 3 - Part 5.10 'AES/EBU Input Setup'** for setup information)

- **AES/EBU OUT**
  This Stereo AES/EBU output can be selected via the MENU to derive its signal from any of the following sources: -

  MIX output,
  AUX send 1 and 2,
  AUX send 3 and 4,
  Internal FX send 1 and 2,
  Groups 1 and 2,
  Groups 3 and 4,
  Groups 5 and 6,
  Groups 7 and 8,
  Control Room output.

(See **Section 3 - Part 5.12 'AES/EBU Output Setup'** for setup information)

7 S/PDIF DIGITAL IN AND OUT

- **S/PDIF IN**
  Stereo S/PDIF signals from external devices such as DAT, CD or MD players should be connected here. The destination of this input can be selected via the MENU to any of the following: -

  STE 1,
  STE 2,
  FX return 1,
  FX return 2,
  2TRK.

(See **Section 3J - Part 5.9 'SPDIF Input Setup'** for setup information)

- **S/PDIF OUT**
  This Stereo S/PDIF output can be selected via the MENU to derive its signal from any of the following sources: -

  MIX output,
  AUX send 1 and 2,
  AUX send 3 and 4,
  Internal FX send 1 and 2,
  Groups 1 and 2,
  Groups 3 and 4,
  Groups 5 and 6,
  Groups 7 and 8,
  Control Room output.

(See **Section 3J - Part 5.11 'SPDIF Output Setup'** for setup information)

8 WORDCLOCK IN/OUT

These BNC connectors are for synchronizing external devices to the 328's own internal Wordclock, or for synchronizing the 328 to an external Wordclock source. The 328 can be selected via the MENU to be either the Wordclock Master or Slave.

(See **Section 3J - Part 5.14 'Clock Source Select'** for setup information)



If you would like to know more about Wordclock and other digital information, please read through 'The Spirit Guide To Digital Mixing' booklet.

9 MIDI IN, OUT AND THRU

The MIDI IN, OUT and THRU connectors are used for the following applications:

- Synchronizing recall of SNAPSHOTS to incoming MTC (MIDI Timecode)
- Transmitting and receiving MIDI Program Changes for Snapshot and User Setup recall
- Transmitting and receiving Dynamic Automation data to and from a MIDI recording device
- Sending MMC (MIDI Machine Control) messages to recording/playback machines
- Saving and Loading SNAPSHOTS, FX, Dynamics and Library data to and from a MIDI recording device
- Sending and receiving MIDI Control information from the 328's MIDI Controllers

(See **Section 3J - Part 5.2 User Options** / **Part 5.4 - MIDI Controllers** / **Part 5.4 MIDI Dump Out** / **Part 5.6 MIDI Dump In** / **Section 4 - Automation Techniques** for more information on MIDI functions)

10 RS 422

The RS422 port is used for machine control of machines that support the Sony 9-Pin protocol and for downloading software upgrades using a PC or Apple Macintosh.

11 TIMECODE IN

This connector is for connecting external SMPTE Timecode sources. The 328's SNAPSHOT memories can be programmed to respond to incoming SMPTE Timecode, and the Timecode can be displayed on the 328's own Timecode display window.

12 MAINS SUPPLY CONNECTOR

13 MAINS FUSE GROUND

14 POWER ON/OFF SWITCH

3B

The E-Strip

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OVERVIEW

The E-Strip is the heart of 328 operation. The E-Strip will make the 328 feel very like an analogue console when you use it, and we are sure you will come to love it as much as we do!

Most channel strips on analogue consoles - irrespective of brand name - have pretty much the same facilities on offer, typically - Parametric Equalisation, Auxiliary Sends, Effects Sends and Pan controls.

Wherever you are working you are more than likely looking to find these functions very quickly so that you can get on with the job at hand! Well the good news is, the 328's E-Strip destroys the myth that a digital mixer has to be complicated to use!

The E-Strip has 2 simple modes of operation that will take the sweat out of using a digital mixer. Whether you're burning the midnight oil in the studio, or feeling the pressure at a live gig you'll take comfort in knowing that the E-Strip will make your life a whole lot easier!

THE CHANNEL STRIP THAT'S A REAL PUSH OVER!

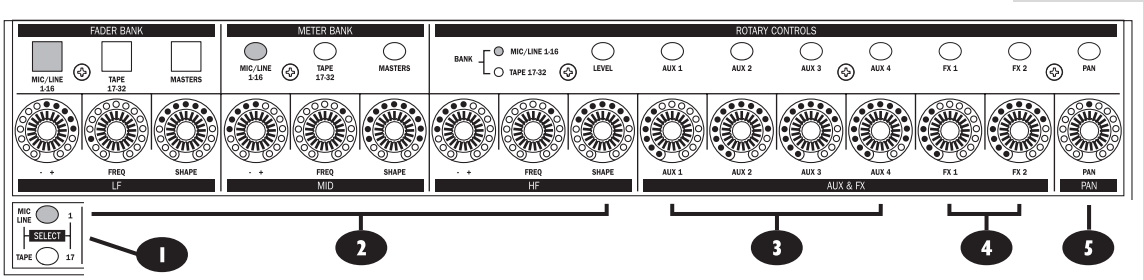
Firstly the E-Strip works just like a standard 'analogue' channel lying on its side. Pressing the 'Select' button on any Mic/Line Input, Tape Input, Stereo Input or FX Return will instantly activate the E-Strip for that channel. You now have immediate access to 3 Band Fully Parametric EQ, 4 Auxiliary Sends, 2 FX Sends and a Pan control, all operated with normal rotary pots as you would expect! No need for data wheels, multiple screen menus and a mouse here!

LINE 'EM UP! 1 CHANNEL 1 PAN POT!

Secondly the E-Strip can be set up to function as a row of dedicated Level, Aux, FX or Pan controls for each channel. What does this mean? Well for example, on an analogue console you take it for granted that when your are busy with a mix you can easily find a Pan pot directly above - or pretty close by - to the fader of the chosen channel. Often with a digital console this is not the case! Usually if you want to perform a quick Left/Right Pan on say Channel 3, you must hit a 'Select' button on the channel, and then reach for a dedicated central Pan pot (if you're lucky!), or even worse a data wheel and a virtual Pan pot on a screen!

Well with the 328 this is thankfully not the case! All 16 encoders found on the E-Strip, can be switched to function as Pan pots just like on an analogue console i.e. 1 Channel, 1 Pan pot! (Or Aux send, FX send or Tape Monitor for that matter). Let's take a closer look.

PART 1 - THE E-STRIP AS A CHANNEL STRIP



1 USING THE SELECT BUTTONS

To apply the E-Strip to a channel the relevant SELECT button must be pressed to activate the E-Strip on that channel. SELECT buttons are found on the following Channels

- **Mic/Line Inputs 1-16**
- **Tape Inputs 17-32**
- **Stereo Inputs 1& 2**
- **FX Returns 1 & 2**

Naturally it follows then that all of the facilities found in the E-Strip can be applied to any of the above channels. Lets look at the E-Strip functions individually.

If the 'Select' button at the top left hand side of the LCD display is pressed, the LCD display will show the parameters being adjusted by the pots on the E-Strip. The PARAM control pot and left and right cursor keys in the master section can also be used to adjust data.

2 EQUALISER SECTION

FREQUENCY BANDS

The equaliser is divided into three fully parametric bands namely - Low Frequency (LF), Mid Frequency (MID) and High Frequency (HF). Each band has a Cut and Boost control (- +) with a range of 15 dB, a Frequency Select control (FREQ) and a Bandwidth or 'Q' control (Shape).

- **Frequency Range**

  The Frequency ranges for each of the 3 bands are as follows:

LF	**40Hz to 800Hz**
MID	**200Hz to 8KHz**
HF	**1KHz to 20KHz**

  Rotating the LF, MID or HF encoder knob in a clock wise direction will sweep the frequencies from the lowest value through to the highest value in each frequency band e.g. 40Hz to 800Hz for the LF band.

- **Bandwidth**

  The Bandwidth or 'Q' control (SHAPE) has the following range:

LF	**(SHELVING) - 0.35 to 2.8**
MID	**0.35 to 2.8**
HF	**(SHELVING) - 0.35 to 2.8**

Note: When rotating the SHAPE encoder knob clockwise from its extreme counterclockwise position, the LF and HF bands will begin with a SHELVING filter characteristic, which changes to a peak filter with a 'Q' range of 0.35 through to 2.8 as the SHAPE encoder is gradually rotated.

The MID band has a peak filter characteristic with a 'Q' range of 0.35 through to 2.8

The LCD can be put into SELECT mode to display precise values of any EQ adjustment (see **Section 3J Part 1**).

When the adjacent SELECT button is pressed the LCD display will show the amount of CUT and BOOST (-15dB/+15dB), the selected frequency or the 'Q'.

3 AUXILIARY SENDS 1-4

The 4 Aux Sends (AUX 1-4) provide level control of the signal in the selected channel to the Aux Outputs. The Aux sends can be switched globally to source signals either PRE or POST fader. All Aux sends are POST EQ

When the adjacent SELECT button is pressed the LCD display will show the level of the selected AUX with a range from -60dB to 0dB.

PRE /POST FADE SETTING OF AUX 1, 2, 3 & 4

- Press and hold the 'AUX/FX PRE' button located at the bottom right hand corner of the console.
- Now look at the status of the AUX 1, 2, 3 or 4 buttons in the ROTARY CONTROLS section, whilst continuing to hold down the AUX/FX PRE button as above.
- The AUX 1, 2, 3 or 4 buttons will either be selected to be PRE FADE (illuminated) or POST Fade (not illuminated).
- To change the PRE/POST status of AUX 1, 2, 3 or 4, simply select or de-select the relevant button whilst holding down the AUX/FX PRE button.

Note: When shipped the default mode is AUX 1&2 set to PRE FADE (illuminated) and AUX 3&4 set to POST FADE (not illuminated).

When the adjacent SELECT button is pressed the LCD display will show the level of both FX 1 and FX 2 with a range from -60dB through to 0dB.

4 FX SEND 1 & 2

The 2 encoders labelled FX 1 and FX 2 provide separate send control to the built in Lexicon FX processors.

PRE/POST FADE SETTING OF FX SEND 1 OR 2

- Press and hold the 'AUX/FX PRE' button.
- Now look at the status of the FX 1&2 buttons in the ROTARY CONTROLS section, whilst continuing to hold down the AUX/FX PRE button as above.
- The FX 1&2 buttons will either be selected to be PRE FADE (illuminated) or POST Fade (not illuminated).
- To change the PRE/POST status of FX 1& 2, simply select or de-select the relevant button whilst holding down the AUX/FX PRE button.

Note: When shipped the default setting for FX 1and FX 2 is POST FADE.

PAN CONTROL

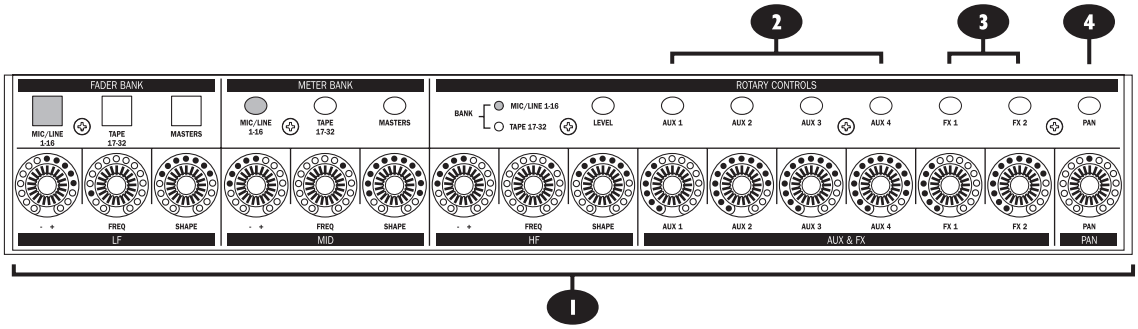
The PAN encoder knob sets the amount of the channel feeding the left and right MIX busses or linked (stereo) Groups allowing a signal to be moved smoothly across the stereo image.



When the adjacent SELECT button is pressed the LCD display will show the PAN setting numerically. Rotating the encoder knob clockwise the display will start by showing 'LEFT' meaning the signal is fully to the left and then gradually move through LFT 1-30, Centre, RGT 1-30 ending at 'RIGHT' denoting that the signal is now fully to the right. This is very useful when there is a need to match two signals symmetrically across the stereo image.

PART 2 - THE E-STRIP AS A ROW OF CONTROLLERS

The secondary mode of the E-Strip allows the ROTARY CONTROLS to be set up as dedicated Level controls, Aux Sends, FX Sends or Pan controls.



1 LEVEL CONTROLS

The 16 ROTARY CONTROLS can be configured for use as level controls for either the TAPE 17-32 inputs or the MIC/LINE 1-16 inputs. This allows immediate access to all 32 inputs on the 328 and is useful in both recording and live applications.

- **Controlling TAPE inputs 17-32**

  When the MIC/LINE 1-16 button in the FADER BANK is selected, the signals present at the MIC/LINE inputs will be controlled from the 100mm long throw faders at the bottom of the mixer.

  If the LEVEL button in the ROTARY CONTROLS section is now selected, the 16 ROTARY CONTROLS will automatically be selected to control the level of the signals present at the Tape 17-32 inputs. The red 'BANK' LED in the ROTARY CONTROLS section will confirm that the TAPE 17-32 inputs have been selected. The green ring of LED's surrounding the ROTARY CONTROLS will represent the fader levels of the TAPE 17-32 fader bank.

  The LCD can be put into SELECT mode to view precise values for any level adjustments (see **Section 3J Part 1**).

- **Controlling inputs to MIC/LINE 1-16**

  Alternatively the ROTARY CONTROLS can be switched to control the level of the signals present at the MIC/LINE 1-16 inputs, when it is preferable to have the TAPE 17-32 inputs controlled by the 100mm long throw faders at the bottom of the mixer.

To do this select the TAPE 17-32 button in the FADER BANK section so that it is illuminated. This will switch the signals present at the TAPE 17-32 inputs to be controlled by the 100mm long throw faders.

If the LEVEL button is selected, the ROTARY CONTROLS will now be automatically selected as level controls (faders) for the signals present at the MIC/LINE 1-16 inputs.

The red 'BANK' LED in the ROTARY CONTROLS section will confirm that the MIC/LINE 1-16 inputs have been selected. The green ring of LED's surrounding the ROTARY CONTROLS will represent the audio level. The LCD can be put into SELECT mode to view precise values for any level adjustments (see **Section 3J Part 1**).

Note: All 32 inputs still have instant access to the E-Strip functions described in Part 1 above by pressing either the MIC/LINE or TAPE buttons in the SELECT panel.



The above method can be used in conjunction with the optional Spirit 8 Channel Mic/Line boxes to give 16 additional analogue channels for live mixing applications, by converting the TDIF inputs to additional analogue inputs

2 AUXILIARY SENDS

The 16 ROTARY CONTROLS can be switched to function as individual Aux Sends for each of the signals present at the 100mm long throw faders at the bottom of the mixer. This way each channel can be set up to have a dedicated Aux Send, as you would find on an analogue console.

- **Aux sends for MIC/LINE inputs 1-16**

  Press the MIC/LINE 1-16 button in the FADER BANK section so that it is illuminated. This will assign the signals present at the inputs of MIC/LINE 1-16 to be controlled by the 100mm long throw faders at the bottom of the mixer.

  By selecting any one of the AUX 1, 2, 3 or 4 buttons in the ROTARY CONTROLS section, the ROTARY CONTROLS will now function as AUX sends for MIC/LINE channels 1-16 according to the number of the AUX selected.

  The green ring of LEDs surrounding the ROTARY CONTROLS will represent the audio send level.

  The LCD can be put into SELECT mode to view precise values for any level adjustments (see **Section 3J Part 1**).

- **Aux sends for TAPE inputs 17-32**

  Press the TAPE 17-32 button in the FADER BANK section so that it is illuminated. This will assign the signals present at the inputs of TAPE 17-32 to be controlled by the 100mm long throw faders at the bottom of the mixer.

  By selecting any one of the AUX 1, 2, 3 or 4 buttons in the ROTARY CONTROLS section, the ROTARY CONTROLS will now function as AUX sends for TAPE channels 17-32 according to the number of the AUX selected.

The green ring of LEDs surrounding the ROTARY CONTROLS will represent the audio send level.

The LCD can be put into SELECT mode to view precise values for any level adjustments (see **Section 3J Part 1**).

Note: The AUX 1, 2, 3 or 4 sends can be switched to be PRE or POST Fade by pressing and holding the AUX/FX PRE button in the GROUP/AUX/FX section. Then press one of the AUX 1, 2, 3 or 4 buttons in the ROTARY CONTROLS section. If the AUX 1, 2, 3 or 4 button is illuminated the AUX is PRE FADE and if it is not illuminated the AUX is POST FADE.

3 FX SENDS

The 16 ROTARY CONTROLS can be switched to function as individual FX sends for each of the signals present at the 100mm long throw faders at the bottom of the mixer. This way each channel can be set up to have a dedicated FX send, as you would find on an analogue console.

- **FX sends for MIC/LINE inputs 1-16**

  Press the MIC/LINE 1-16 button in the FADER BANK section so that it is illuminated. This will assign the signals present at the inputs of MIC/LINE 1-16 to be controlled by the 100mm long throw faders at the bottom of the mixer.

  By selecting either the FX 1 or 2 button in the ROTARY CONTROLS section, the ROTARY CONTROLS will now function as FX sends for MIC/LINE channels 1-16 according to the number of the FX send selected.

  The green ring of LEDs surrounding the ROTARY CONTROLS will represent the audio send level.

  The LCD can be put into SELECT mode to view precise values for any level adjustments (see **Section 3J Part 1**).

- **FX sends for TAPE inputs 17-32**

  Press the TAPE 17-32 button in the FADER BANK section so that it is illuminated. This will assign the signals present at the inputs of TAPE 17-32 to be controlled by the 100mm long throw faders at the bottom of the mixer.

  By selecting either the FX 1or 2 button in the ROTARY CONTROLS section, the ROTARY CONTROLS will now function as FX sends for TAPE channels 17-32 according to the number of the FX selected.

  The green ring of LEDs surrounding the ROTARY CONTROLS will represent the audio send level.

  The LCD can be put into SELECT mode to view precise values for any level adjustments (see **Section 3J Part 1**).

Note: The FX 1 and 2 sends can be switched to be PRE or POST Fade by pressing and holding the AUX/FX PRE button in the GROUP/AUX/FX section. Then press either the FX 1 or 2 button in the ROTARY CONTROLS section. If the FX 1 or 2 button is glowing red the FX send is PRE FADE and if it is unlit the FX send is POST FADE.

4 PAN CONTROLS

The 16 ROTARY CONTROLS can be switched to function as individual PAN controls for each of the signals present at the 100mm long throw faders at the bottom of the mixer. This way each channel can be set up to have a dedicated FX send, as you would find on an analogue console.

- **PAN controls for MIC/LINE inputs 1-16**

  Press the MIC/LINE 1-16 button in the FADER BANK section so that it is illuminated. This will assign the signals present at the inputs of MIC/LINE 1-16 to be controlled by the 100mm long throw faders at the bottom of the mixer.

  By selecting the PAN button in the ROTARY CONTROLS section, the ROTARY CONTROLS will now function as PAN controls for MIC/LINE channels 1-16.

  The green ring of LEDs surrounding the ROTARY CONTROLS will represent the PAN position of the channel within the stereo image.

  The LCD can be put into SELECT mode to view precise values for any pan adjustments (see **Section 3J Part 1**).

- **PAN controls for TAPE inputs 17-32**

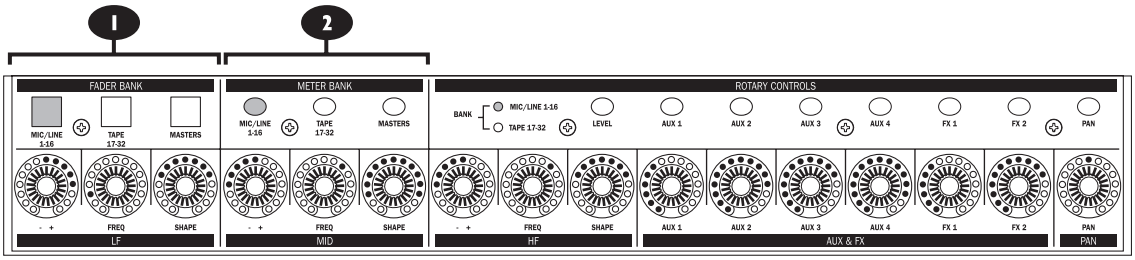
  Press the TAPE 17-32 button in the FADER BANK section so that it is illuminated. This will assign the signals present at the inputs of TAPE 17-32 to be controlled by the 100mm long throw faders at the bottom of the mixer.

  By selecting the PAN button in the ROTARY CONTROLS section, the ROTARY CONTROLS will now function as PAN controls for TAPE channels 17-32.

  The green ring of LEDs surrounding the ROTARY CONTROLS will represent the PAN position of the channel within the stereo image.

  The LCD can be put into SELECT mode to view precise values for any pan adjustments (see **Section 3J Part 1**).

PART 3 - THE FADER AND METER BANKS



1 THE FADER BANKS

The three square FADER BANK buttons assign the 16 long throw motorised faders to control any one of the following four functions:

- **MIC/LINE 1-16**
  When selected (illuminated) the 16 long throw motorised faders will control the level of the signals appearing at the MIC/LINE inputs 1-16 (i.e. the analogue inputs)

- **TAPE 17/32**
  When selected (illuminated) the 16 long throw motorised faders will control the level of the signals appearing at the TAPE inputs 17-32 (i.e. the digital TDIF or ADAT inputs).

- **MASTERS**
  When selected (illuminated) the 16 long throw motorised faders will control the following signals:

  - **Fader numbers 1-8** Control the level of the 8 GROUP outputs

Note: The GROUP output level does not exceed the 0dB unity gain point i.e. no further gain occurs once the fader has passed the 0dB unity gain position.

  - **Fader number 9** Not used
  - **Fader numbers** 10 - 13 Control the Master send level of AUX sends 1-4
  - **Fader numbers** 14 - 15 Control the Master send level of FX sends 1-2
  - **Fader number 16** Controls the level of the Solo bus.

- **No selection (MIDI controller mode)**
  By pressing the currently illuminated fader bank switch, the 16 long throw motorised faders, the 16 ROTARY ENCODERS, the 16 MUTE and the 16 SOLO switches can be used as 64 user programmable MIDI controllers (see **Section 3J Part 5.3**) .

2 THE METER BANKS

The three METER BANK buttons assign the 16 LED Bargraph meters to display any of the following signals, regardless of the fader bank selection:

- **MIC/LINE 1-16**
  When selected (illuminated) the 16 LED Bargraph meters will show the level of the signals appearing at the MIC/LINE inputs 1-16 (i.e. the analogue inputs)

- **TAPE 17/32**
  When selected (illuminated) the 16 LED Bargraph meters will show the level of the signals appearing at the TAPE inputs 17-32 (i.e. the digital inputs)

- **MASTERS**
  When selected (illuminated) the 16 LED Bargraph meters will show the level of the following signals:

  - **Bargraph meters 1-8** — Show the level of the 8 GROUP outputs
  - **Bargraph meter 9** — Not used
  - **Bargraph meters 10-13** — Show the Master send level of AUX sends 1-4
  - **Bargraph meters 14-15** — Show the Master send level of FX sends 1-2
  - **Bargraph meters 16** — Not used.

