Panasonic®

Users' Guide

Audio Mixer
WR-DA7

RAMSA

The meter bridge shown in photo is one of the optional accessories.

Before attempting to connect or operate this product, please read these instructions completely.

For U.S.A

Warning:
This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives EEC/73/23 and EEC/89/336.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit der folgenden Normen oder normativen Dokumenten übereinstimmt. Gemäß den Bestimmungen der Richtlinite 73/23/EEC und 89/336/EEC.

Nous déclarons sous notre seule responsabilité que le produit auquel se réfère cette déclaration est conforme aux normes ou autres documents normatifs conformément aux dispositions de la directive 73/23/CEE et 89/336/CEE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración està conforme con las normas u otros documentos normativos siguiendo las estipulaciones de la directivas CEE/73/23 y CEE/89/336.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi conformi alle disposizioni delle direttive CEE/73/23 e CEE/89/336.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatiefve dokumenten, overeenkomstig de bepalingen van Richtlijnen 73/23/EEC en 89/336/EEC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med den følgende standarder eller andre normative dokumenter i følge bestemmelserne i direktivene 73/23/EEC og 89/336/EEC.

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framstölls i Direktiv 73/23/EEC och 89/336/EEC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 73/23/EEC ia 89/336/EEC. säädöksiä.

Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som fælger bestemmelsene i direktiven 73/23/EEC og 89/336/EEC.

For Australia

THIS APPARATUS MUST BE EARTHED.

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

For U.K

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.
This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amp and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◇ or the BSI mark ♡ on the body of the fuse.
If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 5 AMP SOCKET.
If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.
WARNING: This apparatus must be earthed.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code.

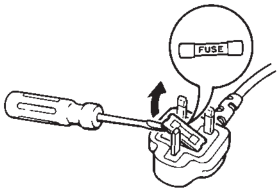
Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wire in the mains lead of this appliance 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 ⏚ or coloured **green** or **green-and-yellow**.

The wire which is coloured blue must be connected to the terminal in the plug which is marked with the letter **N** or coloured **black**.

The wire which is coloured **brown** must be connected to the terminal in the plug which is marked with the letter **L** or coloured **red**.



How to replace the fuse
Open the fuse compartment with a screwdriver and replace the fuse.

Caution:

Before attempting to connect or operate this product, please read the label on the rear panel.

The serial number of this product may be found on the rear of the unit.
You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. ______________________________

Serial No. ______________________________

WARNING:
TO PREVENT FIRE OR ELECTRIC SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

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Digital Mixer WR-DA7

Users' Guide

Version 1.10

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Digital Mixer WR-DA7
Users' Guide

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Chapter 1
Introduction

1-1 A New Beginning

The ***Digital Mixer WR-DA7*** sets a new standard for affordable automated digital audio mixing and production. The ***DA7*** has a number of features built into it that until recently, were the privilege of only high-end production facilities. Every feature is either directly controlled or just a window away. As a ***DA7*** user, you’ve made the decision to become part of the future.

Now that you're here, please take some time to review the manual. Keep it near your ***DA7*** and refer to it when you come across something you don't understand. Digital mixers offer substantially more features than regular analog mixers, and there will be a period of time before you are as comfortable with the ***DA7*** as you are with other mixers.

Like most people, you'll want to play first and then look for those items in the manual that were unclear. But you should be aware that the ***DA7*** has many advanced features that may not be immediately apparent to you, and if you don't read the manual, you could be missing out on features that can save you time and effort in a session.

It will help your understanding of the ***DA7*** to read this ***Users' Guide*** from cover to cover, but we know you probably won't. It would be beneficial to you, however, to at least read **Chapters 1, 2, 3, 4** and **Appendix D**, which will help you get familiar with the basic operations.

Functionality

Let's take a moment to preview some of the main features and benefits of the ***DA7***.

The **Fader Layer** controls permits you to mix and monitor the 32 inputs, the 6 aux sends and the 6 aux returns, the 8 buses, and the unique **CUSTOM/MIDI** layer. By not tying up input channels for outboard effects the 6 dedicated aux return faders provide extra inputs, for a total of 38 audio inputs.