3C

The Select Panel

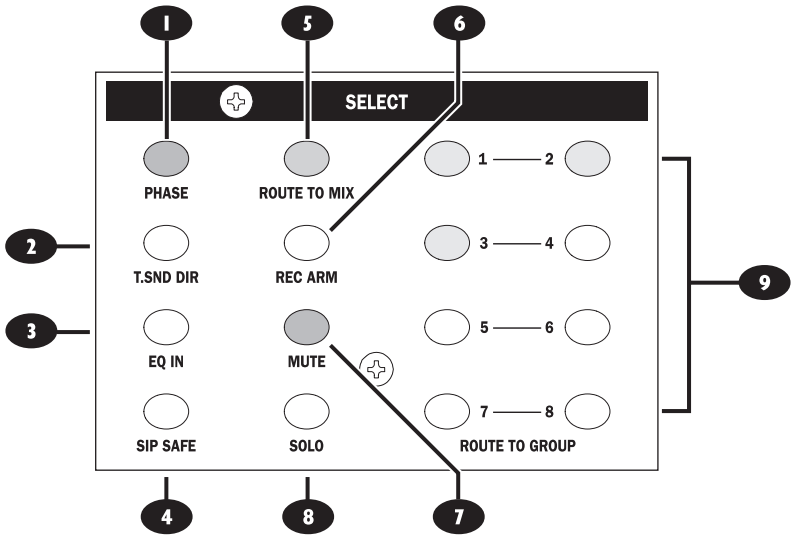
In this Section:

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PHASE button	**44**
T.SND DIR button	**44**
EQ IN button	**45**
SIP SAFE button	**46**
ROUTE TO MIX button	**46**
REC ARM button	**46**
MUTE button	**46**
SOLO button	**47**
ROUTE TO GROUP 1-8 buttons	**47**
Query Mode	**48**

OVERVIEW

The SELECT panel on the 328 is where you will find the rest of the controls you would expect to find on an analogue mixer such as the Group Routing buttons, Phase Reverse, EQ In/Out etc. When a channel SELECT button is pressed the E-Strip and the select panel work together.

The SELECT panel becomes active when a SELECT button is pressed on any of the following channels - MIC/LINE 1-16, TAPE 17-32, STEREO INPUTS 1 and 2 or FX RETURNS 1 and 2.



Let's look a little closer at how the SELECT panel works.

1 PHASE BUTTON

When the PHASE button is pressed the phase of the selected channel will be reversed (inverted).

This can be useful when a signal arriving at the mixer input is out of phase with an adjacent channel causing attenuation due to phase cancellation. Reversing the phase of one of the channels will correct this.

2 T.SND DIR (TAPE SEND DIRECT)

The T.SND DIR (Tape Send Direct) button only applies to CHANNELS 1-16.

When pressed the selected channel is put into T.SND DIR mode. So what does this mean?

This is a very useful feature that allows the output of the selected channel to be routed directly out of the corresponding 8 TRK A or 8 TRK B outputs on the rear

of the console. (See **Section 1** for a clear description of the function of the 8 TRK A and 8 TRK B connectors)
For example let's assume we have two ADATs connected to the 8 TRK A and 8 TRK B optical connectors in order to perform a live 16-track recording. The 328 has 8 group outputs which would not allow us to record all 16 channels simultaneously.

Using the T.SND DIR mode we could send the signals appearing at the MIC/LINE inputs 1-16 directly out to the ADATs in numerical order. MIC/LINE channels 1-8 would go to the 8 channels of the first ADAT recorder, and MIC/LINE channels 9-16 would be sent to the 8 channels of the second ADAT recorder. This would allow all 16 MIC/LINE channels to be recorded at the same time.

The direct signal that is sent out in this mode is POST FADER/POST EQ.

Channels can still be monitored via the control room outputs and stereo outputs whilst in this mode.

When T.SND DIR is disabled for a channel, the corresponding Group output is transmitted on that output channel (see below). With T.SND.DIR disabled for all 16 input channels, the Group outputs are configured so that Groups 1-8 are output on channels 1-8 from both 8 TRK A and 8 TRK B outputs. In this way, the

Channel with T.SND DIR disabled	Group output
1, 9	1
2, 10	2
3, 11	3
4, 12	4
5, 13	5
6, 14	6
7, 15	7
8, 16	8

8 channel ADAT and TDIF outputs can be configured to be a combination of Group outputs and direct sends from the analogue input channels.
As T.SND DIR is only available to channels 1-16, under normal operation only the analogue channels can be assigned directly to the tape send channels. With one or both Flip Banks enabled (see **Section 3J Part 5.2** for more information) the digital tape inputs can also be routed directly post-fade to the tape outputs. As the TDIF and ADAT outputs are both continuously active, regardless of which is set as the input port, you can easily record to two ADAT machines and two TDIF machines simultaneously.

3 EQ IN

The EQ IN button switches ON the 3 Band Parametric Equaliser available on the MIC/LINE 1-16, TAPE 17-32, STE 1and 2, FX 1and 2 channels. When switched OFF, EQ is bypassed for the channel.

To quickly flatten the EQ settings for a channel, press and hold the channel's SELECT switch and press the EQ IN switch in the SELECT panel once.

4 SIP SAFE (SOLO IN PLACE SAFE)

Normally when a SOLO button is selected on a channel, all other channels except the selected one are muted.

Any channel that has SIP SAFE selected will not mute when another channel is placed into SOLO mode, and SOLO IN PLACE is active (see **Section 3F**).

This is useful for example when you SOLO the lead vocal but do not want the vocal FX to be muted. By pressing the SELECT button on either FX 1 or 2 the SIP SAFE button can be selected to make sure that the FX return remains active even when another channel is put into SOLO mode.

5 ROUTE TO MIX

This routes the selected channels to the MIX (L/R) outputs.

6 REC ARM (RECORD ARM)

RECORD ARM allows remote arming of a track on the corresponding channel of a connected recording device (i.e. it sets it to 'Record Ready' mode). This button is only available on channels 1-16, and only if a tape machine is selected in the Machine Control configuration settings in the LCD Menu.

To REC ARM a track on an external recording device:

- Firstly make sure that the recording device is setup to receive MMC (MIDI Machine Control) or Sony 9-pin control, depending on the connection you have made

  (See **Section 3J - Part 5.13 'Tape Machine Setup'** for more detail)

- Hold down the REC ARM button and press the MIC/LINE SELECT button(s) for the corresponding number(s) of the track(s) you wish to REC ARM. The REC LED above the chosen Channel number will flash. When the remote recording device is put into record either directly or from the 328 Transport Controls, the REC ARM LED will remain illuminated.

- To disable REC ARM for a track which has been enabled, press and hold the REC ARM switch and deselect the SELECT switch(es) for the channel(s).

7 MUTE

All outputs from the channel except inserts are muted when the MUTE button is selected.

There are dedicated MUTE buttons on the channels MIC/LINE 1-16, TAPE 17-32, GROUP 1-8, AUX MASTERS 1, 2, 3 and 4, FX MASTERS 1/2, STEREO INPUTS 1/2 and FX RETURNS 1/2.

The MUTE buttons for these channels can be switched on either from the SELECT panel or form the dedicated MUTE buttons on these channels.

Note: Aux and FX Sends will only be muted if they have been set to operate Post Fade.

8 SOLO

When pressed, the SOLO button will place the selected channel into SOLO mode according to the type of SOLO selected in the SOLO CONTROL panel.

The SOLOed signal is sent to the headphones, control room output and meters, where it replaces the selected monitor source, leaving the Mix bus unaffected.

The SOLO button illuminates, identifying the selected channel and the PFL/AFL LED on the Master section of the mixer illuminates to warn that a SOLO is active.

PFL/AFL is a useful way of listening discreetly to an input signal with out interrupting the main mix.

There are 3 different SOLO modes which can be selected from the SOLO CONTROL panel (XX):

- PFL (Pre-fade listen)
- AFL (After Fade Listen)
- SIP (Solo-In-Place)

Note: For more information on SOLO modes please see **Section 3F - 'SOLO CONTROL'**

The SOLO bus is stereo. When a mono signal is SOLOed the signal is fed in mono to both the left and right.

If the SOLO is AFL the signals are sent Post-Fade, Post Mute and Post Pan to the SOLO bus

When in SIP mode all other inputs are muted if routed to the MIX bus unless they have been selected to be in SIP SAFE mode (see above **SIP SAFE mode**)

9 ROUTE TO GROUP 1-8

The selected channel can routed to any of the 8 GROUP outputs by pressing the relevant ROUTE TO GROUP button.

The selected GROUP button will illuminate to show that it is active.

Channels may be routed to individual GROUPS (mono) or to pairs of GROUPS that have been Stereo linked as odd/even pairs allowing for panning across the GROUP outputs.

(See **Section 3H - Group/Aux/ FX** for more details)

QUERY MODE

In conjunction with the SELECT panel we have what we call 'QUERY MODE' which is a very fast way of seeing what functions are active on any of the MIC/LINE 1-16, TAPE 17-32, STEREO INPUTS 1 and 2 or FX RETURNS 1 and 2 channels.

Holding down any of the buttons in the SELECT panel asks the question " in which signal paths is this button active?"

The system answers the question by illuminating the SELECT buttons for those channels, which are active. You may now change the status of the button in each signal path by toggling the appropriate SELECT button while still holding down the button in the SELECT panel. When you release the relevant SELECT panel button, the system returns to whatever operational mode it was in before you pressed it.

You can use the QUERY mode at any time, whatever LCD mode you may be in.

Here an example: If you wish to see which channels are ROUTED TO MIX:

- Press and hold ROUTE TO MIX in the SELECT panel
- The SELECT buttons illuminate on those channels which are currently ROUTED TO MIX.

The switches that operate in Query mode are:

PHASE	ROUTE TO MIX	ROUTE TO GROUP 1-8
T.SND DIR	REC ARM	AUX PRE/POST
EQ IN	MUTE	CHANNEL/GROUP LINK
SIP SAFE	SOLO	

By pressing and holding any of the above switches, the state of the console can be quickly seen and altered.

3D

Stereo Inputs

In this Section:

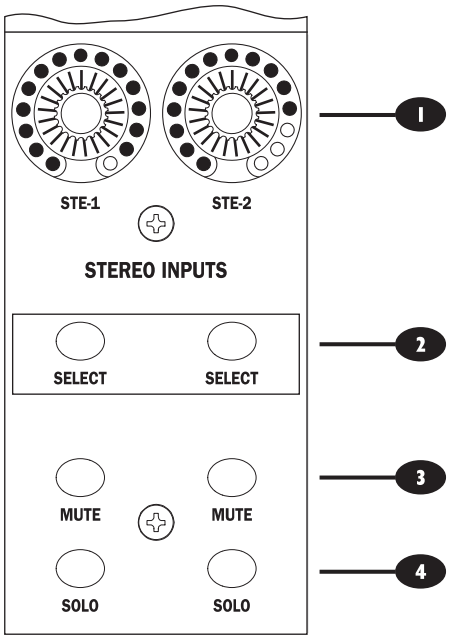
Overview	**50**
STE-1 and STE-2 ROTARY CONTROLS	**51**
SELECT button	**51**
MUTE button	**51**
SOLO button	**51**

OVERVIEW

The 328 has two dedicated stereo inputs namely STE 1 and STE 2. While STE 2 is a single stereo input, STE 1 enables 4 balanced analogue stereo inputs to be submixed in the analogue domain and fed into 1 digital signal path. This makes STE 1 input suitable for the returns from FX units connected to the Digital 328's 4 auxiliary outputs.

A mono signal can be connected into the stereo inputs if the left analogue input is used.

Note: The analogue inputs can also be overridden by the S/PDIF and AES/EBU inputs (see **Section 3J Part 5.9**) or the internal oscillator (see **Section 3J Part 5.10**).



1 STE-1 AND STE-2 ROTARY CONTROLS

The STE-1 and STE-2 ROTARY CONTROLS control the level of the signal assigned to the STE-1and STE-2 Inputs. The green LED ring around the ROTARY CONTROL indicates the level.

2 SELECT BUTTONS

When pressed the SELECT button activates both the E-Strip (see **Section 3B**) and the SELECT panel (see **Section 3J Part 1**) on the selected stereo input.

Note: The T.SND DIR and REC ARM buttons in the SELECT panel do not function when the SELECT panel is selected to either STE-1 or STE-2.

3 MUTE BUTTON

The MUTE button mutes the signal present in the STE-1 or STE-2 input.

The MUTE button is duplicated in the SELECT panel when the SELECT button 2 is pressed.

4 SOLO BUTTON

The SOLO button places the selected STE-1or STE-2 input into solo mode. The solo status will follow the selection that has been made in the SOLO CONTROL panel.

3E

FX RETURNS

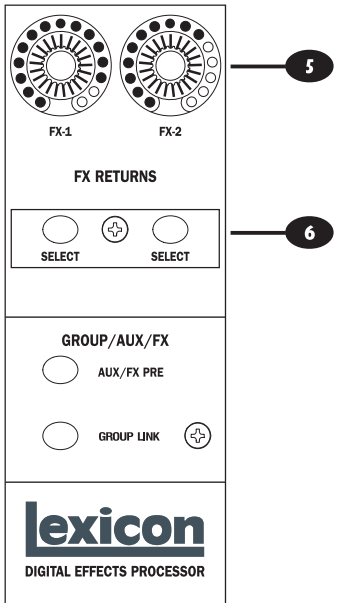
In this Section:

Overview	**54**
FX-1 and FX-2 ROTARY CONTROLS	**54**
SELECT buttons	**54**

OVERVIEW

The returns from the two internal Lexicon FX units are controlled by the two dedicated FX returns namely FX - 1 and FX - 2.

Note: The FX returns can also be overridden by the S/PDIF and AES/EBU inputs (see **Section 3J Part 5.10**) or the internal oscillator (see **Section 3J Part 5.2**).



5 FX-1 AND FX-2 ROTARY CONTROLS

The FX-1and FX-2 ROTARY CONTROLS control the level of the signal assigned to the FX-1and FX-2 Inputs. The green LED ring around the ROTARY CONTROL indicates the level.

6 SELECT BUTTONS

When pressed the SELECT button activates both the E-Strip (see **Section 3B**) and the SELECT panel (see **Section 3J Part 1**) on the selected FX return.

The internal FX returns do not have the dedicated SOLO or MUTE switches that the Stereo inputs have. Instead the switches in the SELECT panel must be used.

The Digital 328 internal FX returns are not routable to the Group outputs.

Note: The T.SND DIR, REC ARM, PHASE and ROUTE TO GROUP buttons in the SELECT panel do not function when the SELECT panel is active for either FX-1 or FX-2.

7 CASCADING FX

The FX-1 return can be routed into the FX-2 processor if cascading effects are required. The FX-2 return cannot however be routed into the FX-1 processor.

3F

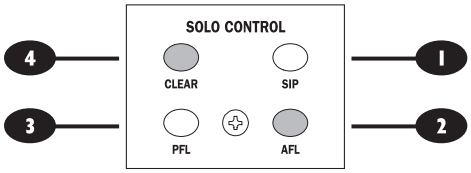
SOLO CONTROL

In this Section:

Overview	**56**
SIP button	**56**
AFL button	**56**
PFL button	**56**
CLEAR button	**56**

OVERVIEW

The SOLO CONTROL panel determines the type of solo that will occur when the SOLO button is pressed on a channel. There are three types of solos available.



1 SIP (SOLO-IN-PLACE)

When a SOLO button is pressed in this mode all other channels except for the GROUP, AUX and FX output masters will be muted.

The SOLO status of the GROUP, AUX and FX output master will be determined by the PFL or AFL buttons.

Channels can be selected to be SIP SAFE i.e. they will not mute when a SIP SOLO is selected by selecting the SIP SAFE in the SELECT panel.

The SOLO TRIM fader (fader 16 of the Master fader bank) is inoperative when in SIP mode.

2 AFL (AFTER FADE LISTEN)

When a SOLO button is pressed in this mode the selected channel will be SOLOed in the C/RM monitors and Headphones. The signal will be derived after the fader and EQ but before the PAN position.

3 PFL BUTTON

When a SOLO button is pressed in this mode the selected channel will be SOLOed in the C/RM monitors and Headphones. The signal will be derived pre-fader, pre-EQ and pre-PAN position.

4 CLEAR BUTTON

When any SOLO button is pressed the CLEAR button will illuminate to show that there is a SOLO active somewhere on the 328. Pressing the CLEAR button will clear any selected SOLO. (No surprises here then!)



The CLEAR button will give immediate indication of a 'hidden' SOLO that may be on another bank other than the one that is currently selected.

3G

SNAPSHOTS

In this Section:

Overview 58

NEXT button 58

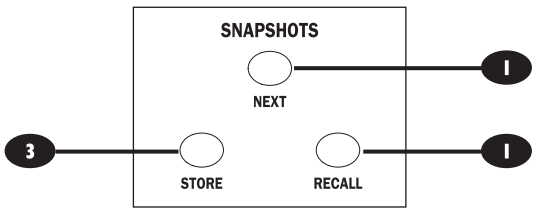
RECALL button 58

STORE button 58

OVERVIEW

The SNAPSHOTS panel is used for storing and recalling Snapshots and User Setups (see **Section 3J Part 5.19**) of the mixer settings. Every front panel setting (except for the TRIM control and HPF Filter that are in the Analogue section of the console) can be saved into a Snapshot and recalled at a later stage.

Note that the MIDI CONTROLLER ID and Channel settings (see **Section 3J Part 5.3**) and TAPE TRIM settings (see **Section 3J Part 5.7**) are stored and recalled at Snapshot level.



1 NEXT BUTTON

When pressed the NEXT button will increment the current Snapshot location by a single numeric value i.e. if the last recalled Snapshot was 'SNAPSHOT#15' pressing the NEXT button will instantly recall 'SNAPSHOT#16'. If the next Snapshot location is empty, the selected Snapshot location in the list will still be incremented by one - put the LCD into SNAPSHOT mode to see this. This enables quick successive Snapshot setup. If you have a number of consecutive empty Snapshot locations, store into the first empty slot. Pressing NEXT will then move to the next empty location allowing you to store the next Snapshot without having to refer to the LCD to alter the location.

2 RECALL BUTTON

The RECALL button is used in conjunction with the SNAPSHOT button in the MASTER section to recall a selected SNAPSHOT.

3 STORE BUTTON

Pressing the STORE button will store any changes made to the current SNAPSHOT over the current SNAPSHOT or to another selected empty SNAPSHOT memory location. The displayed Timecode reference is always stored with the snapshot.

Note: Please refer to **Section 3J Part 2** for an in depth look at SNAPSHOTS and how they work.

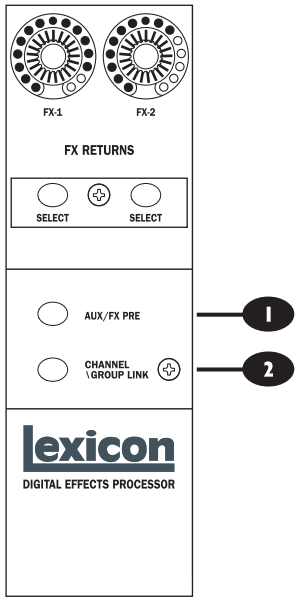
3H

GROUP/ AUX/FX

In this Section:

AUX/FX PRE button 60

GROUP LINK button 60



1 AUX/FX PRE BUTTON

The AUX/FX PRE button is used for changing the PRE FADE/POST FADE status of the AUX 1-4 sends and the FX 1-2 sends.

By holding down the AUX/FX PRE button the AUX 1, AUX 2, AUX 3, AUX 4, FX 1and FX 2 buttons in the ROTARY CONTROLS section can be toggled ON (Illuminated) and OFF.

When illuminated the selected AUX or FX send is set to derive its signal PRE FADER, and when not illuminated the AUX or FX send is set to derive its signal POST FADER.

2 CHANNEL\GROUP LINK BUTTON

The CHANNEL\GROUP LINK button has two functions.

- Linking adjacent Groups to make them function as stereo pairs i.e. 1&2, 3&4, 5&6, 7&8
- Linking adjacent Channels to deal with stereo sources i.e. 1&2 or 17&18.

LINKING GROUPS

To link the GROUPS together hold down the CHANNEL\GROUP LINK button and then press any of the ROUTE TO GROUP buttons 1-2, 3-4, 5-6, 7-8 to make the GROUP function as a STEREO GROUP.

Note: You can only link adjacent 'odd' and 'even' numbered Groups together i.e. Group 1and 2, 3 and 4, 5 and 6, 7 and 8 not Group 2 and 3, 4 and 5, 6 and 7.

LINKING CHANNELS

To link Channels together hold down the GROUP CHANNEL\LINK button, and then press the SELECT button on one of the two Channels you want to link.

For example if you want to link Channels 15 and 16 press the SELECT button on either Channel 15 or 16 whilst holding down the GROUP LINK button.

Note: You can only link adjacent 'ODD' and 'EVEN' numbered Channels together, for example - Channel 1 & 2, 3 & 4, 5 & 6 etc.

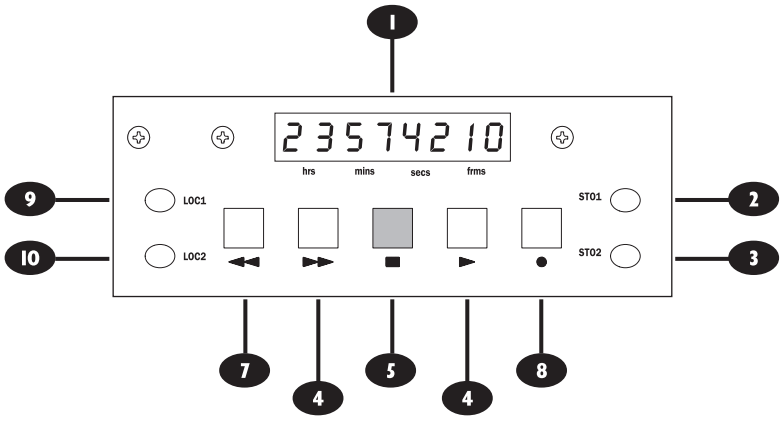
31

Transport Control Panel

In this Section:

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Timecode Display	**64**
STO 1 button	**64**
STO 2 button	**64**
PLAY button	**65**
STOP button	**65**
FAST FORWARD button	**65**
REWIND button	**65**
RECORD button	**65**
LOC 1 button	**65**
LOC 2 button	**66**

OVERVIEW



The TRANSPORT CONTROL panel is used in conjunction with the TAPE MACHINE SETUP page found in the 328's MENU section (See **Section 3J Part 5.13**).

The buttons found in the TRANSPORT CONTROL panel can be used for controlling external recording devices that have been connected via the MIDI ports or for controlling the playback of the internal MTC (MIDI Time Code).

When the LCD is in SNAPSHOT mode, by pressing the ◀ and ▶ cursor keys simultaneously you can return the displayed Snapshot list to Snapshot #1.

1 TIMECODE DISPLAY

The TIMECODE DISPLAY window shows either the 328's own internal Timecode value, or the Timecode value from an external MTC (MIDI Timecode) or LTC (Longitudinal Timecode/SMPTE) source. The Timecode value is represented in Hours, Minutes, Seconds and Frames.

2 STO 1

The STO 1 button is used for storing a time location point to the LOC 1 button. When the STO 1 button is pressed the current time displayed in the TIMECODE DISPLAY screen will be stored to the LOC 1 button.

3 STO 2

The STO 2 button is used for storing a time location point to the LOC 2 button. When the STO 2 button is pressed the current time displayed in the TIMECODE DISPLAY screen will be stored to the LOC 2 button.

4 ▶ PLAY BUTTON

The PLAY button will start playback of an external device connected via the MIDI or RS422 ports, or it can be used to start playback of the 328's own internal Timecode when acting as a timecode master device, as configured in the TAPE MACH SETUP page in the MENU section (see **Section 3J Part 5.13**).

5 ■ STOP BUTTON

The STOP button will stop playback of an external device connected via the MIDI or RS422 ports, or it can be used to stop playback of the 328's own internal Timecode when acting as a timecode master device, as configured in the TAPE MACH SETUP page in the MENU section (see **Section 3J Part 5.13**).

6 ▶▶ FAST FORWARD BUTTON

The FAST FORWARD button will put an external device connected via the MIDI or RS422 ports into FAST FORWARD mode, or it can be used to FAST FORWARD the 328's own internal Timecode when acting as a timecode master device, as configured in the TAPE MACH SETUP page in the MENU section (see **Section 3J Part 5.13**).

7 ◀◀ REWIND BUTTON

The REWIND button will put an external device connected via the MIDI or RS422 ports into REWIND mode, or it can be used to REWIND the 328's own internal Timecode when acting as a timecode master device, as configured in the TAPE MACH SETUP page in the MENU section (see **Section 3J Part 5.13**).

8 ● RECORD BUTTON

The RECORD button will put an external device connected via the MIDI or RS422 ports into RECORD mode.

9 LOC 1

When the LOC 1 button is pressed, a command will be transmitted from the MIDI Out and RS 422 ports to a connected recording device requesting it to locate to the assigned Timecode Address (see **Section 3J Part 5.13**). The Timecode Display will also indicate the LOC 1 Timecode address.

10 LOC 2

When the LOC 2 button is pressed, a command will be transmitted from the MIDI Out and RS 422 ports to a connected recording device requesting it to locate to the assigned Timecode Address (see **Section 3J Part 5.13**). The Timecode Display will also indicate the LOC 2 Timecode address.

3J

The Master Section

In this Section:

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Part 2 - The SNAPSHOT button	**71**
Part 3 - Lexicon FX processors	**76**
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Part 5 - The 'MENU' button	**90**

OVERVIEW

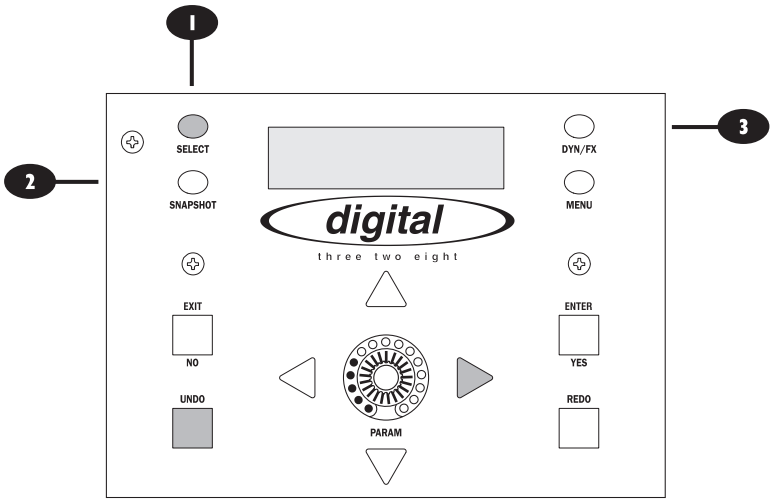
The Master Section contains a LCD display, and the only Menus required for operating the 328 (other than those from your nearest Take Away food vendor!) The Menus are used mainly for setup and library purposes only so don't get worried!

The Master Section also includes the PARAM encoder control and the ▲▼ ◀ ▶ arrow keys, which illuminate to show you where to go.

A lot of important functions are found in the Master Section so we recommend that you take a good look through this part of the User guide which has been broken down into four areas:

Part 1 - The SELECT button and it's applications
Part 2 - SNAPSHOTS
Part 3 - DYNAMICS
Part 4 - LEXICON FX Processors
Part 5 - The MENU Button

Let's take a closer look.



PART 1 - THE SELECT BUTTON AND IT'S APPLICATIONS

1 SELECT BUTTON

When the SELECT button is pressed the LCD display will show detailed information about control settings and functions for all of the ROTARY CONTROLS allowing very precise adjustment of any parameter.

EXAMPLE 1

If you want to set the PAN position of Channel 11 and 12 to be exactly opposite i.e. for stereo applications try the following.

- Press the SELECT Button
- Press the PAN button in the ROTARY CONTROLS section.
- The LCD will display



  or similar, depending on which input channel is currently selected.

- Make sure that the MIC/LINE 1-16 button is selected in the FADER BANK.
- Adjust the ROTARY CONTROL above Channel 11 to the desired PAN setting, e.g. LFT 20 - you will see the adjustment on the LCD display.
- Adjust the ROTARY CONTROL above Channel 12 to the desired PAN setting, e.g. RGT 20

Note: You can also use the PARAM encoder and the ◀ ▶ arrow keys to adjust the PAN settings.

EXAMPLE 2

Let's assume you want to see the adjustments made to the EQ on Channel 26.

- Make sure that the SELECT button is selected.
- Make sure that TAPE 17-32 is selected in the FADER BANK (this will give us access to Channel 26)
- Press the Channel SELECT button for TAPE 26 in the SELECT panel, this will assign the 'E-Strip' to Channel 26.

- Now adjust the EQ using either the LF, MID or HF EQ controls in the 'E-Strip'
- On the LCD display, you will be able to see the adjustments being made to the chosen parameter.

```
C 1:Channel #01
LF  0.0:  81:00.7
```

Note: You can also use the PARAM encoder and the ◀ ▶ arrow keys to adjust the EQ settings.

CHANNEL NAMING

While in the SELECT mode individual channels can be renamed for storing as part of a USER SETUP. This is useful for remembering how different sources where connected to the 328 in the absence of a track sheet!

The following channels can be renamed - MIC/LINE 1-16, TAPE 17-32, STE 1and 2, FX RTN 1 and 2.

- Press the SELECT button in the MASTER section to enter the SELECT mode.
- Press the SELECT button for the channel you wish to rename. The currently selected channel should be listed in the top line of the LCD display
- Now press the ENTER/YES button, the bottom line of the LCD display will show

```
C 1:Channel #01
ID :Channel #01
```

- Use the ◀ ▶ arrow keys to select the character you want to change and the PARAM encoder to select the appropriate number or letter.

```
C 1:Channel #01
ID :Renamed Chan
```

- When complete press the ENTER/YES key to store the new name or the EXIT/NO button to abort.

Note: Channel names are not stored with a SNAPSHOT and so will be common to any SNAPSHOT recalled. To save different channel name setups use the USER SETUPS libraries.

PART 2 - THE SNAPSHOT BUTTON

Pressing the SNAPSHOT button (2) assigns the LCD display to show information about the desk's 100 SNAPSHOT memories.

Using the PARAM encoder and/or the ▲▼ arrow keys, SNAPSHOT memories can be selected for recall, storing or editing.

The SNAPSHOT button works in conjunction with the SNAPSHOTS panel (which is described in **Section E - 'SOLO CONTROL and SNAPSHOTS'**)

When the SNAPSHOT button is pressed the PARAM encoder and the ▲▼ arrow keys are used to choose the desired SNAPSHOT memory location. The STORE, RECALL and NEXT buttons in the SNAPSHOTS panel are used for the following purpose:

- STORE - Stores current mixer settings to the SNAPSHOT memory location shown in the LCD display.
- RECALL - Recalls the SNAPSHOT memory location shown in the LCD display
- NEXT - Recalls the next SNAPSHOT memory location after the currently selected one. For example: if SNAPSHOT 13 is currently active, pressing the NEXT button will recall SNAPSHOT 14. If the Snapshot location is empty, the display will highlight the slot but will not recall any data.

USING SNAPSHOTS

Being able to store SNAPSHOTS of all of the 328 settings (except the TRIM and HPF settings as these are found in the analogue side of the mixer) is very useful for both recording and live sound applications.

- **Recording**

  SNAPSHOTS can be used during the mix down process to function as a few 'extra hands' allowing you to mute or un-mute Channels, change Fader positions, FX settings or EQ settings etc. against incoming MTC LTC coming from a recording device. This means that precise changes can programmed to occur at the same time, every time.

  A typical example would be muting the lead vocal in places where the vocalist is not singing, to remove headphone spill, and save you having to use one of your Noise Gates!

  A full explanation of SNAPSHOT automation using Timecode and MIDI Program Changes is found in the AUTOMATION section of this User Guide. **See Section 4 Part 1**.

- **Live Sound**

  SNAPSHOTS can be very useful in Live Sound applications where the mixer needs to be completely reset in a short space of time, or the same settings need to be reused over and over again.

  A complete evening's worth of mixer setups could be stored into the 328's SNAPSHOT memories and recalled simply by using the NEXT button.

  For festivals, each band could be sound checked and all individual settings stored in the 328 for later recall - no more pieces of paper with setup information scribbled on them and no time to reset the desk!

These are just a couple of the many different applications for using SNAPSHOT recall.

SNAPSHOT MEMORY LOCATIONS

There are 100 SNAPSHOT memory locations in the 328 and each memory location can be given a Name and Timecode value. SNAPSHOTS can also have WRITE PROTRECTION applied to prevent the accidental overwriting of existing settings.

STORING SNAPSHOTS

- Press the SNAPSHOT button - the LCD display will now show the SNAPSHOT Menu. The flashing line represents the SNAPSHOT location to which the new information will be stored.

```
1:<Empty>
2:<Empty>
```

- Using either the ▲▼ arrow keys or the PARAM encoder, select an empty SNAPSHOT memory location.

- Press the STORE button in the SNAPSHOTS panel - the LCD display will briefly show the message 'SAVED SNAPSHOT' and confirmation of the memory location number to which the SNAPSHOT has been saved.

```
Saved Snapshot !
1:SNAPSHOT#001
```

- Once the confirmation message has cleared, the stored Snapshot will be visible in the Snapshot list:

```
1:SNAPSHOT#001
2:<Empty>
```

Note: You do not need to have the SNAPSHOT list active in the LCD to use the switches in the Snapshot Panel- the STORE, RECALL and NEXT switches are continually active. The Snapshot location should be checked if you wish to avoid overwriting previously stored data, however.



If you have a number of consecutive empty Snapshot locations - press NEXT to prepare the next location in which to store the next Snapshot

NAMING A SNAPSHOT

- Press the SNAPSHOT button to enter the SNAPSHOT menu.
- Using either the ▲▼ arrow keys or the PARAM encoder, select the SNAPSHOT memory location number that you want to name - it will flash.
- Press the RECALL button in the SNAPSHOTS panel to recall the chosen SNAPSHOT.
- Press the ENTER button to enter the edit mode.
- There are four different edit modes, and the bottom line of the LCD display will default to show the last editing parameter that was used. The choices are:

1. ID :SNAPSHOT#XX	**Used for giving the SNAPSHOT an ID name.**
2. Time: - - : - - : - - : - -	**Used for giving the SNAPSHOT a Timecode value.**
3. MIDI Recall: On/Off	**Used for enabling/disabling MIDI Recall of SNAPSHOTS.**
4. Write Prot:	**On/Off Used for enabling/disabling WRITE PROTECTION of SNAPSHOTS.**

- Use the ▲▼ arrow keys to step through to the ID naming page.
- the LCD will now display:



- You may now enter a 12-character name using the ◀ ▶ arrow keys to navigate and the PARAM encoder to select the letter or number you want to use.
- When you are finished, press the ENTER key to store the name.

Characters can be deleted in the following ways:

- To delete the selected character and move the cursor one character to the right, press and hold the ◀ cursor key and press the ▶ cursor key once for each character to be deleted
- To delete the selected character and move the cursor one character to the left, press and hold the ▶ cursor key and press the ◀ cursor key once for each character to be deleted



You can use the ENTER button to edit the selected SNAPSHOT with out recalling it first with the RECALL button in the SNAPSHOTS panel. (This way you can edit the NAME and/or TIME VALUE of a SNAPSHOT while another SNAPSHOT is active on the mixer)



Pressing the ◀ and ▶ cursor keys simultaneously while this page is active in the LCD will reset the assigned Timecode value to --:--:--:--.

GIVING A SNAPSHOT A TIMECODE VALUE

MANUALLY

- Use the same procedure as above for naming SNAPSHOTS but once you are into the edit mode use the ▲▼ arrow keys to select the Time page.

```
< SNAPSHOT#001 >
Time: --:--:--:--
```

- You may now use the ◀ ▶ arrow keys to select Hours, Minutes, Seconds or Frames, and the PARAM encoder to set the Timecode value for the SNAPSHOT.
- When you are finished, press the ENTER key to store the Timecode value.

AUTOMATICALLY ('ON THE FLY')

- Whilst the the Timecode display is running - either internally or slaved to an external MTC (MIDI Timecode) or LTC (SMPTE Timecode) source - press the STORE button in the SNAPSHOTS panel.
- The current Timecode address will be stored to the active SNAPSHOT at the point when the STORE button was pressed.

ENABLING SNAPSHOT RECALL BY MIDI PROGRAM CHANGES

Individual Snapshots can be configured to be recalled when an appropriate MIDI Program Change is received at the MIDI In port (see User Options to configure the MIDI channel).

- Use the same procedure as above for naming SNAPSHOTS but once you are into the edit mode use the ▲▼ arrow keys to select the MIDI Recall page.

```
< SNAPSHOT#001 >
MIDI Recall: ON
```

- You may now use the PARAM encoder to set the MIDI Recall function ON or OFF.
- When you are finished, press the ENTER key to store the MIDI Recall setting.

Snapshots are recalled against the following MIDI Program Changes:

Snapshot	MIDI Program Change
1	0 (00H)
2	1 (01H)
...	…
99	98 (62H)
100	99 (63H)

Note: The MIDI RECALL switch in the Snapshot Setup menu must be set to ON in order to recall snapshots with remote MIDI Program Change messages (see **Section 3J Part 5.15**).

Note: Recalling a Snapshot with MIDI RECALL set to ON will transmit the associated MIDI Program Change (see above) from the MIDI Out port, enabling you to record Snapshot recall into a MIDI sequencer.

ENABLING WRITE PROTECTION FOR A SNAPSHOT

- Use the same procedure as above for naming SNAPSHOTS but once you are into the edit mode use the ▲▼ arrow keys to select the Write Prot page.



- You may now use the PARAM encoder to set the Write Protect function ON or OFF.
- When you are finished, press the ENTER key to store the MIDI Recall setting.

When Write Protect is enabled for a Snapshot, attempting to store to that location will display a confirmation message on the LCD. Press ENTER/YES to confirm the store or EXIT/NO to cancel.

DELETING SNAPSHOTS

If your 328 has no <EMPTY> SNAPSHOT memories left, you can either over write existing memories (if they are not WRITE PROTECTED) or clear them.

- Select the SNAPSHOT you want to delete by using the ▲▼ arrow keys or the PARAM encoder.
- Press the EXIT/NO button and the LCD screen will display



- Press the ENTER/YES button to delete the selected SNAPSHOT.
- The LCD display will now indicate that the location is again <EMPTY>

Note: For further information regarding global SNAPSHOT setup, please refer to **Section 3J Part 5.15** in the MENU section.



When the LCD is in SNAPSHOT mode, by pressing the ◀ and ▶ cursor keys simultaneously you can return the displayed Snapshot list to Snapshot #1.

PART 3 - LEXICON FX PROCESSORS

Overview

The 328 includes two superb sounding Lexicon FX Processors which include various different FX including Hall Reverbs, Plate Reverbs, Flanger, Multi Tap Delay, Resonator, Inverse Reverb, Gate and Chorus.

These FX processors can make a huge difference to the sound of your mixes and are essential for getting a professional sounding result.

The FX processors work in the same way as external processing units, but without the need to go through unnecessary A/D and D/A conversion stages.

The FX processors are fed from the FX-1and FX-2 ROTARY CONTROLS found in the E-STRIP and the processed signals are returned to the mix by using the FX-1 and FX-2 ROTARY CONTROLS in the FX RETURNS panel.

The FX-1 and FX-2 sends can be configured to be POST or PRE Fade by using the AUX/FX PRE button found in the GROUP/AUX/FX panel (see **Section 3H**).

Okay let's take a closer look.

THE FX MENUS

To access the 4 main FX Menus press the DYN/FX button 3.

The ▲▼ arrow keys and the PARAM encoder can now be used to scroll through the 8 FX and Dynamics Menus shown on the LCD display, as follows:

FX 1 PRESETS
FX 2 PRESETS
FX 1 SETTINGS
FX 2 SETTINGS
DYN 1 GATE (or COMPRESSOR, COMPRESSOR/GATE, LIMITER, LIMITER/GATE)
DYN 2 GATE (or COMPRESSOR, COMPRESSOR/GATE, LIMITER, LIMITER/GATE)
DYN 1 PRESETS
DYN 2 PRESETS

For now let's just look at the first four Menus which deal with the FX Processors. The last four Menus deal with the Dynamics Processors and are described in **Section 3J Part 4**.

FX 1/2 SETTINGS MENU AND FX 1/2 PRESETS MENU - THE DIFFERENCE.

The FX SETTINGS Menu is where the 8 basic FX blocks reside out of which all of the variations found in the FX PRESETS Menus are built.

These 8 basic FX blocks are made up of the following FX - **Hall Reverb, Plate Reverb, Flanger, Multi Tap Delay, Resonator, Inverse Reverb, Gate and Chorus**.

To clarify what we mean by this, let's assume you know what you are doing when it comes to creating your own FX settings, and you know you want a straight forward Hall Reverb with a Reverb time of around 2.5 seconds.

You would go straight to the FX 1 or 2 Settings Menu and select the basic Hall Reverb and adjust the parameters accordingly.

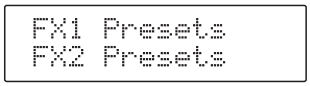
On the other hand if you prefer someone else to do the work for you then great, because we have taken the basic FX blocks described above, and created a whole load of different variations for you to use!

You would go straight to the Factory Presets in the FX 1/2 Presets Menu and simply scroll through until you find something that works for you. You can still adjust the parameters of the Factory Presets if you want to fine tune the effect for your own mix.

CHOOSING EFFECT FROM THE FX 1 OR FX 2 PRESETS MENU

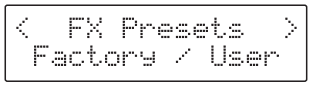
Press the DYN/FX button to enter the DYN/FX Menus.

Use the ▲▼ arrow keys or the PARAM encoder to scroll through the LCD display and choose either the FX 1 Presets or FX 2 Presets Menu.



Press the ENTER/YES key once.

The LCD display will now show:



Use the ◀ ▶ arrow keys to select 'Factory' and press the ENTER/YES button.

You will now be in the Factory Presets Menu and can scroll through the various types of effects until you find something that you like.

Once you have made a choice press the ENTER/YES button to load the effect into the FX Settings menu.

Note: Selecting a Factory or User Preset automatically loads the parameters into the relevant FX Settings menu. After you have pressed ENTER/YES to load a preset, the LCD will display the FX SETTINGS menu, with the preset's parameters loaded.

HEARING THE CHOSEN EFFECT

Now that you have successfully loaded your chosen effect you will want to apply it to a signal so that you can hear it.

Press the MIC/LINE button in the SELECT Panel above the Channel faders for the Channel you wish to apply the effect to.

As a safety measure press the MASTERS button in the FADER BANK panel, and make sure that the FX 1 Master fader (Fader #14) is placed at unity gain (0dB). By default, Meter Follow is set to ON in the User Options menu and so the meter bank should follow your FADER BANK selection. If Meter Follow has been set to OFF, press the MASTERS button in the METER BANK so that you can see the FX 1 output level on the FX 1meter.

Now turn the FX 1 ROTARY CONTROL on the selected Channel and you should see signal appearing on the FX 1 output meter.

Continue to turn the ROTARY CONTROL until a reasonable level is seen on the meter (aim to have no more than the top 2 ORANGE LEDs lighting permanently, and the top RED LED flicking on occasionally with the loudest peaks in the signal. Now gradually turn up the ROTARY CONTROL for the FX 1 return in the FX RETURN panel.

You should now hear the effect on your monitors.

Note: If you are not hearing any signal, check that the FX 1 return in the FX RETURN panel is routed to the Mix outputs. To do this press the SELECT button below the FX 1 return ROTARY CONTROL and check that the ROUTE TO MIX button is illuminated in the SELECT panel.



It is important that you get a good high signal level into the FX processors to attain the best signal to noise ratio.

CREATING AND SAVING YOUR OWN EFFECTS.

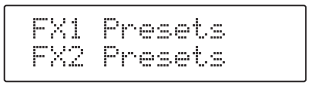
Whilst we have tried our very best to give you a range of effects suitable for most applications, it's very likely that you will want to create a few of your own and save them for use on your own projects.

There are two ways to do this.

USING AN EXISTING FACTORY PRESET

Press the DYN/FX button to enter the DYN/FX menus.

Use the ▲▼ arrow keys or the PARAM encoder to scroll through the LCD display and choose either the FX 1 Presets or FX 2 Presets menu.



Press the ENTER/YES key once.

The LCD display will now show:



Use the ◀ ▶ arrow keys to select 'Factory' and press the ENTER/YES button.

You will now be in the Factory Presets Menu and can scroll through the various types of effects until you find something that you want to use as your basic starting point.

Press ENTER/YES to load the chosen effect.

The LCD display will now show the parameters available.

NOTE: When an FX Preset is loaded, the settings stored within it are loaded directly into the FX Settings menu, which the LCD displays immediately.

Use the ▲▼ arrow keys to select the parameter you want to adjust, and the PARAM encoder to adjust the chosen parameter.

STORING THE NEW EFFECT

To store the new effect, press the ENTER/YES button.

Use the PARAM encoder to select the destination for the FX PRESET. Unused locations will be labeled <Emtpy>.

```
Store To User ?
  1:<Emrty>
```

Press the ENTER/YES key to store the new effect in the chosen User effects library. The LCD display will prompt you to name the effect.

```
<FX Preset #  1>
ID :FX PRES 001
```

Now use the ◀ ▶ arrow keys to select the character you want to change, and the PARAM encoder to select the character.

Characters can be deleted in the following ways:

- To delete the selected character and move the cursor one character to the right, press and hold the ◀ cursor key and press the ▶ cursor key once for each character to be deleted
- To delete the selected character and move the cursor one character to the left, press and hold the ▶ cursor key and press the ◀ cursor key once for each character to be deleted

Once you are happy with your choice press the ENTER/YES button to store the new name or EXIT/NO to abort.

To rename the preset at a later date you must highlight the preset within the User Presets menu and press the ◀ and ▶ cursor keys simultaneously. Naming is done in the same way.

CREATING A NEW EFFECT FROM THE FX 1 AND 2 SETTINGS MENU

Press the DYN/FX button to enter the DYN/FX menus.

Use the ▲▼ arrow keys or the PARAM encoder to scroll through the LCD display and choose either the FX 1 Settings or FX 2 Settings menu, depending on which Lexicon FX unit you wish to edit.

Press the ENTER/YES key once.

The LCD display will now show **<FX Algorithm>** and one of the following default effects - **Hall Reverb, Plate Reverb, Flanger, Multi Tap Delay, Resonator, Inverse Reverb, Gate and Chorus**.

```
<FX 1 Algorithm>
Hall Reverb
```

Use the ◀ ▶ arrow keys to select the default effect that you would like to use as a starting point.

Press ENTER/YES to load the chosen effect.