The ***DA7*** is digitally controlled which allows you to automate all your mixer functions, from mixing and MIDI parameters, to dynamics and effects. Multiple LEDs provide instantaneous display of channel/bus/aux assignments, as well as automation recording status.

The ***DA7*** comes with internal memory to store fifty EQ libraries, fifty Dynamics libraries, fifty Channel libraries, plus fifty different scene memories. Using optional software, you can store these memories in a computer and save an unlimited number of these memories.

5.1 surround sound mixing is built into the ***DA7*** with multiple methods of surround sound panning available on each channel.

Option cards expand the capabilities of the ***DA7***. For example, the ability to synchronize to videotape, using the SMPTE interface option card, makes it easy to score or sweeten for film or television. There are other options that expand the capabilities of the ***DA7***, including a Meter Bridge, Mixing Automation eXpansion software (MAX, for both Windows and Mac) and a Tandem card that connects two ***DA7's*** together.

Audio Input/Output option interface cards can be mixed and matched for a particular project. You can have any type of audio option card installed and transfer from one format to another without the need of outboard devices. For instance, you could have an ADAT card and an AES/EBU card and transfer from your Digital Audio Workstation to your ADAT, or vice versa.

There are four audio Input/Output option cards available: ADAT, TDIF, AES/EBU - S/PDIF and an Analog card. Any audio card works in any slot.

Simplicity

The ***DA7*** is simple to operate, so you will spend less time as an engineer and more time as an artist. Engineered for ease of use, the Human-Machine Interface (HMI) provides a variety of ways to access and assign the channel parameters for your sources. Every channel parameter is displayed on the 320 x 240 backlit LCD screen, providing a quick visual reference of every aspect of the mixer setup.

To view the status of the console on a larger screen, use the optional software package. This software allows you to create custom views of the ***DA7*** and control the ***DA7*** from your computer. It acts as a library program for backing up data from the ***DA7*** libraries, and expands the capabilities of the automation system of the console. See your dealer for more details.

MIDI devices and MIDI remote control for peripheral gear can be controlled from the ***DA7***.

The Future is Now

The ***DA7*** is ready for computer-controlled digital mixing right out of the box. Connect it, and start recording. Everyone, from home musician to professional artists and producers, can now operate in the “Digital Domain” and create multi-track masterpieces using the ***DA7***.

1-2 About This Manual

Document Notes

The first three chapters of the ***DA7 Users' Guide*** provide an introduction to the system and basic information for the system.

Chapter 1, Introduction

- general information about the ***Users' Guide*** and the system used to produce the document
- typical installation and usage scenarios for the ***DA7***

Chapter 2, DA7 Tour

- Top Panel overview and a literal look at the Rear Panel connections setup
- illustrations that are referenced throughout the following chapters of the ***Users' Guide***

Chapter 3, Quick Start

- modules designed to familiarize you with a basic understanding of the features incorporated in the ***DA7*** mixer

Chapters 4-16 each discuss a primary function of the ***DA7***. The information follows a basic operational sequence. Some of the chapters will be divided into sections which discuss specific capabilities and/or functions of the chapter subject.

The sections in **Chapter 17, Options** describe various system configurations.

The Appendices provide general information groups and detail the mixer's technical specifications.

A Glossary providing definitions for information associated with the ***DA7*** precedes the index for this document.

Symbols and Conventions Used in this Guide

The ***DA7 Users' Guide*** uses the icons and conventions listed below. Whenever possible, the way something appears in the ***Users' Guide*** is as it appears on the ***DA7***.

▲1	Numbers in a triangle indicate a sequential step in a process.
❶	Numbers in a circle indicate a list.
■	Square bullets indicate alternative ways to perform similar tasks or actions.
●	Round bullets indicate items or elements in a group.
GAIN **SUB**	Text written in bold letters indicates the name of a knob, fader, button, or element on the Top Panel or the Rear Panel of the mixer. When panel labeling incorporates a background, the text will appear on a medium gray background.
[STEREO]	Bold upper-case text contained in square brackets indicates the name of a window or a window area in the LCD.
(color)	Color terms presented in italics and parentheses denotes the literal color of an LED button for a particular action or condition.
cursor	In this document, cursor is used as both a noun and a verb. "Use the **ARROW** buttons to move the cursor", or "Cursor to the OFF button".
PRE PST	Text presented on a black background or contained in a border indicates buttons or elements that perform a function and appear in the LCD.
⊗	This warning symbol alerts you to an action you may want to avoid or, at least, seriously contemplate before executing.
☝	This tip symbol indicates an important fact, procedure, and/or other beneficial information for the mixer operation or performance.