The LCD display will now show the parameters available.

Use the ▲▼ arrow keys to select the parameter you want to adjust, and the PARAM encoder to adjust the chosen parameter.

The effect should be stored in the same manner as described above.

DELETING FX PRESETS

Press the DYN/FX button to enter the DYN/FX menus.

Use the ▲▼ arrow keys or the PARAM encoder to scroll through the LCD display and select either the FX 1 Presets menu or the FX 2 Presets menu. Both lists will reveal the stored FX Presets.

Press the ENTER/YES key once.

The LCD will display:

```
FX1 Presets
FX2 Presets
```

Use the ▶ cursor key to select 'User'.

Press the ENTER/YES key once.

With the PARAM encoder, select the FX Preset you wish to delete.

Press the EXIT/NO key.

The LCD will prompt to confirm the delete.

```
Confirm Delete ?
FX PRES 001
```

Press the ENTER/YES key to confirm the delete or press the EXIT/NO key to abort.

The LCD will return to displaying the list of stored User FX Presets.

PART 4 - DYNAMICS PROCESSORS

Overview

Dynamics Processors are very useful tools for controlling audio signals and for correcting the kind of problems that occur during live performances and recording sessions. Think of them as the 'Swiss Army Knife' section of the 328, if there's a problem on a signal regarding level or noise, this is where you go to try to sort it out.

As well as controlling and correcting problematic audio signals, you can also use the Dynamics Processors for purely creative effects as well - it's up to you!

The 328's two great sounding stereo Dynamics Processors on board can be applied to any of the following signals.

- **MIC/LINE channels 1- 16**
- **TAPE Channels 17-32**
- **STEREO INPUTS 1 or 2**
- **FX RETURNS 1 or 2**
- **MIX**

The types of Dynamics Processor programs available are:

- **Gate**
- **Compressor**
- **Compressor/Gate**
- **Limiter**
- **Limiter/Gate**

Let's have a closer look

GATE

A Gate - sometimes referred to as a 'Noise Gate' - is primarily designed to keep out unwanted noise from entering the mixing console, although it can also be used for creative purposes as well.

The Gate has a 'Threshold' setting that determines how loud a signal needs to be in order to keep the Gate open. If the signal drops below the Threshold level, the gate will close and no signal will pass through it.

This is very useful for many applications such as removing hum and crackle noise from guitar amps when they are mic'ed up, or for avoiding spill between the microphones on a drum kit.
Let's take a more detailed look at the parameters found in the 328's Gate.

SCH (Source Channel or Side Chain)

SCH determines which channel will be routed ('patched') into the Gate.

The following channels can be selected using the PARAM encoder: Channels 1-32, Stereo #1 or #2, FX Return 1or 2 and Mix. When using a Stereo channel or an FX Return channel as a source channel, the left - right signals are mono-summed on input into the Dynamics Processor. If the source channel is linked (see **Section 3H**) the input to the Dynamics Processor remains mono.

THRESHOLD

Threshold determines at what level the Gate will close. Any signal above the Threshold level will pass through the Gate unaffected, but any signal below the Threshold level will not be able to pass through the Gate.

The Threshold level can be adjusted using the PARAM encoder from - **60dB to 0dB**.

ATTACK

Attack determines how quickly the gate will open once the signal rises above the Threshold level. Attack times will sound very different depending on what type of signal is being processed. Fast Attack times work well on percussive instruments such as snare drums, but not so well on less percussive sounds. Adjust the Attack time to get the most natural result for the signal being processed.

The Attack time is adjustable from **0ms to 150ms** using the PARAM encoder.

HOLD

Hold determines how long the Gate remains open after the signal has fallen below the threshold level. This is useful for allowing for example a reverb tail on a signal that is being Gated to be heard.

The Hold time is adjustable from **1ms to 500ms** using the PARAM encoder



If you want to send the Oscillator tone to the Group outputs, first assign the Oscillator to one of the two Stereo Inputs (STE-1or STE-2) and then route the Stereo Input to the Group Outputs.

DECAY

Decay determines how quickly the Gate closes after the Hold time is complete. If the Gate closes to quickly the end of a signal may get 'chopped' off. A longer Decay time will allow the natural decay off a signal to pass through the Gate before it shuts.

The Decay time is adjustable from **10ms to 10.0s** using the PARAM encoder.

DEPTH

Depth determines the level to which the signal is attenuated when the gate closes. This is useful for reducing the level of the signal slightly instead of cutting it completely. A setting of -80dB would mute the signal completely whereas a setting of 0dB would have no effect at all. Any setting between these two extremes can be used to progressively reduce the signal without cutting it completely.

The Depth is adjustable from **-80dB to 0dB** using the PARAM encoder.

COMPRESSOR

A Compressor is designed to control the level of a signal automatically. It's a bit like having an automatic hand that can pull down a fader very quickly if a signal suddenly gets a little to loud.

The Compressor has a Threshold setting which determines what level the signal has to reach before the Compressor starts to reduce the level.

Let's take a closer look at the 328's Compressor.

SCH (Source Channel or Side Chain)

SCH determines which mono or stereo signal will be routed ('patched') into the Compressor.

The following channels can be selected using the PARAM encoder: Channels 1-32, Stereo #1 or #2, FX Return 1or 2 and Mix.

KNEE

There are two Knee settings namely Hard Knee and Soft Knee that can be selected using the PARAM encoder. If Hard Knee is selected the Compressor will immediately begin to operate when the Threshold level is reached.

With Soft Knee selected the Compressor will begin to work a short while before the Threshold level is reached, creating a smoother, more natural sounding transition from the uncompressed signal to a compressed one.

THRESHOLD

Threshold determines the level at which the Compressor will begin to apply gain reduction. Signals above the Threshold level will be reduced by the amount set using the Ratio setting (see below). Signals below the Threshold level will pass through the Compressor unaffected.

The Threshold level can be adjusted using the PARAM encoder from - **60dB to 0dB**.

RATIO

Ratio determines how much the signal is reduced by once it has passed the Threshold level. For a Ratio setting of 5:1, a 10dB change in input level above the threshold setting will result in a 2dB change in the output level. With a Ratio setting of 2:1 a 10dB change in input level above the threshold setting will result in a 5dB change in the output level. The higher the Ratio setting the more noticeable the compression will be.

The Ratio setting can be adjusted from **1:1** through to **15:1** using the PARAM encoder.

ATTACK

Attack determines the speed at which the Compressor begins to apply gain reduction to the signal after the Threshold level is passed. Fast Attack times will make the Compressor act almost instantaneously. Slow Attack times will cause the Compressor to apply gain reduction more gradually.

The Attack time can be adjusted from **1ms to 500ms** using the PARAM encoder.

RELEASE

Release determines the speed at which Compression is removed once the signal has fallen back below the Threshold level. A fast Release time will cause Compression to be removed almost instantaneously, where as a slow Release time will remove Compression gradually.

The Release time can be adjusted from 10ms to 10.0s using the PARAM encoder.

MAKEUP

When a signal is compressed, the louder passages are reduced causing the average level of the signal to be reduced. The Makeup control can be used to bring the average level of the signal back to where it was previously.

The Makeup control can also be used to attenuate the signal if required.

The Makeup control has a range of **-12dB to +12dB**.

COMPRESSOR/GATE

When selected, the dynamics processor offers both a Compressor and a Gate, configured serially. An input signal is processed firstly by the Compressor and then the Gate, as below, with the Compressor Make Up Gain acting post Gate.



The parameters available are identical to those found in the Compressor and Gate algorithms.

This is a very useful function for applications such as micing snare drums, where you may want to compress the snare drum - to control it's dynamics - but have a Gate operating on it as well to prevent other drum sounds bleeding into the snare drum microphone.

LIMITER

A Limiter is very similar to a Compressor but uses a very high fixed Ratio setting. The editable parameters are identical to those available when a Compressor is selected, except for the fixed Ratio setting.

LIMITER/GATE

When selected, the dynamics processor offers both a Limiter and a Gate, configured serially. An input signal is processed firstly by the Limiter and then the Gate, as below, with the Limiter Make Up Gain acting post Gate.



The parameters available are identical to those found in the Limiter and Gate algorithms.

USING THE DYNAMICS PROCESSORS

The Dynamics Processors found on the 328 are very useful for both corrective and creative purposes.

The following section describes how to apply the Dynamics Processors to signals.

Note: The SCH parameter has two functions.

In most applications you will select a Channel to be processed using the SCH parameter (e.g. Channel 3 - Bass Guitar), and the output of the chosen Dynamics Processor will automatically be routed back to the same channel. This is the same as using an insert cable on the channel of an analogue console, which loops the signal to and from an outboard Dynamics Processor.

Alternatively the SCH parameter can be derived from one channel (e.g Channel 3 - Bass Guitar) but the output of the Dynamics Processor can be applied to a different channel.

ASSIGNING THE DYNAMICS PROCESSORS

In this example we will apply a Compressor to Channel 5.

Press the DYN/FX 3 button

Use the ▲▼ arrow keys or the PARAM encoder to scroll through the LCD display and choose either the DYN 1 or DYN 2 menu.

```
DYN 1 Gate
DYN 2 Gate
```

The currently active Dynamics Processor will be listed after the DYN 1 or DYN 2 prefix - e.g. DYN 1 Limiter, meaning that Dynamics Processor 1 currently has a Limiter assigned to it.

Press the ENTER/YES key.

The LCD display will now show the currently active Dynamics Processor for Dynamics Unit 1 or * Bypass *

```
<DP 1 *Bypass* >
Change Algorithm
```

Note: By default, the Dynamics Processors are bypassed. Pressing the ◀ ▶ arrow keys together while any Dynamics menu page is active will toggle the * Bypass * function on and off. This determines whether or not the currently selected Dynamics Processor is active or bypassed.

The LCD should still be displaying the Change Algorithm prompt. To change the algorithm to Gate, Compressor, Compressor/Gate, Limiter or Limiter/Gate, press ENTER/YES and use the st arrow keys or PARAM encoder to set the required algorithm and press ENTER/YES again to confirm.

Use the ▲▼ arrow keys to select the **SCH: Channel # XX** parameter.

Now use the PARAM encoder to select **Channel # 05** and press the **ENTER/YES** button to store your choice. (The choices available are: **Channels # 01-32, Stereo # 1** or **2, FX Return # 1** or **2** and **Mix**)
Use the ▲▼ arrow keys to step through the different Compressor parameters (described in detail above) and the PARAM encoder to adjust the selected parameter.

To view Gain Reduction or Gate Open/Close press the **DYNAMICS** button (to the top left of the main stereo output meters) and the meters will now show either Gain Reduction or Gate Open/Close for **DYN 1** and **DYN 2** respectively.

- **Gain Reduction will be shown as a descending dB reading.**
- **Gate Open/Close is represented by the upper most LED on the output meters (RED) illuminating to show that the Gate is closed.**

Press and hold the **DYNAMICS** button (Query mode) to check that the Compressor has been automatically assigned back to Mic/Line Channel 5. The green select button in the SELECT panel below the E-Strip should be illuminated.

Note: While the DYNAMICS button is held down (Query Mode), other Channels may be selected using their SELECT buttons, to be assigned to the output of the Compressor. This feature allows the effect of a noise gate sourced from one channel to be applied to another, destination channel, even without being applied to the original source channel.

SAVING A DYNAMICS PROCESSOR TO THE DYN 1 OR 2 PRESETS LIBRARIES

Once you have followed the above procedure for loading and editing a Compressor you may well want to store the settings for recall at a later stage.

Note: The DYN 1 Presets and DYN 2 Presets libraries are the same i.e. when a Dynamics Processor is saved it will automatically be saved to both libraries.

Follow the above procedure to get to the Menu where the Compressor's parameters can be adjusted (You can only save the Compressor's settings from this Menu.)

Once you are happy with the adjustments you have made to the Compressor and are ready to store them, press the ENTER/YES button.

The ENTER/YES and the EXIT/NO button will begin to flash.

The LCD display will read



and the library number will be displayed below this.

You can now use the ▲▼ arrow keys or the PARAM encoder to select a library number (1 - 64).

To abort, press EXIT/NO, or press ENTER/YES to name and store the Dynamics Preset.

You can now use the ◀ ▶ arrow keys to select the character you wish to change and the PARAM encoder to select the letter or number you wish to change it to.

Characters can be deleted in the following ways:

- To delete the selected character and move the cursor one character to the right, press and hold the ◀ cursor key and press the ▶ cursor key once for each character to be deleted

- To delete the selected character and move the cursor one character to the left, press and hold the ▶ cursor key and press the ◀ cursor key once for each character to be deleted

Once you are happy with your choice press the ENTER/YES button to store the new name and preset or EXIT/NO to abort.

To rename the preset at a later date you must highlight the preset within the Dyn Presets menu and press the ◀ and ▶ cursor keys simultaneously. Naming is done in the same way.

DELETING THE DYNAMICS PROCESSORS PRESETS

Press the DYN/FX button.

Use the ▲▼ arrow keys or the PARAM encoder to select the DYN 1 or DYN 2 Presets menu.

Press the ENTER/YES button to enter the chosen DYN Presets menu.

Use the ▲▼ arrow keys or the PARAM encoder to select the Dynamics Preset you want to delete. It will flash to show that it is ready for editing.

Press the EXIT/NO button and the LCD display will show



and the chosen Preset.

Press ENTER/YES to delete or EXIT/NO to abort.

PART 5 - THE 'MENU' BUTTON

Overview

The Digital 328 menu pages allow configuration of Digital I/O, MIDI setup, Snapshots and User Setups.

There are 19 Menu pages, accessed by pressing the MENU switch:

5.1 Software Info
5.2 User Options
5.3 MIDI Controllers
5.4 MIDI Ctl Presets
5.5 MIDI Dump Out
5.6 MIDI Dump In
5.7 Tape Trim Setup
5.8 Tape Port Select
5.9 SPDIF I/P Setup
5.10 AES/EBU I/P Set
5.11 SPDIF O/P Setup
5.12 AES/EBU O/P Set
5.13 Tape Mach Setup
5.14 Clock Source Sel
5.15 Snapshot Setup
5.16 Automation Setup
5.17 Chan Copy Setup
5.18 Chan Link Setup
5.19 User Setups
5.20 Display Setup

The Menus

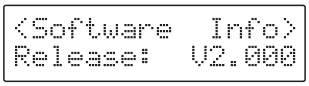
Use either the ▲▼ arrow keys or the PARAM encoder to select the Menu page you want to enter and then press the ENTER/YES button to enter the chosen page.

5.1 SOFTWARE INFO

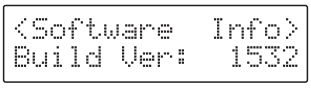
This page will tell you what software version your 328 is currently operating on. The functions described in this User Guide are based on consoles using Version 2.0 Software or later.

Navigate the Software Info menu with the ▲▼ arrow keys.

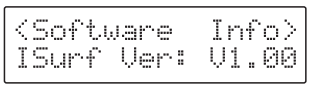
- **Release:** the software version installed.



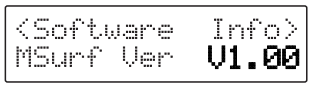
- **Build:**i build number of the installed software.



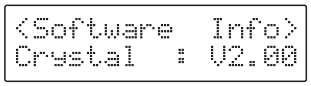
- **ISurf:** Digital 328 Input Surface hardware version.



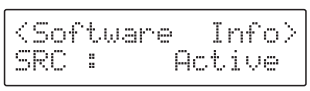
- **MSurf:** Digital 328 Master Surface hardware version.



- **Crystal:** clock crystal version installed in the console.



- **SRC:** indicates whether the console's S/PDIF is fitted with a Sample Rate Converter or not. If sample rate conversion is fitted to the S/PDIF input, S/PDIF will not be seen as a source from which the 328 can slave wordclock in the Clock Source Select menu (see **Section 5.14**).



The latest Software revision is available for download from the Soundcraft Web site.

5.2 USER OPTIONS

Press the ENTER/YES button and then use the ▲▼ arrow keys to select the page you want to adjust and the PARAM encoder to change the settings.

- **MIDI Channel**

```
< User Options >
MIDI Channel:  1
```

This sets the MIDI Channel which the 328 transmits and receives MIDI Program Changes FOR SNAPSHOT AUTOMATION ONLY (see **Section 4**). Other MIDI commands transmitted or received by the 328 such as automation data, MIDI timecode or MMC commands are unaffected by this setting.

- **OMNI mode : ON/OFF**

```
< User Options >
OMNI mode   : ON
```

This setting allows the 328 to either receive or not receive MIDI Program Changes on all 16 MIDI Channels FOR SNAPSHOT AUTOMATION ONLY. Other MIDI commands transmitted or received by the 328 such as automation data, MIDI timecode or MMC commands are unaffected by this setting.

Set OMNI mode to ON if you wish the 328 to respond to incoming MIDI Program Changes on all 16 MIDI channels or to OFF if you wish the 328 to respond only to the MIDI channel selected above. Note that MIDI Program Changes are only transmitted on the MIDI Channel setting above regardless of the OMNI mode setting when a Snapshot with MIDI RECALL set to ON (see **Section 3J Part 2**) is recalled.

- **SOLO Ch Sel: ON/OFF** (SOLO follows channel SELECT)

```
< User Options >
SOLO Ch Sel : ON
```

When set to ON, this useful setting instructs the SELECT switch and consequently the E-Strip and Select Panel to become active for a channel when it is SOLOED. When set to OFF, soloing a channel will not automatically 'select' the channel.

This setting is not stored as part of a User Setup or Snapshot and is not stored on power down.

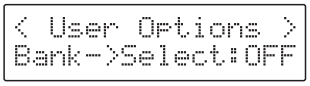
- **SOLO AutoC: ON/OFF** (SOLO AutoCancel)

```
< User Options >
SOLO AutoC  :OFF
```

When set to ON, soloing a channel will deselect solo for any other 'SOLOED' channels. When set to OFF, any number of channels can be soloed simultaneously.

This setting is not stored as part of a User Setup or Snapshot and is not stored on power down.

- **Bank->Select: ON/OFF** (SELECT follows Fader Bank selection)



By default this setting is set to OFF, so that selecting a different Fader Bank does not affect which channel is selected. By setting this to ON, the console will have a memory of which SELECT switch is active for MIC/LINE and TAPE fader banks. Returning to the opposing fader bank will automatically select the channel last selected when you were last in that fader bank.
As an example, set Bank->Select to ON. Put the Fader Bank into MIC/LINE mode, and press SELECT for channel 16. Put the Fader Bank into TAPE mode and select channel 17. The selected channel will follow bank selection so by selecting the MIC/LINE fader bank, channel 16 will be automatically selected and when selecting the TAPE fader bank, channel 17 will be selected.

- **Device ID**



When requesting data dumps from a remote source with MIDI System Exclusive messages, the 328 device ID must be set correctly. By default this is set to ID 1 and for most purposes is best left at this value. If you use linked consoles, the device IDs should be set differently so that the remote device is able to send System Exclusive commands to each desk individually. The Device ID can be set to any value between 1 and 127. Note that the Device ID is stored within a User Setup and is retained on power down.

- **Flip Bank 1 :ON/OFF**



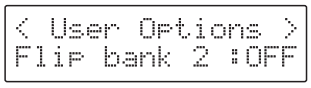
This setting allows the controls of MIC/LINE channels 1-8 to be 'flipped' with the controls of TAPE channels 17-24.

When Flip Bank 1 is set to 'ON' and the MIC/LINE 1-16 button is selected in the FADER BANK section, faders 1-8 and their associated SELECT switches control TAPE inputs 17-24 (8 TRK A) and not MIC/LINE inputs 1-8 as would normally be the case. MIC/LINE inputs 1-8 are then accessed from faders 17-24 and their associated SELECT switches by selecting the TAPE 17-32 fader bank.

It is important to note that when Flip Bank 1 is set to ON, Tape Send Direct remains active for SELECT switches 1-8. In this way, 8 TRK A digital inputs can be routed directly to 8 TRK A digital outputs. As the TDIF and ADAT outputs are simultaneously active regardless of the input setting in the Tape Port Select menu (see **Section 3J Part 5.8**), 8 ADAT channels can be easily dubbed onto 8 TDIF channels and vice versa. With both Flip Bank 1 and Flip Bank 2 active (see below), a 16 channel transfer can be made.

To configure this for 8 TRK A, set Flip Bank 1 to ON, and activate T.SND DIR for channels 1-8. The 8 TRK A digital inputs are now routed directly post-fade to both ADAT and TDIF 8 TRK A outputs.

- **Flip Bank 2 :ON/OFF**



This setting allows the controls of MIC/LINE channels 9-16 to be 'flipped' with the controls of TAPE channels 25-32.

When Flip Bank 2 is set to 'ON' and the MIC/LINE 1-16 button is selected in the FADER BANK section, faders 9-16 and their associated SELECT switches control TAPE inputs 25-32 (8 TRK B) and not MIC/LINE inputs 9-16 as would normally be the case. MIC/LINE inputs 9-16 are then accessed from faders 25-32 and their associated SELECT switches by selecting the TAPE 17-32 fader bank.

It is important to note that when Flip Bank 2 is set to ON, Tape Send Direct remains active for SELECT switches 9-16. In this way, 8 TRK B digital inputs can be routed directly to 8 TRK B digital outputs. As the TDIF and ADAT outputs are simultaneously active regardless of the input setting in the Tape Port Select menu (see **Section 3J Part 5.8**), 8 ADAT channels can be easily dubbed onto 8 TDIF channels and vice versa. With both Flip Bank 1 (see above) and Flip Bank 2 active, a 16 channel transfer can be made.

To configure this for 8 TRK B, set Flip Bank 2 to ON, and activate T.SND DIR for channels 9-16. The 8 TRK B digital inputs are now routed directly post-fade to both ADAT and TDIF 8 TRK B outputs.

- **Phase**

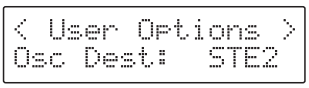


The Phase setting allows the user to adjust the phase relationship between the internal clock and the clock transmitted at the BNC wordclock output, to compensate for some older Tape Machines that require a different setting.

Under normal circumstances, the Phase setting should be left to the default setting of 382 (labeled DA88/V4). The setting of 380 (DA88/OLD) must be used for Tascam DA88 machines with a system board of version 1-3.



- **Osc Src**



The 328 has an in built Oscillator which can be assigned to a number of different destinations for calibration purposes.

The destination choices are **NOWHERE, STE-1, STE-2, FX-1 and FX-2**, provided that the S/PDIF or AES/EBU input has not already been routed to the destination. In this event only the available destinations will be displayed. Routing the oscillator to a Stereo Input will override the analogue signal present and routing the oscillator to a FX Return channel will override the FX Return signal.



If you want to send the Oscillator tone to the Group outputs, first assign the Oscillator to one of the two Stereo Inputs (STE-1 orSTE-2 and then route the Stereo Input to the Group Outputs.

- **Meter Follow ON/OFF**

```
< User Options >
Meter follow: ON
```

Switching this function 'ON' will cause the METER BANK buttons to follow the selection made with the FADER BANK buttons.

The METER BANK selection can still be overridden by pressing any of the METER BANK buttons, but the status of the METER BANK buttons, will revert to the next selection made with the FADER BANK buttons.

By default Meter Follow is set to ON.

5.3 MIDI CONTROLLERS

A fourth fader bank can be accessed by pressing whichever fader bank switch is illuminated. This puts the fader bank into MIDI Controller mode in which the 16 faders, the 16 rotary encoders of the E-Strip and the 16 Mute and 16 Solo switches act as 64 user definable MIDI Controllers. Each physical control can be assigned a MIDI Continuous Controller and MIDI Channel - the faders and encoders have a fixed range of 0-127 and the switches a fixed range of 0-1.

Configuration of the controllers is carried out using the MIDI Controllers menu. Once defined, the assigned MIDI Control Changes can be stored to one of 64 MIDI Controller Presets for recall at a later stage.

1. SETTING MIDI CONTROLLER PARAMETERS

Press the ENTER/YES button to enter the MIDI Controllers menu page.

```
Controller No: 1
Chan: 1   Id:OFF
```

The LCD display shows the following 3 parameters.

- **Controller No: 1-64**

Select the physical controller to be defined using the ▲▼ arrow keys.

Controllers 1-16 are the 16 Faders,
controllers 17-32 are the 16 rotary encoders along the E-Strip,
controllers 33-48 are the 16 Solo switches and
controllers 49-64 are the 16 Mute switches.

- **Chan: 1-16**

  Enter the MIDI channel on which the selected physical control is to transmit the Continuous Controller, selected using the ◀ ▶ arrow keys to highlight and the PARAM encoder to adjust.

- **ID: OFF - 127**

  Enter the number of the MIDI Continuous Controller number which the physical control is to transmit, selected using the ◀ ▶ arrow keys to highlight and the PARAM encoder to adjust.

2. STORING AND NAMING MIDI CONTROLLER SETUPS

Once you have set up your MIDI Controllers you can store the settings as a MIDI Controller Preset for later recall.

- Press the ENTER/YES button while in the MIDI Controllers page.
- Both the ENTER/YES and EXIT/NO buttons will flash.
- The LCD will display:

```
Store To Preset?
  1:<Empty>
```

- Use the ▲▼ arrow keys or the PARAM encoder to select the MIDI Controller Preset library location number you wish to use, and then press the ENTER/YES button to save the settings or the EXIT/NO button to abort and return to the MIDI Controllers menu.

When confirming the store process, you will be prompted to enter a name for the MIDI Controller Preset.

The LCD display will read:

```
<MIDI Preset  1>
ID :MIDI PRES 01
```

Now use the ◀ ▶ arrow keys to select the character you want to change, and the PARAM encoder to select the character.

Characters can be deleted in the following ways:

- To delete the selected character and move the cursor one character to the right, press and hold the ◀ cursor key and press the ▶ cursor key once for each character to be deleted
- To delete the selected character and move the cursor one character to the left, press and hold the ▶ cursor key and press the ◀ cursor key once for each character to be deleted

Once you are happy with your choice press the ENTER/YES button to store the new name or EXIT/NO to abort.

To rename the preset at a later date you must highlight the preset within the MIDI Ctl Presets menu and press the ◀ and ▶ cursor keys simultaneously. Naming is done in the same way.

5.4 MIDI CTL PRESETS

There are 64 MIDI Controller Preset library locations that can be used for storing custom MIDI Controller set-ups. The MIDI Ctl Presets menu enables you to select from the list of 64 locations a previously stored preset for recall or editing. MIDI Controller Presets can also be downloaded from the 328 website and loaded into the console via a MIDI System Exclusive dump (see **Section 3J Part 5.5 and 5.6**).

RECALLING MIDI CONTROLLER SET-UPS

Highlight the MIDI Ctl Presets menu and press the ENTER/YES button to enter the MIDI Controller Presets menu page.

```
1:MIDI PRES 01
2:<Empty>
```

Use the ▲▼ arrow keys or the PARAM encoder to select the Preset you wish to recall.

Press the ENTER/YES button to recall the chosen Preset. The MIDI Controller Preset will now be loaded into the MIDI Controllers menu, which the LCD will automatically display.

To make any alterations or to rename and store the Preset to a different location, see the section above, MIDI Controllers.

5.5 MIDI DUMP OUT

Two types of MIDI dump can be made from the 328.

Stored Snapshots, User Setups and all Presets can be dumped from the 328 MIDI Out port as MIDI System Exclusive data to be recorded and stored externally on a MIDI data filer or MIDI sequencer package. Once recorded on the remote source, using the MIDI Dump In menu (see below) the settings can be restored to the 328.

Alternatively, all 328 automatable parameters or any defined MIDI Controllers within the MIDI Controller Bank can also be dumped as a list of Continuous Controller values. To restore these dumps to the 328, ensure that the console is in the correct automation mode (see **Section 3J Part 5.16**) simply playback the recorded data.

The following dumps can be selected:

- **All Data** transmits a dump of all Snapshots, User Setups and all MIDI Controller, Dynamics and FX Presets in a single dump.
- **All Snaps** transmits a dump of all stored Snapshots
- **One Snap** transmits a single selected Snapshot
- **FX Presets** transmits all stored FX Presets
- **Dyn Presets** transmits all stored Dynamics Presets
- **Ctl Presets** transmits all stored MIDI Controller Presets
- **One Preset** transmits a single selected FX, Dynamics or MIDI Controller Preset
- **Controllers** transmits the current values of the faders, encoders and switches of the MIDI Controller bank as MIDI Continuous Controller data
- **Automation** transmits all current values of all 328 automatable objects as MIDI Continuous Controller data

Let's look at them individually.

Press the ENTER/YES button to enter the MIDI Dump Out menu page.

Use the PARAM encoder to scroll through the different dumping choices.

ALL DATA



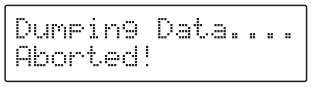
Executing this dump will transmit all data currently stored within the 328 as System Exclusive data from the 328 MIDI Out port.

Select the All Data dump and press ENTER/YES to start the dumping process.

When complete the LCD display will show:



To abort press the EXIT/NO key, the LCD display will read:



ALL SNAPS



Executing this dump will dump all Snapshots currently stored within the 328 as System Exclusive data from the MIDI Out port.

Select the All Snaps dump and press ENTER/YES to start the dumping process.

When complete the LCD display will show:

```
Dumping Data....
Dump Finished
```

To abort press the EXIT/NO key, the LCD display will read:

```
Dumping Data....
Aborted!
```

ONE SNAP

```
<MIDI  Dump Out>
Mode:   One Snap
```

A single Snapshot can be selected to be dumped as System Exclusive data from the MIDI Out port.

Select the One Snap dump with the PARAM encoder and press the ▼ arrow key once to view the list of currently stored Snapshots.

Use the ▲▼ arrow keys or the PARAM encoder to select the Snapshot you want to dump. To return to the MIDI Dump Out menu, simply scroll to the top of the list.

Press the ENTER/YES button to start the dumping process.

When complete the LCD display will show:

```
Dumping Data....
Dump Finished
```

To abort press the EXIT/NO key, the LCD display will read:

```
Dumping Data....
Aborted!
```

FX PRESETS

```
<MIDI  Dump Out>
Mode: FX Presets
```

All stored Lexicon FX Presets can be dumped as System Exclusive data from the MIDI Out port.

Executing this dump will transmit all FX Presets currently stored within the 328 as System Exclusive data from the 328 MIDI Out port. All Preset locations are stored within the dump so that dumping the data back to the console will restore the FX Presets to their original location.

Select the FX Presets dump and press the ENTER/YES button to start the dumping process.

When complete the LCD display will show:

```
Dumping Data....
Dump Finished
```

To abort press the EXIT/NO key, the LCD display will read:

```
Dumping Data....
Aborted!
```

DYN PRESETS

```
<MIDI  Dump Out>
Mode:Dyn Presets
```

All stored Dynamics Presets can be dumped as System Exclusive data from the MIDI Out port.

Executing this dump will transmit all Dynamics Presets currently stored within the 328 as System Exclusive data from the 328 MIDI Out port. All Preset locations are stored within the dump so that dumping the data back to the console will restore the FX Presets to their original location.

Select the Dyn Presets dump and press the ENTER/YES button to start the dumping process.

When complete the LCD display will show:

```
Dumping Data....
Dump Finished
```

To abort press the EXIT/NO key, the LCD display will read:

```
Dumping Data....
Aborted!
```

CTL PRESETS

```
<MIDI  Dump Out>
Mode:Ctl Presets
```

All stored MIDI Controller Presets can be dumped as System Exclusive data from the MIDI Out port.

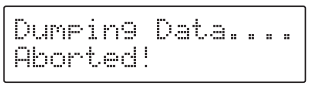
Executing this dump will transmit all MIDI Controller Presets currently stored within the 328 as System Exclusive data from the 328 MIDI Out port. All Preset locations are stored within the dump so that dumping the data back to the console will restore the FX Presets to their original location.

Select the Ctl Presets dump and press the ENTER/YES button to start the dumping process.

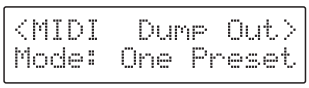
When complete the LCD display will show:



To abort press the EXIT/NO key, the LCD display will read:



ONE PRESET



A single stored FX, Dynamics or MIDI Controller Preset can be selected to be dumped as System Exclusive data from the MIDI Out port.

Select the One Preset dump with the PARAM encoder and press the ▼ arrow key once to view the list of currently stored Presets.

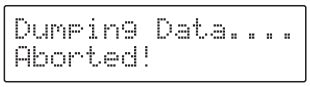
Use the ▲▼ arrow keys or the PARAM encoder to select the Preset you want to dump. To return to the MIDI Dump Out menu, simply scroll to the top of the list.

Press the ENTER/YES button to start the dumping process.

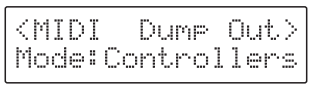
When complete the LCD display will show:



To abort press the EXIT/NO key, the LCD display will read:



CONTROLLERS



All assigned IDs and values of the MIDI Controller bank can be transmitted as a string of MIDI Continuous Controller values to be recorded into a sequencer or to synchronize a connected MIDI device.

Select the Controllers dump with the PARAM encoder and press ENTER/YES to start the dump.

The Controllers dump cannot be aborted.

AUTOMATION



All of the Digital 328s automatable parameters can be transmitted as a string of MIDI Continuous Controller values.

This dump is particularly useful to make at the beginning of a 328 automation track within a MIDI sequencer. It has the same effect as transmitting a MIDI Program Change to the console to recall a Snapshot, synchronizing the 328 with the beginning of the track. The advantage of the Automation dump over a Snapshot recall is that the dumped data can be continually adjusted within the appropriate sequencer editing pages. To interpret the MIDI Continuous Controller values of a recorded Automation dump, refer to the MIDI automation specifications at the back of this manual.

Select the Controllers dump with the PARAM encoder and press ENTER/YES to start the dump.

The Automation dump takes about 20 seconds to complete and cannot be aborted.

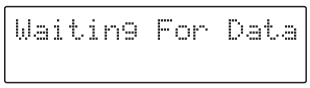
MIDI DUMP IN

Previously dumped MIDI System Exclusive data can be dumped (loaded) into the 328 from a MIDI device via the 328 MIDI In port.

Note: It is not necessary to set the console to receive a MIDI Dump In when transmitting a previously dumped Automation or Controllers dump back to the console (see **Section 3J Part 5.5**).

Press the ENTER/YES button to activate this function.

The LCD display will now read:



Start playback of the MIDI device to start the dumping process. The 328 will interpret which dump is being played back to the desk.

The dumps for All Data, All Snaps, FX Preset, Dyn Preset and MIDI Preset, retain the locations to which they were stored when dumped out. On returning the dump to the console, Snapshots, Setups and Presets will be written to their associated locations, overwriting any subsequently stored data. Locations which contain new data but were left empty when the dump was made will not be over-written when the dump is restored to the console.

Having loaded a dump of a single Preset, Snapshot or User Setup back into the console, a prompt message will appear requesting the location to which information needs to be stored. Select the required memory location and press ENTER/YES to confirm.

The MIDI Dump In process can be aborted at any time by pressing the EXIT/NO key. The LCD will display:

```
Waiting For Data
Aborted!
```

Press the EXIT/NO key again to return to the main Menu pages.

5.7 TAPE TRIM SETUP

The Tape Setup page allows the level of the 16 Tape inputs to be boosted or cut individually or globally.

GLOBAL ADJUSTMENT

Press the ENTER/YES button to enter the Tape Trim Setup page
The LCD display will show:

```
<Tape Trim Set.>
Set All Trims ?
```

Both the ENTER/YES and the EXIT/NO buttons will flash.

To set all of the Tape Trims globally press the ENTER/YES button.

The LCD will display the current Global offset to the Tape Trims. By default this is set to +0.0dB.

NOTE: On entering the Global Tape Trim Setup menu, the offset value will be destructively written to the individual Tape Trims settings (see below). If you wish to preserve the Tape Trim setting for any channel(s) but adjust others, you should use the individual Tape Trim settings to configure.

The LCD will now display:

```
<Tape Trim Set.>
Global:   0.0dB
```

You can now use the PARAM encoder to adjust the input level of the Tape inputs. The level can be adjusted from -12dB to +6dB.

Once you have set the levels to your satisfaction press the EXIT/NO button to exit the menu.

INDIVIDUAL ADJUSTMENT

Press the ENTER/YES button to enter the Tape Trim Setup page

The LCD display will show:

```
<Tape Trim Set.>
Set All Trims ?
```

Both the ENTER/YES and the EXIT/NO buttons will flash.

To set the Tape Trims individually press the EXIT/NO button.

The LCD display will now read:

```
<Tape Trim Set.>
CH17:    + 6.0dB
```

You can now use the ▲▼ arrow keys to select the Tape channel you want to adjust the input level on (Ch 17 - 32) and the PARAM encoder to adjust the level.

The level can be adjusted from -12dB to +6dB.

Once you have set the levels to your satisfaction press the EXIT/NO button to exit the menu.

5.8 TAPE PORT SELECT

The 328 has two sets of digital Tape inputs and outputs on it's back panel - **8 TRK A (TAPE 17-24)** and **8 TRK B (TAPE 25-32)**.

Both ADAT and TDIF outputs for 8 TRK A and 8 TRK B are permanently active, but each 8 Track input can only be active for either TDIF or ADAT. The Tape Port Select menu is where this option is configured.

The third ADAT Optical output may be configured as a digital auxiliary output for effects units, replacing any one of the AUX 1-4 outputs or alternatively it can be configured as 8 digital Group outputs.

Configuring TAPE 17-24 (8 TRK A), TAPE 25-32 (8TRK B) and AUX OPTICAL.

Press the ENTER/YES button to enter the Tape Port Select menu page.

Use the ▲▼ arrow keys to select the ADAT/TDIF input selection page for Tape channels 17-24 (8 TRK A)

Use the PARAM encoder to select either **ADAT** or **TDIF** to match the input device to be connected.

```
<Tape Ch17->24 >
Bank Source:TDIF
```

Use the ▼ arrow key to set the input and output Wordlength for Tape channels 17-24 (8 TRK A)

The Wordlength can be set to 16, 20 or 24 bit. The output is dithered for selections of 16 and 20 bit and undithered when set to 24 bit.

Use the PARAM encoder to select the appropriate Wordlength for the device that is being connected.

```
<Tape Ch17->24 >
Wordlength:  24
```



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Timecode Offset value to + 00:00:00:00.



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Locate 2 Timecode address to 00:00:00:00.



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Timecode Offset value to + 00:00:00:00.

Use the ▼ arrow key to select the next page to set the Sample Rate Flag for Tape channels 17-24 .(This page is only available if TDIF has been selected in the ADAT/TDIF select page. If ADAT is selected this page is not available). The Sample Rate Flag must be set to the same Sample Rate at which the 328 is operating, whether on Internal or External clock. To check this setting enter the Clock Source Sel menu (see **Section 3J Part 5.14**).

Use the PARAM encoder to select the same Sample Rate as the device that has been set up to be the master Wordclock generator for the system. This could be either the 328 or the device connected via the TDIF ports to the 328.

```
<Tape Ch17->24 >
S/Rate Flag:48k0
```

Use the ▲▼ arrow keys to select the ADAT/TDIF input selection page for Tape channels 25-32 (8 TRK B)

Use the PARAM encoder to select either **ADAT** or **TDIF** to match the device to be connected.

```
<Tape Ch25->32 >
Bank Source:TDIF
```

Use the ▼ arrow key to set the input and output Wordlength for Tape channels 25-32 (8 TRK B)

The Wordlength can be set to 16, 20 or 24 bit. The output is dithered for selections of 16 and 20 bit and undithered when set to 24 bit.

Use the PARAM encoder to select the appropriate wordlength for the device that is being connected.

```
<Tape Ch25->32 >
Wordlength:  24
```

Use the ▼ arrow key to select the next page which is used to set the Sample Rate for Tape channels 25-32. (This page is only available if TDIF has been selected in the ADAT/TDIF select page. If ADAT is selected this page is not available). The Sample Rate Flag must be set to the same Sample Rate at which the 328 is operating, whether on Internal or External clock. To check this setting enter the Clock Source Sel menu (see **Section 3J Part 5.14**).

Use the PARAM encoder to select the same Sample Rate as the device that has been set up to be the master Wordclock generator for the system. This could be either the 328 or the device connected via the TDIF ports to the 328.

```
<Tape Ch25->32 >
S/Rate Flag:48k0
```

Use the ▼ arrow key to set the signal transmitted from Aux Optical output



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Locate 1 Timecode address to 00:00:00:00.

Use the PARAM encoder to select between:

- **Aux/Mix**



The 328's 4 Aux sends, 2 FX sends and Mix L, R will be sent to the Aux Optical output for connecting to external equipment that uses ADAT Optical inputs. The channels are mapped in the following way:

Aux ADAT output channel	Signal
1	Mix Bus Left
2	Mix Bus Right
3	Aux Send 1
4	Aux Send 2
5	Aux Send 3
6	Aux Send 4
7	FX Send 1
8	FX Send 2

- **Group**



Group outputs 1-8 will be sent to the Aux Optical output for connecting to external equipment that uses ADAT Optical inputs.

The Aux Optical Output is a fixed 24 bit output and is an undithered signal.

5.9 SPDIF I/P SETUP

The S/PDIF digital stereo input on the back of the 328 can be routed to a number of different destinations.

Press the ENTER/YES button to enter the SPDIF I/P setup page



Use the PARAM encoder to select one of the following destinations:

- **NOWHERE** The S/PDIF digital stereo input is routed nowhere
- **STE - 1** The S/PDIF digital stereo input is routed to the STE - 1 input
- **STE - 2** The S/PDIF digital stereo input is routed to the STE - 2 input
- **FX - 1** The S/PDIF digital stereo input is routed to the FX - 1 Return
- **FX - 2** The S/PDIF digital stereo input is routed to the FX - 2 Return
- **2TRK** The S/PDIF digital stereo input is routed to the 2 Track input, selected with the 2 Track switch

The AES/EBU input and Internal Oscillator can also be routed to these destinations. If one of these signals is already routed, the destination will not appear in the list here.

Routing the S/PDIF input to a Stereo Input or to the 2TRK input will override the analogue signal present. Similarly, routing the S/PDIF input to an FX Return will override the FX Return signal.

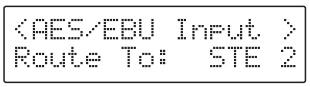
NOTE: For consoles without S/PDIF Sample Rate Conversion fitted, the S/PDIF input device should be connected and correctly synchronized to the same wordclock source as the 328 BEFORE SELECTING THE DESTINATION CHANNEL. If the 328 is set to operate on its Internal clock, for example, the S/PDIF device must be set to slave to the 328. Under normal circumstances, this will be done by connecting the 328 S/PDIF Output to the S/PDIF input of the external device which must be set to lock to the clock present at its S/PDIF input. Most CD players and DAT recorders cannot be synchronized to an external clock source when in play mode. Consequently, the 328 should be set to synchronize to the wordclock present at its S/PDIF input.

Press EXIT/NO to return to the main menu once you have made your choice.

5.10 AES/EBU I/P SETUP

The AES/EBU digital stereo input on the back of the 328 can be routed to a number of different destinations.

Press the ENTER/YES button to enter the AES/EBU I/P setup page



Use the PARAM encoder to select one of the following destinations:

- **NOWHERE** The AES/EBU digital stereo input is routed nowhere
- **STE - 1** The AES/EBU digital stereo input is routed to the STE - 1 input
- **STE - 2** The AES/EBU digital stereo input is routed to the STE - 2 input
- **FX - 1** The AES/EBU digital stereo input is routed to the FX - 1 Return
- **FX - 2** The AES/EBU digital stereo input is routed to the FX - 2 Return
- **2TRK** The AES/EBU digital stereo input is routed to the 2 Track input, selected with the 2 Track switch

The S/PDIF input and Internal Oscillator can also be routed to these destinations. If one of these signals is already routed, the destination will not appear in the list here.

Routing the AES/EBU input to a Stereo Input or to the 2TRK input will override the analogue signal present. Similarly, routing the AES/EBU input to an FX Return will override the FX Return signal.

NOTE: The AES/EBU input device should be connected and correctly synchronized to the same wordclock source as the 328 BEFORE SELECTING THE DESTINATION CHANNEL. If the 328 is set to operate on its Internal clock, for example, the AES/EBU device must be set to slave to the 328. Under normal circumstances, this will be done by connecting the 328 AES/EBU Output to the AES/EBU input of the external device which must be set to lock to the clock present at its AES/EBU input. Most CD players and DAT recorders cannot be synchronized to an external clock source when in play mode. Consequently, the 328 should be set to synchronize to the wordclock present at its AES/EBU input.

Press EXIT/NO to return to the main menu once you have made your choice.

5.11 SPDIF O/P SETUP

The S/PDIF digital stereo output on the back of the 328 can derive its signal from a number of different sources.

Press the ENTER/YES button to enter the SPDIF O/P page.

```
< SPDIF Output >
Src From:    MIX
```

Use the PARAM encoder to select one of the following sources.

- **NOWHERE** The S/PDIF digital stereo output signal is sourced from nowhere.
- **MIX** The S/PDIF digital stereo output signal is sourced from the stereo MIX output.
- **AUX 1/2** The S/PDIF digital stereo output signal is sourced from the output of AUX sends 1/2.
- **AUX 3/4** The S/PDIF digital stereo output signal is sourced from the output of AUX sends 3/4.
- **FX 1/2** The S/PDIF digital stereo output signal is sourced from the output of FX sends 1/2.
- **GRP1/2** The S/PDIF digital stereo output signal is sourced from Group outputs 1and 2.
- **GRP3/4** The S/PDIF digital stereo output signal is sourced from Group outputs 3 and 4.
- **GRP5/6** The S/PDIF digital stereo output signal is sourced from Group outputs 5 and 6.
- **GRP7/8** The S/PDIF digital stereo output signal is sourced from Group outputs 7 and 8.
- **CRM** The S/PDIF digital stereo output signal is sourced from the Control Room Output.

Wordclock is transmitted along with the audio stream from the S/PDIF output. If you connect the S/PDIF output to a device that requires to be synchronized, you should ensure that this is done. Check your equipment documentation for more information. When NOWHERE is selected, wordclock is still transmitted at the S/PDIF output, ensuring that connected devices do not lose sync.

Use the ▼ arrow key to check the Wordlength of the S/PDIF output stream.

```
< SPDIF Output >
Wordlength:  24
```

Using the PARAM encoder, the S/PDIF output Wordlength can be set to 16, 20 or 24 bit. The output is dithered for selections of 16 and 20 bit and undithered when set to 24 bit. You should ensure that this is set to the wordlength that the external device requires.

Use the ▼ arrow key to check the Status Bits of the S/PDIF output stream.

The Status Bits pages allow configuration of two flags within the S/PDIF stream that must be set correctly to allow a receiving device to interpret the incoming S/PDIF signal.