The term “area” refers to a window region in the LCD of the **Display Bridge** of the mixer.

The term “section” refers to a region on either the Top Panel or the Rear Panel of the mixer.

The term “soft knob” refers to a knob control in a window area in the LCD.

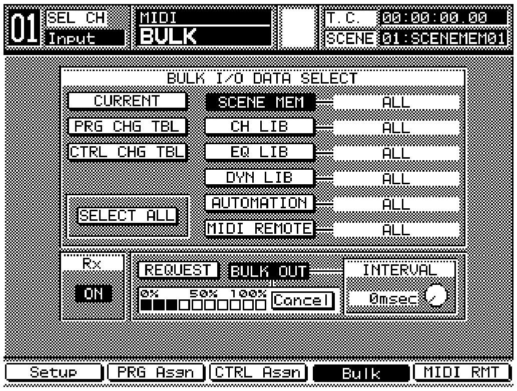
1-3 Making the DA7 Work For You

Although the ***DA7*** has some analog inputs, it should really be thought of as a digital mixer. Like most equipment, the ***DA7*** comes set with factory defaults, some of which may or may not provide the kind of operational preferences you would like. Please refer to **Appendix D, Default Settings** for a complete listing of these presets. You can't change the factory default presets, but when you have created mixer settings that you like, they can be saved by making a snapshot of the setup and recording it in **SCENE MEMORY**. See **Chapter 15, Scene Memory** for more information.

As with any new piece of equipment, it may take you a little time to figure it out. Here are a few things you WILL need to know about the ***DA7***. Please take a few minutes now to read them. It could save you time in the long run.

BULK BACKUP

One of the first things to think about is saving data. If you've already started using the ***DA7*** straight out of the box for a major recording session, all of the mixer data for your new million selling CD stored in the ***DA7*** memory, BACK IT UP!


01
SEL CH
Input
MIDI
BULK
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
BULK I/O DATA SELECT
CURRENT
PRG CHG TBL
CTRL CHG TBL
SCENE MEM
CH LIB
EQ LIB
DYN LIB
AUTOMATION
MIDI REMOTE
ALL
ALL
ALL
ALL
ALL
ALL
SELECT ALL
Rx
ON
REQUEST
BULK OUT
INTERVAL
0%
50%
100%
Cancel
0msec
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

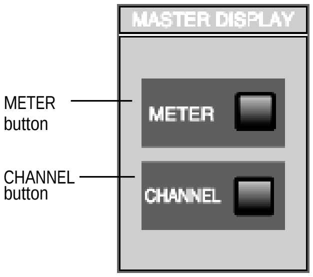
MIDI>BULK Window

The **[MIDI>BULK]** window can be accessed by pressing the **MIDI** button on the Top Panel. In the **[MIDI>BULK]** window, you'll find the **[BULK I/O DATA SELECT]** area. All of the information recorded in the system can be sent en masse to a Mac or IBM compatible computer. See **Chapter 11, MIDI**, page **11-2,** for setting up the serial port output to a personal computer. Some previous background knowledge of MIDI and a personal computer would be helpful here. There is software on the market that readily captures bulk dump information. If you have questions, either visit a local music retailer, or visit one of a number of Web sites on the Internet for information.

MASTER RESET

If you've already pushed as many buttons as possible after powering up the ***DA7*** to see what it could do, or if you have accidentally changed any of the factory presets and cannot figure out what you have done, you need to know about the master reset command.

To reset the ***DA7***, turn the power off, and then simultaneously press and hold the **METER** and **CHANNEL** buttons in the **MASTER DISPLAY** section of the Top Panel. While pressing these two buttons, turn the power on. Hold the buttons down until the Channel window is displayed. Doing this will reset the ***DA7*** to the factory presets.