Under normal circumstances, if the 328 is set to Internal Wordclock (see **Section 3J Part 5.14**), the Status bits should remain at the default setting of AUTO.

```
< SPDIF Output >
Status Bits:AUTO
```

If the 328 is set to slave to an external wordclock source, you should check that the S/PDIF output stream Status Bits are set correctly. To set the flags manually, select Status Bits: MAN with the PARAM encoder.

```
< SPDIF Output >
Status Bits: MAN
```

You will now be able to access the Status Bit menu pages by pressing the ▼ arrow key.

The Sample Rate Flag must be set to the same sample rate at which the 328 is operating. The options are 32kHz, 44.1kHz, 48kHz and UNDF (Undefined).

```
< SPDIF Output >
S/Rate Flag: 48k
```

If the 328 is set to synchronize to external wordclock at a frequency of 48kHz, you must set the S/PDIF Output Sample Rate Flag to 48kHz. A setting of Undefined can be selected if the external S/PDIF device requires it. Consult the documentation for your S/PDIF device for more information.

Press the ▼ arrow key to set the Pro Flag.

The S/PDIF output can be configured to transmit an AES/EBU format signal, although mechanically the connections remain S/PDIF specification.

```
< SPDIF Output >
Pro Flag:   OFF
```

To transmit an AES/EBU format signal from the coaxial S/PDIF output, set the Pro Flag to ON with the PARAM encoder. If the signal is to remain in the S/PDIF format, ensure that the Pro Flag is set to OFF.

Press EXIT/NO to confirm and exit the S/PDIF O/P menu.

5.12 AES/EBU O/P SETUP

The AES/EBU digital stereo output on the back of the 328 can derive its signal from a number of different sources.

Press the ENTER/YES button to enter the AES/EBU O/P page.

```
<AES/EBU Output>
Src From: GRP1/2
```

Use the PARAM encoder to select one of the following sources.

- **NOWHERE** The AES/EBU digital stereo output signal is sourced from nowhere.

- **MIX** The AES/EBU digital stereo output signal is sourced from the stereo MIX output.
- **AUX 1/2** The AES/EBU digital stereo output signal is sourced from the output of AUX sends 1/2.
- **AUX 3/4** The AES/EBU digital stereo output signal is sourced from the output of AUX sends 3/4.
- **FX 1/2** The AES/EBU digital stereo output signal is sourced from the output of FX sends 1/2.
- **GRP1/2** The AES/EBU digital stereo output signal is sourced from Group outputs 1and 2.
- **GRP3/4** The AES/EBU digital stereo output signal is sourced from Group outputs 3 and 4.
- **GRP5/6** The AES/EBU digital stereo output signal is sourced from Group outputs 5 and 6.
- **GRP7/8** The AES/EBU digital stereo output signal is sourced from Group outputs 7 and 8.
- **CRM** The AES/EBU digital stereo output signal is sourced from the Control Room Output.

Wordclock is transmitted along with the audio stream from the AES/EBU output. If you connect the AES/EBU output to a device that requires to be synchronized, you should ensure that this is done. Check your equipment documentation for more information. When NOWHERE is selected, wordclock is still transmitted at the AES/EBU output, ensuring that connected devices do not lose sync.

Use the ▼ arrow key to check the Wordlength of the AES/EBU output stream.



Using the PARAM encoder, the AES/EBU output Wordlength can be set to 16, 20 or 24 bit. The output is dithered for selections of 16 and 20 bit and undithered when set to 24 bit. You should ensure that this is set to the wordlength that the external device requires.

Use the ▼ arrow key to check the Status Bits of the AES/EBU output stream.

The Status Bits pages allow configuration of two flags within the AES/EBU stream that must be set correctly to allow a receiving device to interpret the incoming AES/EBU signal.

Under normal circumstances, if the 328 is set to Internal Wordclock (see **Section 3J part 5.14**), the Status bits should remain at the default setting of AUTO.



If the 328 is set to slave to an external wordclock source, you should check that the AES/EBU output stream Status Bits are set correctly. To set the flags manually, select Status Bits: MAN with the PARAM encoder. You will now be able to access the Status Bit menu pages by pressing the ▼ arrow key.



The Sample Rate Flag must be set to the same sample rate at which the 328 is operating. The options are 32kHz, 44.1kHz, 48kHz and UNDF (Undefined).



If the 328 is set to synchronize to external wordclock at a frequency of 48kHz, you must set the AES/EBU Output Sample Rate Flag to 48kHz. A setting of Undefined can be selected if the external AES/EBU device requires it. Consult the documentation for your AES/EBU device for more information.

Press the ▼ arrow key to set the Pro Flag.

The AES/EBU output can be configured to transmit an S/PDIF format signal, although mechanically the connections remain AES/EBU specification.



To transmit an S/PDIF format signal from the AES/EBU output, set the Pro Flag to OFF with the PARAM encoder. If the signal is to remain in the AES/EBU format, ensure that the Pro Flag is set to ON.

NOTE: You will find that when routing groups or the control room OUTPUTS to AES/EBU or S/PDIF outputs that the signal is 6dB lower than expected. Due to the hardware limitations this cannot be corrected. This feature is there because we know that it can be used and should be considered as a 'bonus'.

Press EXIT/NO to confirm and exit the AES/EBU O/P menu.

5.13 TAPE MACH SETUP

The 328's Transport Control section can be used to control the transport of external recording devices using both the MMC (MIDI Machine Control) or RS 422 (Sony 9-Pin) protocols.

Press the ENTER/YES button to enter the **Tape Mach Setup** menu.

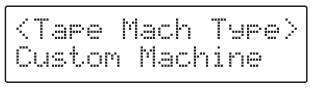
You can now use the ▲▼ arrow keys or the PARAM encoder to scroll through the LCD display and choose any of the following pages:

- **Custom Machine**
- **MMC Closed Loop**
- **Alesis A12**
- **Alesis BRC**
- **Tascam DTRS**
- **Tascam MMC-38**
- **Fostex D Series**
- **Fostex G Series**
- **Fostex RD8**
- **Fostex EX Series**
- **Sony 9 Pin**
- **EMU Darwin**

Nine preset Tape Machine types are listed which are generated from a configuration of the Custom Machine selection, but compensate for any deviation from the MMC standard specification. If your machine is not listed, you should select either MMC Closed Loop or Custom Machine for MMC control or Sony 9 Pin. Unless you wish to employ remote transport control of a connected tape machine or wish the 328 to display timecode, it is not necessary to configure this menu in order for the 328 to operate with digital tape machines.

CUSTOM MACHINE

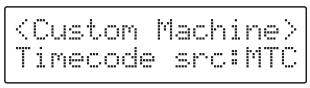
If your Tape Machine is not listed, or you wish to use the 328 transport control with a computer based software sequencer package, you should select Custom Machine with the PARAM encoder.



The Custom Machine option allows configuration of the following sub menus:

- **Timecode Source:** MIDI Timecode or Longitudinal Timecode (SMPTE)
- **Status:** Timecode Master or Slave
- **MIDI:** MIDI Note On / MIDI Machine Control / None
- **Frame Rate:** Timecode Frame Rate
- **Loc 1/2:** LOCATE 1 and LOCATE 2 timecode setting
- **Off:** Timecode offset

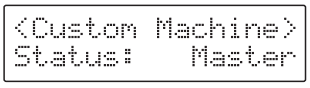
TIMECODE SOURCE



When configured as a Timecode Slave, the 328 timecode display can show either MTC (MIDI Timecode) received at the MIDI In port or LTC/SMPTE received at the SMPTE In port. If your external device offers a MTC or LTC output, connect the correct cables and set the menu accordingly with the PARAM encoder.

Press the ▼ arrow key to set the Timecode Master/Slave status.

STATUS



The 328 internal Timecode generator can be set to transmit MIDI Timecode from the MIDI Out port by configuring it as a Master Timecode device. If you wish the 328 to generate MIDI Timecode, set the Status to MASTER with the PARAM encoder. If you wish the 328 to slave to incoming LTC or MTC as defined in the Timecode Source menu (see above), set the Timecode Status menu to SLAVE with the PARAM encoder. Set the Status to SLAVE if you do not wish to use Timecode.

Press the ▼ arrow key to set the Timecode Master/Slave status.

MIDI



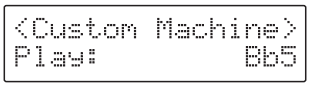
The 328 Transport Controls can be set to transmit MIDI Machine Control commands or MIDI Note On commands. If your external device is set to receive MMC commands, use the PARAM encoder to select MMC.

If you are using the 328 in conjunction with a computer based software sequencer package that will respond to MIDI Note On transport messages, Note On can be selected with the PARAM encoder.



Setting the 328 Transport controls to Note On enables you to configure a Note On message for each of the transport controls. Nine extra submenu pages are revealed by pressing the ▼ arrow key. Use the ▲▼ arrow keys to navigate between these submenus.

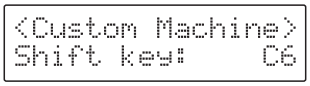
For each control, Note On commands with MIDI note numbers ranging from C-2 - G8 (MIDI Note numbers 00-127, 00H-7FH) can be selected.



By default the transport controls are set to:

Command	Displayed MIDI Note	MIDI note number
Play	Bb5	94 (5EH)
Stop	B5	95 (5FH)
Record	A5	93 (5DH)
Rewind	G5	91 (5BH)
Fast Forward	G#5	92 (5CH)
Locate 1	F6	102 (66H)
Locate 2	F#6	103 (67H)
Shift Key	C6	96 (60H)

The Shift Key is required by some sequencer packages.

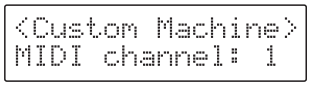


When defined, the associated Shift Key Note On command is transmitted immediately before the Note On command assigned to each transport control. This allows the sequencer to distinguish between a MIDI Note On received from an attached MIDI keyboard and the transport command transmitted by the 328. Shift Key can also be set to OFF, if not required.

You should consult your sequencer manual to configure the sequencer to respond to the note numbers that you have programmed.

In addition, the LOCATE 1 and LOCATE 2 switches can be assigned a predefined MIDI System Exclusive string particular to Digidesign ProTools, enabling remote selection between ProTools windows. Consult the downloadable 328 V2 ProTools guide for further information.

The ninth MIDI Note On menu selects the MIDI channel on which the MIDI Note On messages are to be transmitted.



The Transport Controls can also be set to OFF. In this mode, Transport Control MIDI commands are disabled.

Press the ▼ arrow key to set the Timecode Frame Rate.

FRAME RATE

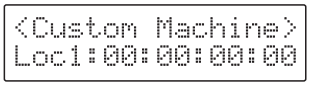


The timecode frame rate must be set to comply with the frame rate to which the remote device is also set, regardless of Timecode Master/Slave status. Use the PARAM encoder to set this.

The Frame Rate can be set to 24, 25, 30 drop or 30 non-drop frames/second.

Press the ▼ arrow key to set Locate point 1.

LOC 1



When the LOCATE 1 switch is pressed, it will transmit a single timecode reference point as a single MIDI Timecode frame, so that an attached tape recorder or MIDI sequencer can respond and locate to that point. By default this is set to a value of 00:00:00:00. Use the ◀ and ▶ arrow keys to navigate and the PARAM encoder to adjust as required.

Note that the timecode reference point will be transmitted if the console is set to MIDI Note On, as described above. When the transport controls are set to be in MIDI Note On mode, you should disable syncing to MIDI Timecode within the sequencer package. Consult your sequencer manufacturer's documentation for more information.

Press the ▼ arrow key to set Locate point 2.



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Locate 1 Timecode address to 00:00:00:00.

LOC 2



When the LOCATE 2 switch is pressed, it will transmit a single timecode reference point as a single MIDI Timecode frame, so that an attached tape recorder or MIDI sequencer can respond and locate to that point. By default this is set to a value of 00:00:00:00. Use the ◀ and ▶ arrow keys to navigate and the PARAM encoder to adjust as required.

Note that the timecode reference point will be transmitted if the console is set to MIDI Note On, as described above. When the transport controls are set to be in MIDI Note On mode, you should disable syncing to MIDI Timecode within the sequencer package. Consult your sequencer manufacturer's documentation for more information.

Press the ▼ arrow key to set the Timecode Offset value.



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Locate 2 Timecode address to 00:00:00:00.

OFF



An offset, definable to the frame, can be applied to the displayed Timecode, if required. The offset can be positive (adds to the Timecode display) or negative (subtracts from the Timecode display).

To configure the offset, use the ◀ and ▶ cursor keys to navigate between +/-, hours, minutes, seconds and frames and the PARAM encoder.
When an offset has been applied, Snapshots stored while Timecode is running in the display will be assigned a Timecode address with the offset applied (see **Section 3J - Part 2**).

With Loc to Snap set to ON (see **Section 3J - Part 2.5**), when a Snapshot is recalled, the transmitted Timecode address will have the offset applied.

When STO 1 or STO 2 are pressed with the Timecode display running (se **Section 3J - Part 2.5**), the Locate point will be stored with the offset applied.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Timecode Offset value to 00:00:00:00.

MMC CLOSED LOOP

To configure the 328 for use with a standard MMC capable device, MMC Closed Loop should be selected as the Tape Machine Type.



The console automatically acts as a Timecode Slave device, but transmits MMC commands to the Timecode Master device. MIDI cables must be connected both ways between the 328 and Tape Machine. After the 328 has transmitted an MMC command, it will wait until it receives an 'MMC command received' message from

the connected Tape Machine before fully illuminating the pressed transport control.

TIMECODE SOURCE

```
MMC Closed Loop
Timecode Src:MTC
```

When configured as a Timecode Slave, the 328 timecode display can show either MTC (MIDI Timecode) received at the MIDI In port or LTC/SMPTE received at the SMPTE In port. If your external device offers a MTC or LTC output, connect the correct cables and set the menu accordingly with the PARAM encoder.

Press the ▼ arrow key to set the Timecode Frame Rate.

FRAME RATE

```
MMC Closed Loop
Frame Rate: 24
```

The timecode frame rate must be set to comply with the frame rate to which the remote device is also set, regardless of Timecode Master/Slave status. Use the PARAM encoder to set this.

The Frame Rate can be set to 24, 25, 30 drop or 30 non-drop frames/second.

Press the ▼ arrow key to set Locate point 1.



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Locate 1 Timecode address to 00:00:00:00.

LOC 1

```
MMC Closed Loop
Loc1:00:00:00:00
```

When the LOCATE 1 switch is pressed, it will transmit a single timecode reference point as a single MIDI Timecode frame, so that an attached tape recorder can respond and locate to that point. By default this is set to a value of 00:00:00:00. Use the ◀ and ▶ arrow keys to navigate and the PARAM encoder to adjust as required.

Press the ▼ arrow key to set Locate point 2.



Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Locate 2 Timecode address to 00:00:00:00.

LOC 2

```
MMC Closed Loop
Loc2:00:00:00:00
```

When the LOCATE 2 switch is pressed, it will transmit a single timecode reference point as a single MIDI Timecode frame, so that an attached tape recorder can respond and locate to that point.

By default this is set to a value of 00:00:00:00. Use the ◀ and ▶ arrow keys to navigate and the PARAM encoder to adjust as required.

Press the ▼ arrow key to set the Timecode Offset value.

OFF



An offset, definable to the frame, can be applied to the displayed Timecode, if required. The offset can be positive (adds to the Timecode display) or negative (subtracts from the Timecode display).

To configure the offset, use the ◀ and ▶ cursor keys to navigate between +/-, hours, minutes, seconds and frames and the PARAM encoder.

When an offset has been applied, Snapshots stored while Timecode is running in the display will be assigned a Timecode address with the offset applied (see **Section 3J - Part 2**).

With Loc to Snap set to ON (see **Section 3J - Part 2.5**), when a Snapshot is recalled, the transmitted Timecode address will have the offset applied.

When STO 1 or STO 2 are pressed with the Timecode display running (see **Section 3J - Part 2.5**), the Locate point will be stored with the offset applied.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

ALESIS AI-2

The Transport Control section of the 328 can be used to control the transport of an Alesis ADAT in conjunction with the Alesis AI-2 synchronizer which provides the MIDI Interface for the ADAT allowing it to receive MMC commands from the 328.

Press the ENTER/YES button to enter the **Alesis AI-2** setup page.



Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

ALESIS BRC

The Transport Control section of the 328 can be used to control the transport of an Alesis ADAT in conjunction with the Alesis BRC which provides the MIDI Interface for the ADAT allowing it to receive MMC commands from the 328.

Press the ENTER/YES button to enter the **Alesis BRC** setup page.





Pressing the ◀ and ▶ cursor keys while this page is active in the LCD will reset the Timecode Offset value to 00:00:00:00.



Generally when linking adjacent channels to make a stereo pair, it is preferable to leave the 'Pan & Phase' setting to the default state of OFF to maintain the stereo position of the 2 channels that are being linked.

Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

TASCAM DTRS

The Transport Control section of the 328 can be used to control the transport of a Tascam DA7HR, DA88, DA98 or DA98HR DTRS machine.

Press the ENTER/YES button to enter the **Tascam DTRS** setup page.

```
<Tape Mach Type>
Tascam DTRS
```

Note: In order to receive MMC (MIDI Machine Control) commands from the 328 the a DA88 must have the SY-88 Synchronization card fitted.

Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

TASCAM MMC-38

The Transport Control section of the 328 can be used to control the transport of a Tascam DA38 machine with the MMC-38 expansion unit connected.

Press the ENTER/YES button to enter the **Tascam MMC-38** setup page.

```
<Tape Mach Type>
Tascam MMC-38
```

Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

FOSTEX D SERIES

The Transport Control section of the 328 can be used to control the transport of a Fostex D80, D90, D108 or D160 hard disk recorder.

Press the ENTER/YES button to enter the **Fostex D Series** setup page.

```
<Tape Mach Type>
Fostex D Series
```

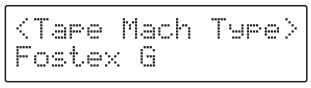
Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

FOSTEX G SERIES

The Transport Control section of the 328 can be used to control the transport of a Fostex G16 or G24 tape machine in conjunction with the appropriate MMC interface, which provides the MIDI Interface for the G16 or G24 allowing it to receive MMC commands from the 328.

Press the ENTER/YES button to enter the **Fostex G Series** setup page.



Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

FOSTEX RD8

The Transport Control section of the 328 can be used to control the transport of a Fostex RD8.

Press the ENTER/YES button to enter the Fostex RD8 setup page.



Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

FOSTEX EX SERIES

The Transport Control section of the 328 can be used to control the transport of a Fostex EX Series recording machine.

Press the ENTER/YES button to enter the **Fostex EX Series** setup page.



Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

SONY 9 PIN

The Transport Control section of the 328 can be used to control the transport of machines conforming to the Sony 9 Pin (RS 422) protocol.

Press the ENTER/YES button to enter the **Sony 9 Pin** setup page.



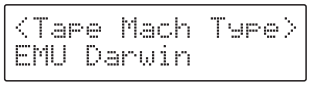
Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

EMU DARWIN

The Transport Control section of the 328 can be used to control an **EMU Darwin** recorder.

Press the ENTER/YES button to enter the **EMU Darwin** setup page.



Consult the MMC Closed Loop section above for a description of the parameters available.

Press the EXIT/NO to return to the main **Tape Mach Setup** menu

5.14 CLOCK SOURCE SELECT

It is vitally important that the correct Wordclock source is chosen when linking the 328 with other digital equipment.
Press the ENTER/YES button to enter the Clock Source Select page.

Use the PARAM encoder to select the Clock source, the choices are as follows:

- **Internal 48 kHz**
- **Internal 44.1 kHz**
- **External: WClock** (Wordclock)
- **External: AES/EBU**
- **External: S/PDIF**
- **External: SClock** (Digidesign Superclock)

When set to Internal clock at a frequency of either 44.1kHz, or 48kHz, ALL digital devices connected must be set to synchronize to this clock.



The 328 should be set to synchronize to an External clock option if an external source is set to be the clock master for the system.



The 328 can be set to synchronize to Digidesign Superclock (256 x Wordclock), if present at the BNC wordclock input.



Press the ▼ arrow key to set the default clock setting.

If the 328 is set to slave to an External clock source, and wordclock is lost, a warning message indicating this will be displayed on the LCD. The 328 will revert to Internal clock, but in order to try to limit problems caused as a result of the loss, the sample frequency to which the console will revert can be set here. Set the Default Sample Rate to 44.1kHz or 48kHz with the PARAM encoder.



Press the ▼ arrow key to set how the console will react to a loss of wordclock.

When external wordclock is lost, the 328 can be set either to revert to Internal Clock at the sample rate defined above (INTERNAL or wait for a stable clock to return at the slave input (SLAVE). In SLAVE mode, the 328 will revert to the Default Internal clock frequency but will automatically sync to the external source when it returns.

Set the On Loss mode to Internal or Search with the PARAM encoder.





Press EXIT/NO to return to the main menu pages.

NOTE TO TASCAM DA88 USERS.

If you are using DA 88 machines it is important that you establish which system boards are installed in the machines. There are two different Phase settings used on the TDIF interface of the DA88 depending on their age, and it is important that the 328 is setup correctly to the same Phase settings otherwise the audio might be corrupted. The Phase setting is found in the User Options menu (see **Section 3J Part 5.2**).

For DA88s with system board version 4, a setting of 382 (DA88/V4) should be set.

For DA88s with system board version 1, 2 or 3, a setting of 380 (DA88/OLD) should be used.

A combination of two DA88s of version 4 or a combination of DA88s of versions 1, 2 or 3 should not present problems if the clock phase is set correctly in the User Options menu.

Note that a DA88 version 4 model CANNOT be used with TDIF connections to the 328 simultaneously with a DA88 version 1, 2 or 3. You should contact your TEAC or Tascam distributor if you wish to upgrade the older machine.

5.15 SNAPSHOT SETUP

The Snapshot Setup menu controls the settings for the Snapshots stored in the SNAPSHOT menu.

Press the ENTER/YES button to enter the Snapshot Setup menu.

Use the ▲▼ arrow keys to access the following pages.

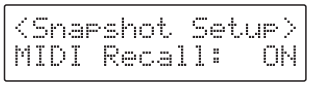
- **MIDI Recall: ON/OFF**
- **Write Protect: ON/OFF**
- **Snap to Time : ON/OFF**
- **Loc to Snap : ON/OFF**
- **Sort by Time : ON/OFF**

MIDI RECALL ON/OFF

The Snapshot Setup MIDI Recall ON/OFF switch does not function as a global 'enable MIDI recall of snapshots' switch. Instead, when set to ON, a subsequently stored snapshot will be saved with MIDI Recall enabled. When MIDI Recall is set to OFF, subsequently stored snapshots will be saved with MIDI Recall disabled. This setting also affects whether a User Setup is stored with MIDI Recall ON or OFF (see **Section 3J Part 5.19**).

For more information on MIDI Recall of Snapshots see **Section 4**.

Use the PARAM encoder to set MIDI Recall ON or OFF.



This function is not to be confused with Snapshots being recalled against MTC (MIDI Timecode). For a full explanation of this function see the **'Snap to Time'** function below.

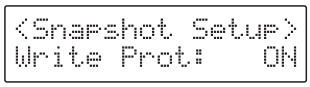
Press the ▼ arrow key to set the Write Protect parameters.

WRITE PROTECT ON/OFF

In the same way as the Snapshot Setup MIDI Recall switch described above, when set to ON the Write Protect function only has effect on subsequently stored Snapshots.

For more information on how a Snapshot operates when Write Protect is enabled see **Section 3G**.

Using the PARAM encoder set Snapshot Write Protect to ON or OFF, as required.



Press the ▼ arrow key to set how Snapshots respond to Timecode.

SNAP TO TIME: ON/OFF

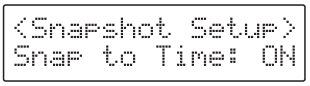
This function allows Snapshots to be recalled against incoming MTC/LTC or internally generated Timecode.

Unlike the MIDI Recall and Write Protect settings, 'Snap to Time' is a global setting and takes effect immediately when set to ON.

If 'Snap to Time' is selected to 'ON', Snapshots that have been assigned a Timecode address will be recalled against incoming MTC or LTC Timecode. See **Section 3G** for more information about assigning Timecode addresses to Snapshots. In this way, incoming Timecode from a Tape Machine can trigger the recall of Snapshots stored within the 328, enabling Timecode Snapshot automation.

If 'OFF' is selected then Snapshots with pre-programmed Timecode addresses will not be recalled against incoming Timecode.

Use the PARAM encoder to switch Snap to Time ON or OFF, as required.



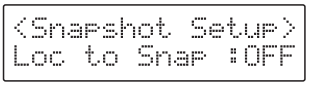
Press the ▼ arrow key to set the Loc to Snap option.

LOC TO SNAP: ON/OFF

If this function is switched 'ON' then when a Snapshot is manually recalled using the RECALL button in the SNAPSHOTS panel, the associated Timecode address (if set) will be transmitted as an MMC command from the MIDI Out port. In this way a connected Tape Machine can be set locate to the point in a recording with which the Snapshot is associated.

See Section 3G for more information about assigning Timecode addresses to Snapshots.

Use the PARAM encoder to set Loc to Snap ON or OFF.



Press the ▼ arrow key to set how the Snapshot list is displayed.

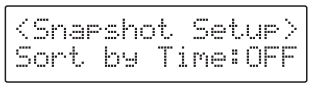
SORT BY TIME: ON/OFF

If this function is set to 'ON' the currently stored Snapshots will be arranged in chronological order according to their respective preset timecode values (if set) and not according to their numerical positions.

Switching this function 'OFF' again will return the currently stored Snapshots to their previous numerical positions.

Press the SNAPSHOT button so that the LCD displays the list of Snapshots to see the effect of this setting.

Use the PARAM encoder to set Sort by Time to On or OFF, as required.



Press EXIT/NO to return to the main menu.

5.16 AUTOMATION SETUP

Note: Please refer to **Section 4 - 'Automation Techniques'** for more detailed information.

This menu configures how the 328 sends and receives Dynamic Automation (Dynauto) MIDI data for recording to and playback from a MIDI recording device, allowing full automation of every setting on the console. (See section XX 'Automation' for more information on this subject)

Press the ENTER/YES button to enter the Automation Setup menu.
There are two pages in the Automation setup menu which are selected using the ▲▼ arrow keys:

- **MIDI Dynauto: ON/OFF**
- **Mode: READ ONLY, WRITE ONLY, UPDATE, READ/WRITE** and **CONTROLLER**

READ ONLY, WRITE ONLY, UPDATE and READ/WRITE modes allow for automation of the 328's internal parameters, such as fader levels, pan positions, EQ settings and routing.

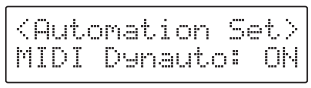
When in CONTROLLER automation mode, automation of all 'internal' parameters is disabled and the user definable MIDI Controller Bank becomes an automatable surface. This mode can be used if you wish to configure the 328's MIDI Controller Bank to be an automatable control surface for a sequencer package.

MIDI DYNAUTO: ON/OFF

When MIDI Dynauto is set to ON, the 328 will respond to and transmit MIDI automation data, as set in the Mode menu (see below)

When set to OFF the 328 will not transmit or respond to incoming MIDI automation data, regardless of the Automation Mode set below.

Use the PARAM encoder to set MIDI Dynauto to ON or OFF.



Press ▼ arrow key to set the Automation Mode.

MODE:

READ ONLY, WRITE ONLY, UPDATE, READ/WRITE AND CONTROLLER

Use the PARAM encoder to select the different modes.

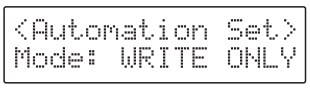
READ ONLY



In READ ONLY mode the 328 will respond to incoming automation data being sent from a MIDI recording device, but will not transmit any automation data from the MIDI Out port.

This mode is useful for playing back an automated mix for final mix down without the danger of any new data being accidentally recorded.

WRITE ONLY



In WRITE ONLY mode the 328 will only transmit automation data from the MIDI Out port. It will not respond to automation data coming back form a MIDI recording device.

This mode is useful for applications where more than one version of the same event might need to be recorded for later comparison e.g. the stereo 'fade-out' at the end of a song. A number of different 'takes' of the stereo fade-out could be quickly recorded to separate tracks of a MIDI recorder without any prerecorded versions being sent back to the 328.

UPDATE



UPDATE mode sets all controls to act as in READ ONLY mode, described above. Adjusting any console control will instantly put that control individually into WRITE ONLY mode (see above), ignoring any incoming MIDI automation data specific to it. Any unadjusted parameters continue to respond to incoming MIDI data at the MIDI In port.

Any adjusted controls will not enter a 'read' state mode until READ ONLY or READ/WRITE mode is reselected.

While UPDATE mode is selected, the data received at the MIDI In port is duplicated at the MIDI Out port, although data relating to 'updated' controls is replaced with the new automation data. In this way, UPDATE mode allows on the fly alteration of previously recorded MIDI data.

As incoming data is merged with the outgoing data, to avoid any duplication of data any section of an automation take that is updated should be deleted and replaced with the updated automation pass.

NOTE: When in UPDATE mode you should not attempt to grab a fader and adjust it when the motor is on. Instead you should put the E-Strip into LEVEL mode and automate using the rotary encoders.

READ/WRITE



Selecting READ/WRITE will put the console into true bi-directional automation mode. Automation data is transmitted from the MIDI Out port and the console is set to respond to data received at the MIDI In port.

CONTROLLER



Select CONTROLLER mode if you wish to disable automation of 328 'internal' controls and enable automation of the MIDI Controller Bank.

Use the PARAM encoder to set the Automation Mode and press EXIT/NO to return to the main menu.



When the LCD is in SELECT mode, pressing the ◀ and ▶ cursor keys simultaneously will toggle the automation mode between READ ONLY and READ/WRITE. As 328 automation employs the use of a number of MIDI Continuous Controllers, you should be careful not to alter the setup of any other connected MIDI equipment by moving a 328 fader, for example. Having recorded an automation take in READ/WRITE mode into a sequencer, you can put the desk quickly and easily back into READ ONLY mode to ensure that MIDI data is received but not transmitted.

5.17 CHAN COPY SETUP (CHANNEL COPY SETUP)

The Channel Copy Setup menu is used to set up which channel settings will be duplicated when copying settings from one channel to another.

Press the ENTER/YES button to enter the Channel Copy Setup menu.

The following pages can be accessed using the ▲▼ arrow keys, and selected ON/OFF using the PARAM encoder.

- **Copy Fader : ON/OFF** Fader position will be copied (default ON)
- **Copy EQ : ON/OFF** EQ settings will be copied (default ON)
- **Copy Auxes: ON/OFF** Aux send 1-4 and FX send 1-2 settings are copied (default ON)
- **Copy Routing : ON/OFF** Routing selection is copied (default ON)
- **Pan & Phase: ON/OFF** Pan position and phase are copied (default OFF)

COPYING CHANNELS

Once you have selected which settings you want to copy from one channel to another you'll probably want to know how to transfer the data, well here goes!

As an example lets assume we want to copy the settings we have made to a backing vocalist on Channel 5 to three other backing vocalists on Channels 6, 7 and 8.

- Press the MENU button and using the ▲▼ arrow keys or the PARAM encoder, select the **Chan Copy Setup** menu.

- Press the ENTER/YES button and use the ▲▼ arrow keys select the channel settings and the PARAM encoder to set them to ON (will be copied) or OFF (will not be copied).

```
< Copy Setup  >
Copy Fader  : ON
```

- Hold down the SELECT button on MIC/LINE Channel 5 (backing vocalist 1).

- Now press the SELECT buttons on the channels you want to copy the settings to i.e. MIC/LINE Channel 6, 7 and 8 (backing vocalists 2, 3 and 4)

While still holding the source channel SELECT switch, you can deselect copied channels to return them to their previous, uncopied state. Once the SELECT switch for the source channel has been released, however, channel parameters are copied destructively. Pressing UNDO will clear a Channel Copy.

Press EXIT/NO to return to the main menu.

5.18 CHAN LINK SETUP (CHANNEL COPY SETUP)

The Channel Link Setup menu is used to configure which channel settings will be duplicated when linking two channels together. This mode is most commonly used for creating 'Stereo Pairs' of channels.

Note: Only adjacent ODD/EVEN numbered channels can be linked i.e. 1&2, 3&4, 5&6 etc. Settings will always be copied from the ODD numbered (left hand) channel.

Note: Alterations made to the Chan Link Setup menu will have effect only on subsequently linked channels.

Press the ENTER/YES button to enter the Channel Link Setup menu.

The following pages can be accessed using the ▲▼ arrow keys, and selected ON/OFF using the PARAM encoder.

- **Link Fader : ON/OFF** Fader position will be linked (default ON)
- **Link EQ : ON/OFF** EQ settings will be linked (default ON)
- **Link Auxes: ON/OFF** Aux send 1-4 and FX send 1-2 settings are linked (default ON)
- **Link Routing : ON/OFF** Routing selection is linked (default ON)
- **Pan & Phase: ON/OFF** Pan position and phase is linked (default OFF)

LINKING CHANNELS

Once you have selected which settings you want to link from one channel to another you'll probably want to know how to link the channels, well here goes!

As an example lets assume we want to copy the settings we have made to a left side over head microphone on a drum kit, to the right side over head microphone and link them so that they operate as a stereo pair.

We will assume that the left side overhead microphone is on Channel 1 and the right side over head microphone on Channel 2.

- Press the MENU button and using the ▲▼ arrow keys or the PARAM encoder, select the **Chan Link Setup** menu.

- Press the ENTER/YES button and use the ▲▼ arrow keys select the channel settings and the PARAM encoder to set them to ON (will be copied) or OFF (will not be copied).

```
< Link Setup  >
Link Fader  : ON
```

- Hold down the GROUP LINK button on MIC/LINE and then press the SELECT button for either Channel 1 or Channel 2.

- Now release the GROUP LINK button. Channels 1 and 2 are now linked.

Note: When faders are linked, you should move only one of the pair simultaneously. The 'slave' fader will follow. Any determinable lag in the slave fader is not present at audio level.

Press EXIT/NO to return to the main menu.



Generally when linking adjacent channels to make a stereo pair, it is preferable to leave the 'Pan & Phase' setting to the default state of OFF to maintain the stereo position of the 2 channels that are being linked.

5.19 USER SETUPS

The 328 has 27 User Setup memory locations. A User Setup is similar to a Snapshot in that it stores console parameters, although the User Setup will store the majority of menu settings also. Recall of a User Setup will therefore restore all aspects of the console at the point it was stored, including wordclock and Tape Port configuration. 26 User Preset locations can be stored by the user, User Preset #27 being the Factory Default settings. Recalling the Factory Default settings from this menu has the same function of the soft reset available on boot up.

Unlike Snapshots, a User Setup cannot be assigned a Timecode address for recall against Timecode or for transmitting a locate point to a Tape Machine on recall. Write Protect is always enabled.

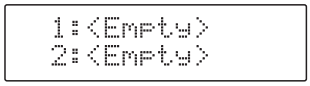
User Setups can be recalled remotely with the use of MIDI Program Changes.

The On Loss and Default settings found in the Clock Source Select menu are not stored in a User Setup.

STORING USER SETUPS

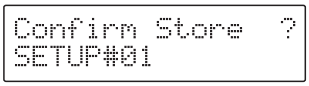
User Setups are stored in the same way as Snapshots:

- Press the MENU button.
- Use the ▲▼ arrow keys or the PARAM encoder to scroll through the MENU options until you reach 'User Setups'.
- Press ENTER/YES to enter the 'User Setups' library.
- Use the ▲▼ arrow keys or the PARAM encoder to select an empty library location.



- Press the STORE button in the SNAPSHOTS panel to store the User Setup.

If you are overwriting a User Setup, the LCD will display a prompt for confirmation.



Press ENTER/YES to confirm.

RECALLING USER SETUPS

User Setups are recalled by using the Snapshot RECALL button:

- Press the MENU button.
- Use the ▲▼ arrow keys or the PARAM encoder to scroll through the MENU options until you reach 'User Setups'.
- Press ENTER/YES to enter the 'User Setups' library.
- Use the ▲▼ arrow keys or the PARAM encoder to select a User Setup that you would like to recall.

Press the RECALL button in the SNAPSHOTS panel to recall the User Setup. The LCD will indicate that the User Setup has been recalled.

If MIDI Recall is set to ON for the User Setup, the appropriate MIDI Program Change message will be transmitted from the MIDI Out port.

RECALLING THE FACTORY DEFAULT SETTINGS

When recalled, User Setup #27 will restore the console to its Factory Default configuration, without deleting any stored Snapshots, Presets or User Setups. Recalling the Factory Default settings in this way is identical to the soft reset on booting (see **Section 2**).

- Press the MENU button.
- Use the ▲▼ arrow keys or the PARAM encoder to scroll through the MENU options until you reach 'User Setups'.
- Press ENTER/YES to enter the 'User Setups' library.
- Use the ▲▼ arrow keys or the PARAM encoder to select User Setup #27: Factory Defaults.



Press the RECALL button in the SNAPSHOTS panel to recall the Factory Default settings. The LCD will indicate that the User Setup has been recalled.



NAMING USER SETUPS

- Press the MENU button.
- Use the ▲▼ arrow keys or the PARAM encoder to scroll through the MENU options until you reach 'User Setups'.
- Press ENTER/YES to enter the 'User Setups' library.
- Use the ▲▼ arrow keys or the PARAM encoder to select a User Setup that you would like to name.
- Press the ENTER/YES button and the LCD display will read



- You may now enter a 12-character name using the ◀ ▶ arrow keys to navigate and the PARAM encoder to select the letter or number you want to use.
- When you are finished, press the ENTER key to store the name.

Characters can be deleted in the following ways:

- To delete the selected character and move the cursor one character to the right, press and hold the ◀ cursor key and press the ▶ cursor key once for each character to be deleted
- To delete the selected character and move the cursor one character to the left, press and hold the ▶ cursor key and press the ◀ cursor key once for each character to be deleted

ENABLING USER SETUP MIDI RECALL

User Setup locations are assigned MIDI Program Changes as follows:
With MIDI Recall set to ON, the User Setup will transmit the MIDI Program Change from the MIDI Out port when recalled. The User Setup can also be remotely recalled when its associated MIDI Program Change is received at the

User Setup No.	MIDI Program Change
1	100 (64H)
2	101 (65H)
...	...
25	124 (7CH)
26	125 (7DH)
27	Not recallable

MIDI In port.

To set MIDI Recall ON or OFF for a User Setup,

- Press the MENU button.
- Use the ▲▼ arrow keys or the PARAM encoder to scroll through the MENU options until you reach 'User Setups'.
- Press ENTER/YES to enter the 'User Setups' library.
- Use the ▲▼ arrow keys or the PARAM encoder to select the User Setup and press ENTER/YES to edit the parameters.
- Use the ▲▼ arrow keys to select the MIDI Recall page:



- Use the PARAM encoder to set MIDI Recall to ON or OFF

5.20 DISPLAY SETUP

The 328's LCD Contrast and LED Brightness can be altered by accessing 'hidden' Display Setup menu pages.

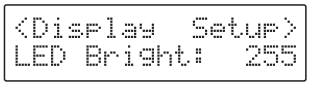
To make adjustments to the LCD Contrast and/or the LED Brightness, press the and cursor keys simultaneously while the top level MENU pages are active in the LCD display.

- Use the ▲▼ arrow keys to select the LCD Contrast menu.



- Use the PARAM encoder to adjust the LCD Contrast from 0-63.

- Press the ▼ arrow key to set the LED Brightness.



- Use the PARAM encoder to adjust the LED Brightness from 0 (off) to 255 (full). All LEDs on the console, including the illuminated switches are affected.

- Press EXIT/NO to return to the main Menu pages.

These settings are stored within a User Setup.

4

Automation Techniques

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Part 2 - Quick Start Guides 138

PART 1 - DIGITAL 328 SNAPSHOT AND DYNAMIC AUTOMATION

The Digital 328 is capable of both Snapshot Automation and Dynamic Automation. Snapshot Automation can be carried out either by the recall of Snapshots against Timecode or by transmitting appropriate MIDI program Change messages to the console. Dynamic Automation allows movements of any automatable Digital 328 parameter to be recorded and played back from any MIDI sequencer.

Snapshot Automation

RECALLING SNAPSHOTS AGAINST TIMECODE

Each Snapshot can be allocated a Timecode Address. For details on the different ways in which this can be done, see **Section 3J Part 2**. When the Digital 328 is configured to receive incoming Timecode or is generating timecode internally, the console can be set to recall Snapshots with an assigned Timecode Address. When the Timecode Display passes through the relevant frame the Snapshot will be recalled. In this way, the console can be automated without the need for a MIDI sequencer.

To set SNAP TO TIME globally for subsequently stored Snapshots, refer to **Section 3J Part 5.15**. Alternatively, if you have already created Snapshots to which you wish to allocate Timecode Addresses, refer to **Section 3J Part 2**. To view the list of stored Snapshots by assigned Timecode Address, refer to **Section 3J Part 5.15**.

Once you have configured stored Snapshots with Timecode Addresses, set up the console to receive incoming SMPTE or MIDI Timecode from your Tape Machine (see **Section 3J Part 5.13**). Press Play on the Digital 328 Transport Controls or on the remote Tape Machine to run the Digital 328 Timecode Display. When a frame to which a Snapshot is assigned is passed, the console will automatically recall the Snapshot.

RECALLING SNAPSHOTS WITH MIDI PROGRAM CHANGE MESSAGES

Snapshot locations 1-100 and User Setup locations 1-26 are configured with pre-defined MIDI Program Change messages. In the same way that a MIDI keyboard patch can be remotely recalled from a MIDI sequencer, a Digital 328 Snapshot or User Setup can be recalled.

Note: Snapshot recall via MIDI Program Changes does not require MIDI Dynauto to be switched On (see **Section 3J Part 5.16**).

The MIDI Program Changes against which Snapshots and User Setups are recalled are defined as follows:

Snapshot/User Setup	MIDI Program Change
Snapshot #1	0 (00H)
Snapshot #2	1 (01H)
…	…
Snapshot #99	98 (62H)
Snapshot #100	99 (63H)
User Setup #1	100 (64H)
User Setup #2	101 (65H)
…	…
User Setup #25	124 (7CH)
User Setup #26	125 (7DH)

The MIDI Channel on which Program Changes must be received is specified on the MIDI Channel page of the User Options menu (see **Section 3J Part 5.2**). If OMNI mode is set to ON, any MIDI Program Change received at the Digital 328 MIDI In port will instruct the console to recall the corresponding Snapshot, regardless of the MIDI Channel on which it was transmitted.

In practice, Snapshot automation with MIDI Program Change messages can be carried out in one of two ways. Either MIDI Program Changes can be written into the sequencer or manually recalled Snapshots can be recorded into the sequencer on the fly as the sequence is played back.

In both instances, prepare and store Snapshots that are appropriate to specific points of a MIDI sequence. To insert MIDI Program Changes manually into the sequence, consult your sequencer documentation and the table above. For example, if you wished to recall stored Snapshot #5, firstly ensure that MIDI Recall is set to ON for that Snapshot (see **Section 3J Part 2**). Next insert MIDI Program Change 4 (04H) into a Digital 328 MIDI track at the point at which you wish the Snapshot to be recalled. As the sequence plays through that point, the MIDI Program Change will be transmitted to the Digital 328, which will recall Snapshot #5.

Note: Some sequencers can be set to refer to MIDI Program Changes as 1-128 rather than as 0-127. If your sequencer is capable of this, it can be helpful when programming MIDI Program Changes into the sequencer. Consult your sequencer documentation for more information.

The second method of Snapshot automation makes use of the MIDI Program Change transmitted from the Digital 328 MIDI Out port when the corresponding Snapshot is recalled manually from the console surface. In the same way as a MIDI keyboard is used to input notes into the sequencer, so can the Digital 328 be used to input relevant MIDI Program Change information. Connect the Digital 328 MIDI Out to the MIDI In of the sequencer, set a Digital 328 MIDI track to record and manually recall the Snapshots as the track passes. On replay of the track, the MIDI Program Changes will be retransmitted to the Digital 328, remotely recalling the Snapshots.

Note: The appropriate MIDI Program Change message is always transmitted from the Digital 328 MIDI Out port when a Snapshot is recalled, regardless of the MIDI Recall On/Off state.

Dynamic Automation

The Digital 328's automatable parameters are listed in Appendix 1. By referring to the table, you will see that each parameter is assigned a specific MIDI Continuous Controller on a specific MIDI channel. Due to the large number of automatable parameters, all available 16 MIDI Channels are employed. If a Write mode is selected in the Automation Setup menu (see **Section 3J Part 5.16**), adjusting an automatable parameter will transmit the appropriate values of the corresponding MIDI Continuous Controller from the MIDI Out port. This enables any automation movements to be recorded into a MIDI sequencer. When a Read mode is selected in the Automation Setup menu, reception of relevant Continuous Controller values at the MIDI In port will instruct the Digital 328 to automate the corresponding parameter accordingly.

Refer also to **Section 3J Part 5.16** for more information on the automation modes.

READ/WRITE AUTOMATION MODE

In practice, READ/WRITE mode allows bi-directional communication with the host sequencer. Automation data is transmitted from the MIDI Out port while data received at the MIDI In port is interpreted by the console. For simple dynamic automation, READ/WRITE mode can be used without the need to change modes.

READ ONLY AUTOMATION MODE

To read recorded automation data from the sequencer without transmitting data, READ ONLY mode should be selected. It is advisable to put the console into this mode when you have data recorded but wish to work on other sections of your MIDI sequence. This practice will prevent MIDI data from being transmitted from the console 'thru' the sequencer to a connected synthesiser, for example. Employing standard MIDI Continuous Controller messages means that other connected MIDI equipment may be altered by adjusting a Digital 328 parameter, which can result in unintended patch editing! Putting the console into READ ONLY automation mode will avoid this.

WRITE ONLY AUTOMATION MODE

You may wish to record a number of automation passes over the same section of a track, so that you can audition each individually and decide upon the best take. If possible, put the sequencer into a looped record mode, during which it will create an additional track each time the loop is begun. WRITE ONLY mode prevents the previously recorded passes from interfering with the next looped pass. Once a number of passes have been made, the console should be put into a Read mode to audition each pass in turn.

UPDATE AUTOMATION MODE

The fourth automation mode allows previously recorded automation data to be adjusted without the need to delve into the sequencer's editing pages to adjust Continuous Controller values. UPDATE mode acts as READ ONLY mode until an

automatable parameter is adjusted on the console. The adjusted parameter(s) will then immediately enter WRITE ONLY mode until READ ONLY or READ/WRITE is reselected. The remainder of the console's automatable parameters will remain in READ ONLY mode until adjusted.