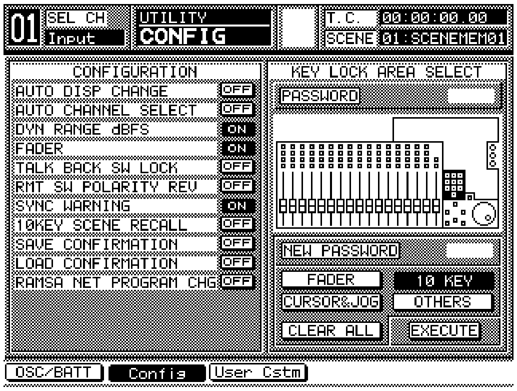
MASTER DISPLAY Section

Also, there are a few windows on the LCD screen that you should acquaint yourself with, that contain most of the information you need to know about the current status of your mixer.

They are the **[UTILITY>CONFIG]**, **[SOLO/MON]**, **[D-I/O>INPUT SET]** and **[MIDI>BULK]** windows. Pressing the relevant Top Panel buttons for these features will display the windows in the LCD. Once you are in any window, you will find the window group selection buttons on the bottom of the screen. These buttons show all the windows within the window group. The window group you are in is indicated on the top line of the **[taskbar]**. See **Chapter 2**, page **2-20** for information on the LCD screen. Cursor to the bottom of the current window, choose a window selection button, and press the **ENTER** button to bring that window into the LCD. You can also access the selections by pressing the Top Panel button again to toggle through the selections.

CONFIGURATION

The **[UTILITY>CONFIG]** window can be accessed by pressing the **UTILITY** button on the Top Panel. This is where the **[CONFIGURATION]** selections are located. One of the features here is **[AUTO CHANNEL SELECT]**. When active, every time a fader is moved or a **SELECT** button is engaged, whatever window you are in will change to the **[CHANNEL]** window for that selected channel. If you are trying to set up parameters on different **Channel Strips**, it could get frustrating to have to go back and forth between windows. To render this feature inactive, make sure that the button is in the OFF mode. OFF is the factory preset.



01 SEL CH Input
UTILITY CONFIG
T.C. 00:00:00.00
SCENE 01:SCENEMEM01

CONFIGURATION
AUTO DISP CHANGE OFF
AUTO CHANNEL SELECT OFF
DYN RANGE dBFS ON
FADER ON
TALK BACK SW LOCK OFF
RMT SW POLARITY REV OFF
SYNC WARNING ON
10KEY SCENE RECALL OFF
SAVE CONFIRMATION OFF
LOAD CONFIRMATION OFF
RAMSA NET PROGRAM CHG OFF

UTILITY>CONFIG Window

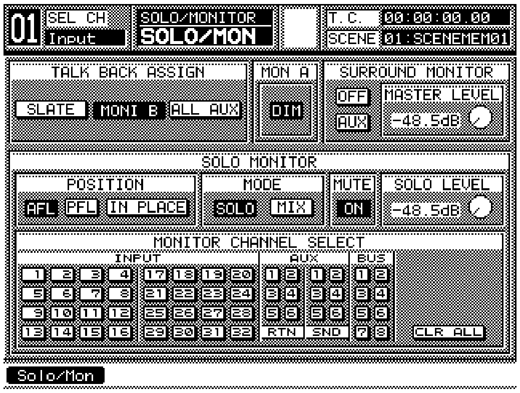
Another **[CONFIGURATION]** selection is **[AUTO DISPLAY CHANGE]**. When ON , whenever a parameter adjustment is made from the Top Panel, the LCD will change to that parameter window. If you tweek an **EQUALIZER**, **DYNAMICS/DELAY** or **PAN** knob on the Top Panel, but want to stay in the **[CHANNEL]** window, for example, make sure that the **[AUTO DISPLAY CHANGE]** selection is OFF. OFF is the factory preset.

Other items in the **[CONFIGURATION]** area are the **[DYN RANGE DBFS]** and **[MOTOR FADER]** buttons, which are set to ON as part of the ***DA7***'s system default.

For more information, see **Chapter 16, Utility and Solo Monitor**, page **16-9**. Also, see **Appendix D** for a listing of all the factory default conditions.