To use UPDATE mode, isolate the region of the automation track which requires updating and create a new Digital 328 MIDI track. Arm this track and put the sequencer into record. Make any adjustments as required. Due to the motorised nature of the Digital 328 faders, if you need to adjust fader automation, the E-Strip encoders should be used in Level mode.

Once the automation update has been made, you must delete the section of previously recorded data which has been replaced. When set to UPDATE mode, the Digital 328 merges the incoming data with the outgoing data. The new pass will therefore contain both the old data and the new replaced data. To avoid transmitting conflicting automation data, only the new pass should be played back to the console.

FURTHER AUTOMATION TIPS

You must ensure that MIDI Thru is disabled for at least the Digital 328 MIDI port within your sequencer. Unlike MIDI synthesisers, the console cannot be put into a Local Off mode due to the way in which the motorised faders adjust the audio levels directly within the console.

Manually record a Snapshot recall or program into the sequencer the appropriate MIDI Program Change at the beginning of the MIDI sequence so that the console is synchronized at the start of the track. Alternatively the Automation MIDI dump can be used to transmit Continuous Controller values for all automatable parameters.

Set the sequencer to follow Continuous Controller values. In this way, picking up from the middle of an automation track will transmit the last recorded value for any automated parameters, synchronizing the console with the track.

The editing features of many sequencers allow Continuous Controller data to be edited or drawn. For a smooth fade, for example, you can consult the table in Appendix I and draw the required Continuous Controller into the sequencer. Playback of this data will then automate the required Digital 328 parameter.

Ensure that the sequencer is set not to transmit a Continuous Controller reset message on Stop - this will prevent unwanted messages being transmitted to the console which would otherwise respond to the zero value received.

Pressing the < and > cursor keys simultaneously while the LCD is in Select mode will switch automation mode between READ ONLY and READ/WRITE.

PART 2 -
QUICK START GUIDES

Emagic Logic Audio 4

The Digital 328 console is capable of the following functions when used in conjunction with Emagic Logic Audio version 4.x.

- Full recording and editing of Digital 328 dynamic automation data across multiple tracks
- Bi-directional communication with any programmed Digital 328 environment objects*
- Bi-directional control of the Logic Audio mixer from the Digital 328 MIDI Controller bank*
- Transport control and timecode display
- Control of compatible VST Plugin parameters from the Digital 328 MIDI Controller bank*
- Control of compatible VST Instrument parameters from the Digital 328 MIDI Controller bank*
- Remote request of 328 MIDI Dumps from within Logic*

* Note that a Logic Audio Environment layer must be correctly programmed or imported to enable these functions. For more information on the Environment, the documentation supplied with Logic Audio should be consulted.

A full environment for the Digital 328 is available for download from the Digital 328 website. It offers control of all automatable Digital 328 parameters and remote requests for System Exclusive data dumps.

For the configurations below, it is assumed that you have a working knowledge of Logic Audio for Mac or PC.

AUTOMATING THE DIGITAL 328 WITH LOGIC AUDIO

Firstly ensure that Digital 328 MIDI Dynauto is set to ON and that the console is in READ/WRITE automation mode.

LAUNCH LOGIC AUDIO

Open the Options | Settings | MIDI Settings window and set the 'Instrument with no MIDI Thru function' to Digital 328. If you have additional devices that require MIDI Thru to be disabled, such as a second Digital 328, you should download the MIDI Thru Off Environment layer from the Digital 328 website and follow the instructions.

Open the Environment window and create a new 328 layer. On this layer create a new Instrument. In the Object Parameters window, label the new instrument 'Digital 328', set the MIDI Out port correctly and set it to transmit on all MIDI channels.

Ensure that the 328 MIDI In port is cabled to the Sequencer Input object.

Return to the Arrange window within Logic.

Set a track to the Digital 328 instrument you have just created and click on Record on the Logic transport control to begin recording.

Record and play back an automation pass. Refer to **Section 4 - Automation Techniques** for more information.

For further automation passes, create additional Digital 328 tracks within Logic.

CONTROLLING LOGIC AUDIO FROM THE 328

Download the Logic Audio Digital 328 MIDI Controller Preset and related Logic Audio Environment layer from the Digital 328 website and follow the instructions. Alternatively, set the Digital 328 MIDI Controllers as follows (see **Section 3J Part 5.3**):

Controller Number	328 Controller	MIDI Channel	Continuous Controller ID
1	Fader 1	1	7
2	Fader 2	2	7
…	…	…	…
16	Fader 16	16	7
17	Encoder 1	1	10
18	Encoder 2	2	10
…	…	…	…
32	Encoder 16	16	10
33	Solo 1	1	3
34	Solo 2	2	3
…	…	…	…
48	Solo 16	16	3
49	Mute 1	1	9
50	Mute 2	2	9
…	…	…	…
64	Mute 16	16	9

The MIDI Controller Preset and Environment layer provide bi-directional control of the fader, pan controls, mute and solo for Audio Objects 1-16 from the Digital 328 MIDI Controller bank. If you wish to alter which audio faders are controlled, you must have a working knowledge of the Logic Environment.

CONTROLLING LOGIC TRANSPORT CONTROLS FROM THE 328

Within the Logic Environment, ensure that the Digital 328 MIDI input port is connected to the Sequencer Input object.

The 328 Tape Machine Setup should be configured to transmit MIDI Note On commands from the Transport Controls (see **Section 3J Part 5.13**).



The MIDI Notes assigned to the Digital 328 Transport Controls do not have to be assigned to Logic Transport Controls. You could, for example, set the Loc 1 switch to open the Matrix Editor within Logic.

Open the Options | Settings | Key Commands window within Logic.

Highlight the Record key command and click the Learn MIDI button. Press Record on the Digital 328 Transport Controls.

Do the same for Play, Stop, Rewind, Forward, Goto Left Locator and Goto Right Locator.

Disable the Learn MIDI button and click MIDI Remote.

TRANSMITTING MIDI TIMECODE TO THE DIGITAL 328

Ensure that the 328 is set to respond to incoming MIDI Timecode (see **Section 3J Part 5.13**).

Open the Options | Settings | Synchronization Settings window and click the MIDI tab.

In the Transmit MTC MIDI Port settings menu, set the MIDI Out port to which the 328 is connected and check the box to enable.

Steinberg Cubase VST 5

The Digital 328 console is capable of the following functions when used in conjunction with Steinberg Cubase VST.

- Full recording and editing of Digital 328 dynamic automation data across multiple tracks
- Control of the 328 from Cubase Mixer Map *
- Bi-directional control of the VST mixer from the Digital 328 MIDI Controller bank
- Transport control and timecode display
- Control of compatible VST Plugin parameters from the Digital 328 MIDI Controller bank
- Control of compatible VST Instrument parameters from the Digital 328 MIDI Controller bank

* Note that a Cubase VST Mixer Map must be correctly programmed or loaded to enable this function. For more information on the Mixer Maps, the documentation supplied with Cubase VST should be consulted. Mixer Maps for the Digital 328 is available for download from the Digital 328 website.

For the configurations below, it is assumed that you have a working knowledge of Cubase VST.

AUTOMATING THE DIGITAL 328 WITH CUBASE VST

Firstly ensure that Digital 328 MIDI Dynauto is set to ON and that the console is in READ/WRITE automation mode.

Launch Cubase VST.

Open a song, and create a new MIDI track.

Go to Options | Midi Setup | System and uncheck the MIDI Thru Enabled box.

In the Track Inspector set the track output to the Digital 328 MIDI Port, and set the track to output on "any" MIDI Channel. This method will ensure the data recorded is sent out on the correct channel.

Go to Options | Midi Setup | System and under the 'Input From' section click the pull down window and ensure your Digital 328 MIDI Input port is ticked.

Click on Record on the Cubase VST transport control to begin recording. Now make your automation moves.

Record and play back an automation pass. Refer to **Section 4 - Automation Techniques** for more information.

For further automation passes, create additional Digital 328 tracks within Cubase VST.

CONTROLLING CUBASE VST FROM THE 328

Download the Cubase VST Digital 328 MIDI Controller Preset the Digital 328 website and follow the instructions.

The MIDI Controller Preset provides bi-directional control of the fader, pan controls, mute and solo for Cubase VST Audio Channels 1-16, 17-32, 33-48, 49-64 from the Digital 328 MIDI Controller bank. If you are using linked consoles you can have the slave also controlling the VST Mixer. Using the Generic Remote you can also setup the Digital 328 MIDI Controller bank to control VST Channel EQ In/Out, EQ Gain, EQ Frequency, EQ Quality, FX Send Levels and much more. Please refer to Steinberg Cubase VST documentation for more information.

CONTROLLING CUBASE TRANSPORT CONTROLS FROM THE 328

Within Cubase, go to Edit | Preferences | Key Commands and select the 'Transport' tab. Ensure Remote Active and Remote Key are both ticked and that Remote Key is set to "C6"

On the Digital 328 go to the Tape Mach Setup menu, and configure the Digital 328 to transmit Note On commands from the Transport Controls (see **Section 3J Part 5.13**)

TRANSMITTING MIDI TIMECODE TO THE DIGITAL 328

Ensure that the 328 is set to respond to incoming MIDI Timecode (see **Section 3J Part 5.13**).

Within Cubase, go to Options | Synchronisation and ensure that the Frame rate matches the Frame rate set on the Digital 328.

Open the pull down menu labeled 'Midi Timecode' and ensure the Digital 328 MIDI port is ticked. This will tell Cubase VST to send MIDI Timecode to the Digital 328.

MOTU Digital Performer 2.7

The Digital 328 console is capable of the following functions when used in conjunction with Digital Performer version 2.7 or later.

- Full recording and editing of Digital 328 dynamic automation data across multiple tracks
- Bi-directional communication with any pre-programmed Digital 328 objects
- Control of Digital Performer's Mixing Board from the Digital 328 MIDI Controller bank
- Transport control and timecode display
- Remote request of 328 MIDI Dumps from within Digital Performer

A Digital Performer Custom Console for the Digital 328 is available for download from the Soundcraft website. It offers control of several Digital 328 parameters and may be a useful tool for productions.

For the configurations below, it is assumed that you have a working knowledge of Digital Performer, FreeMIDI, and the Macintosh environment.

AUTOMATING THE DIGITAL 328 WITH DIGITAL PERFORMER

Verify that Digital 328 MIDI Dynauto is set to ON and that the console is in READ/WRITE automation mode. Also make sure that MIDI In and Out connections are made between the 328 and a MIDI interface.

Launch FreeMIDI and create a 'New' device. Name this device "Digital 328" and set parameters as follows:

Transmit Channels 1-16	Receives MTC
Receive Channels 1-16	Transmits MTC
Controller	Transmits MMC

Save this FreeMIDI setup and exit FreeMIDI.

Launch Digital Performer.

Disable MIDI Patch Thru under the Basics Menu. If this is not set, MIDI feedback will result, preventing smooth fader movement.

In the Tracks window in Digital Performer, create a new MIDI track and set its output to 'Digital 328-1'. Click on Record in the transport control to begin recording.
Record and play back an automation pass. Refer to **Section 4 - Automation Techniques** for more information. Also, refer to the **328 Automation Specification** to match automation parameters to the correct MIDI channels.

For further automation passes, create additional Digital 328 tracks within Digital Performer.

CONTROLLING DIGITAL PERFORMER FROM THE 328

Download the Digital Performer MIDI Controller Preset for the 328 from the Digital 328 website. Dump the file into the 328 according to the attached instructions - or set the Digital 328 MIDI Controllers as follows (see **Section 3J Part 5.3**):

Controller Number	328 Controller	MIDI Channel	Continuous Controller ID
1	Fader 1	1	1
2	Fader 2	1	2
…	…	…	…
16	Fader 16	1	16
17	Encoder 1	1	17
18	Encoder 2	1	18
…	…	…	…
32	Encoder 16	1	32

Next, go to the Mixing Board page within Digital Performer. In the Mixing Board sub-menu, select 'Attach MIDI Controller'.

Immediately click on a desired fader or pan control in Digital Performer - the control will become surrounded with a red 'frame' indicating that it is set to receive a Continuous Controller ID.

Put the console into MIDI Controller bank, and move the desired fader. If you inadvertently move a fader while in a mode other than MIDI Controller mode, you may not achieve satisfactory results.

If your settings are correct, the red 'frame' in Digital Performer will turn light green, indicating that the controller has been successfully attached.

To add more controllers, immediately repeat the above steps.

To end and confirm choices, click on any other window, or hit ENTER on your computer keyboard .

CONTROLLING DIGITAL PERFORMER TRANSPORT CONTROLS FROM THE 328

Due to the nature of Transport Control Settings and Digital Performer, please refer to the Digital Performer Setup Guide for a detailed explanation. It can be downloaded from the Digital 328 website.

TRANSMITTING MIDI TIMECODE TO THE DIGITAL 328

Ensure that the 328 is set to respond to incoming MIDI Timecode (see **Section 3J Part 5.13**).

Under the Basics Menu in Digital Performer, select 'Transmit Sync'. MIDI Time Code will now be routed to the Digital 328.

USING THE DIGITAL PERFORMER CUSTOM CONSOLE

At this time, only certain parameters work well for two-way communication. These are included in the Custom Console marked "328 Two-Way". A separate Custom Console is included for every parameter on the console, and is marked "328 One-Way". The one-way console is to be used to send commands only to the 328 from Digital Performer.

Simply launch the Custom Console window in Digital Performer. If the FreeMIDI and Digital Performer connections have been properly made, operation should be enabled.

Cakewalk Pro Audio 9

The Digital 328 console is capable of the following functions when used in conjunction with Cakewalk Pro Audio 9.

- Full recording and editing of Digital 328 dynamic automation data across multiple tracks
- Bi-directional communication with any programmed Cakewalk StudioWare Panels *
- Transport control and timecode display
- Remote request of 328 MIDI Dumps from within Cakewalk Sysex Manager *

* Note that a Cakewalk StudioWare Panel and the Sysex Manager must be correctly programmed or imported to enable these functions. For more information on StudioWare Panels and the Cakewalk Sysex Manager, the documentation supplied with Cakewalk Pro Audio should be consulted.

A full StudioWare Panel for the Digital 328 is available for download from the Digital 328 website. It offers control of all automatable Digital 328 parameters.

For the configurations below, it is assumed that you have a working knowledge of Cakewalk Pro Audio 9.

AUTOMATING THE DIGITAL 328 WITH CAKEWALK PRO AUDIO

Firstly ensure that Digital 328 MIDI Dynauto is set to ON and that the console is in READ/WRITE automation mode.

Launch Cakewalk Pro Audio.

Open the Options | Project Options window and select the MIDI Input tab. Set Echo Mode (MIDI Thru) function to OFF when automating the 328.

Note: Echo Mode should be set to ON and the Digital 328 Automation Mode set to READ ONLY when recording MIDI data from remote MIDI input device such as a MIDI keyboard.

Ensure that the Digital 328 MIDI In port is active in the Options | MIDI Devices window.

Set a track to the Digital 328 MIDI Out port and click Record on Cakewalk transport control to begin recording.

Record and play back an automation pass. Refer to **Section 4 - Automation Techniques** for more information.

For further automation passes, create additional Digital 328 tracks within Cakewalk Pro Audio.

Digidesign Pro Tools 5

The Digital 328 console is capable of the following functions when used in conjunction with Pro Tools.

- Full recording and editing of Digital 328 dynamic automation data across multiple tracks
- Control of the Pro Tools mixer from the Digital 328 MIDI Controller bank
- Transport control and timecode display
- Control of compatible TDM Plugin parameters from the Digital 328 MIDI Controller bank
- Control of all five Aux sends in a TDM system from the Digital 328 MIDI Controller bank

For the configurations below, it is assumed that you have a working knowledge of Pro Tools, OMS, and the Macintosh.

AUTOMATING THE DIGITAL 328 WITH PRO TOOLS

Verify that Digital 328 MIDI Dynauto is set to ON and that the console is in READ/WRITE automation mode. Also make sure that MIDI In and Out connections are made between the 328 and a MIDI interface.

Launch OMS and create two 'New' devices. For the first device select "Soundcraft - Digital 328" and set parameters as follows:

Is Controller
Is Multitimbral
Transmit Channels 1-16
Receive Channels 1-16
Receives MTC
Transmits MTC
Receives MMC
Transmits MMC
Device ID 1

Name the second device "Unused 328" and select the same properties as above. You will need to create this unused device even if you do not have a second 328. For more details, download the Pro Tools setup guide from our website.

Save this OMS setup and exit OMS.

Launch Pro Tools.

Disable MIDI Patch Thru under the MIDI menu. Otherwise MIDI feedback will result, preventing smooth fader movement.

Enable the 328 as a valid Input Device under the MIDI Menu within Pro Tools.

In the Edit window in Pro Tools, create a new MIDI track and set its output to 'Digital 328-1'. Click on Record in the transport control to begin recording.

Record and play back an automation pass. Refer to **Section 4 - Automation Techniques** for more information. Also, refer to the **328 Automation Specification** to match automation parameters to the correct MIDI channels.

For further automation passes, create additional Digital 328 tracks within Pro Tools.

CONTROLLING PRO TOOLS FROM THE 328

Download the Pro Tools MIDI Controller Preset for the 328 from the Digital 328 website. Dump the file into the 328 according to the attached instructions - or set the Digital 328 MIDI Controllers as follows (see **Section 3J Part 5.3**)

Controller Number	328 Controller	MIDI Channel	Continuous Controller ID
1	Fader 1	15	1
2	Fader 2	15	2
…	…	…	…
8	Fader 8	15	8
9	Fader 9	16	1
10	Fader 10	16	2
…	…	…	…
16	Fader 16	16	8
17	Encoder 1	15	9
18	Encoder 2	15	10
…	…	…	…
24	Encoder 8	15	16
25	Encoder 9	16	9
26	Encoder 10	16	10
…	…	…	..
32	Encoder 16	16	16

Next, in Pro Tools, go to the Setups | Peripherals | MIDI Controllers Menu. Select 'PC-1600' for the first two MIDI Controller personalities.

On the first personality, enable control from the 328, channel 15. Send the output to 328 channel 15.

On the second, enable control from the 328, channel 16. Send the output to the 'Unused 328' device.
When you are finished, exit this menu - control is now enabled.

If you experience trouble, check your connections and retry. Refer to the Soundcraft/Pro Tools Setup Guide on our website for more detailed setup information.

FADER BANK SHIFTING, PLUG-IN AND AUX SEND CONTROL

Note: Only TDM systems can take advantage of Plug-in and Aux send control

On the Digital 328 under Tape Machine Setup, choose 'Custom Machine' and set it as follows:

Timecode src:	MTC
Status:	Slave
MIDI:	Note On
Play:	E -2
Stop:	Eb -2
Record:	F -2
Rewind:	C -1
FF:	C# -1
Locate 1:	PTL+ (all the way up)
Locate 2:	PTL -
Shift Key:	OFF (all the way up)
MIDI Channel:	15
Frame Rate:	30

With these settings, pressing LOC 1 moves forward between Fader & Pan control, Plug-in control, Fader and Aux 1 send, Fader and Aux 2 send, Fader and Aux 3 send, Fader and Aux 4 send, Fader and Aux 5 send, and back again. LOC 2 moves backward between these settings.

Rewind and Fast Forward buttons become 'bank shift' controls. Pressing Fast Forward on the 328 moves channel banks to the right 16 at a time. Rewind moves them to the left 16 at a time.

Note: Play, Record and Stop Commands only work while Plug-In control is activated. Using the MMC panel on the 328 in 'Note On' mode disables MMC transmission from the 328, but timecode display will still be active. Refer to our Setup Guide for Pro Tools for more information.

This MIDI Controller Preset provides one-way communication for most controls in Pro Tools. If you wish to alter which channels are controlled, you must have a working knowledge of the Pro Tools environment.

Note: Take care when using MIDI Controllers or 328 automation with synthesizers or other MIDI equipment, as MIDI Controllers routed to these objects may cause unwanted effects. It is a safe practice to leave MIDI Dynauto OFF and keep MIDI objects out of Record until they are needed.

CONTROLLING PRO TOOLS TRANSPORT CONTROLS FROM THE 328

Due to the nature of Transport Control Settings and Pro Tools, please refer to the Pro Tools Setup Guide for a detailed explanation. Download it from the Soundcraft website.

TRANSMITTING MIDI TIME CODE TO THE DIGITAL 328

Ensure that the 328 is set to respond to incoming MIDI Timecode (see **Section 3J Part 5.13**).

Under the Session Setup Window in Pro Tools, check 'MTC To Port' and select the Digital 328 as the device. MIDI Time Code will now be routed to the Digital 328.

Soundscape Console Manager 1.3

The Digital 328 console can be used as a remote control surface for Soundscape Console Manager for Soundscape SSHDR, R.Ed and Mixtreme software packages.

Console Manager 1.3 allows the system to be set up in one of 2 ways:

- 'Open Loop', in which the 328 MIDI Controller bank controls the first 16 Faders and Pan controls within the Soundscape mixer
- 'Closed Loop' in which the 328 both controls and is controlled by the 16 Faders, Pan controls, Solo and Mute switches within the Soundscape mixer

For the configurations below, it is assumed that you have a working knowledge of the Soundscape editing software and Console Manager.

CONFIGURING CONSOLE MANAGER / SOUNDSCAPE EDITING SOFTWARE

Open Console Manager and add a MIDI Device. Select the MIDI Input and Output ports to which the Digital 328 is connected. name the Device appropriately.

Select the required Console Interface from the list of possible interfaces:

Spirit Digital 328 Closed Loop Interface
Spirit Digital 328 Open Loop Interface

For the selected interface, set the MIDI Device, as configured above.

Check the box next to the installed interface. The MIDI Device should activate.

Start the Soundscape SSHDR, R.Ed or Mixtreme Software.

Within the SSHDR and R.Ed software packages, select

Settings | Preferences | Connect to Console Manager.

Within the Mixtreme software package, select

Settings | Connect to Console Manager.

CONFIGURING THE DIGITAL 328 FOR THE OPEN LOOP INTERFACE

Download the Soundscape Console Manager 1.3 Open Loop Interface MIDI Controller Preset from the Digital 328 website and follow the instructions. Alternatively, set the Digital 328 MIDI Controllers as follows (see **Section 3J Part 5.3**):

Controller Number	328 Controller	MIDI Channel	Continuous Controller ID
1	Fader 1	1	7
2	Fader 2	2	7
…	…	…	…
16	Fader 16	16	7
17	Encoder 1	1	10
18	Encoder 2	2	10
…	…	…	…
32	Encoder 16	16	10

When using the Digital 328 Open Loop Interface, the faders and pan pots of the Soundscape mixer will appear red until the 328 fader/encoder passes through the value to which they are set. Once the 328 MIDI fader/encoder has passed through this value, the Console Manager object will follow the 328 control. If a Console manager object is then moved with the mouse, the object will appear red again until the 328 controller passes through the new value. This prevents the controls within the Soundscape from jumping to new values.

CONFIGURING THE DIGITAL 328 FOR THE CLOSED LOOP INTERFACE

Download the Soundscape Console Manager 1.3 Closed Loop Interface MIDI Controller Preset from the Digital 328 website and follow the instructions.

Alternatively, set the Digital 328 MIDI Controllers as follows (see **Section 3J Part 5.3**):

Note: To enable the Closed Loop Interface, the 328 Automation Mode must be set to Controllers. Enter the Automation Setup menu, set MIDI Dynauto to ON and set the mode to Controllers (see **Section 3J Part 5.16**).

When using the Digital 328 Closed Loop Interface, the communication is bi-directional. Moving a Digital 328 controller will control the corresponding Soundscape Mixer object and vice versa.