MONITOR SETUP

To customize the monitor setup of the ***DA7***, access the **[SOLO/MON]** window by pressing the **SOLO MONITOR** button on the Top Panel.


01
SEL CH
Input
SOLO/MONITOR
SOLO/MON
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
TALK BACK ASSIGN
SLATE
MONI B
ALL AUX
MON A
DIM
SURROUND MONITOR
OFF
AUX
MASTER LEVEL
-48.5dB
SOLO MONITOR
POSITION
AFL
PFL
IN PLACE
MODE
SOLO
MIX
MUTE
ON
SOLO LEVEL
-48.5dB
MONITOR CHANNEL SELECT
INPUT
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
AUX
1 2 1 2
3 4 3 4
5 6 5 6
RTN SND
BUS
1 2
3 4
5 6
7 8
CLR ALL
Solo/Mon

UTILITY>SOLO/MON Window

The **[MON A]** area function mutes the **MONITOR A** speakers 20dB. When selected, the DIM button will appear in inverse video, and the speakers will remain dimmed until the DIM button is deactivated. The DIM function can be accessed from the Top Panel by pressing the **MMC/CURSOR** button and **SOLO MONITOR** button simultaneously.

SOLO is set to **[IN PLACE]** and **[SOLO]** in the factory default. This allows you to only **SOLO** one channel at a time, post-fader and post-pan. In a mix situation you may want the **[SOLO MONITOR][POSITION]** area set to **[IN PLACE]**, which is post-fader and post-pan, and the **[SOLO MONITOR][MODE]** area set to **[MIX]**, which allows multiple channels to be solo'd.

SOLO MUTE returns the monitor to normal, but leaves the selections of solo'd channels intact. When **SOLO MUTE** is cleared, monitoring returns to the previously selected **SOLO** channels.

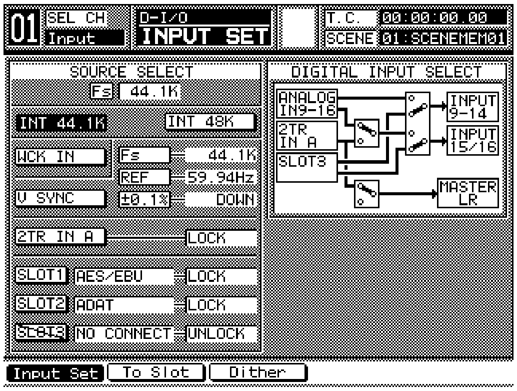
The **[SURROUND MONITOR]** area mode selection is important too. When the **[SURROUND MONITOR]** is in the **[AUX]** mode, it will send the surround bus 1 and 2 signals through **MONITOR A L/R**, while aux sends 3 through 6 route the surround bus 3 through 6 signals. In the **[MON]** mode, the surround signal path uses the **MONITOR A L/R**, **MONITOR B L/R**, and **MASTER L/R** outputs. If the **[MON]** mode is active, when trying to listen to another source in the system that is not assigned to the **[SURROUND MONITOR]**, you will find nothing coming out of the monitor speakers. The same condition could occur by selecting **[SURR]** for a channel in the **[CHANNEL]** window **[ASSIGN]** area.

For more information on these windows, see **Chapter 16, Utility and Solo Monitor**, page **16-2**. To find out about the 5.1 surround sound monitor output, see page **16-3**, and for more on the ***DA7s'*** surround sound features, see **Chapter 8, Pan/Assign, Surround, Bus Assign**.

D-I/O INTERFACING

With all the different devices on the market these days, getting all that gear to speak to one another can be quite a challenge. The ***DA7*** system wordclock is factory set to **[INT 48K]**, with the option of setting it to **[INT 44.1K]** or to external. All digital devices attached to the ***DA7*** must be set to the same wordclock sampling rate in order to operate properly. If the audio you are hearing does not sound right, first check to see if you are operating every device connected to the ***DA7*** at the same sample rate.

Find the sample rate the devices all have in common and set the ***DA7*** to that rate, be it 44.1, 48K or another acceptable sample rate frequency. To set the ***DA7s'*** wordclock reference, press the **D-I/O** button on the Top Panel to display the **[D-I/O>INPUT SET]** window.



01 SEL CH Input
D-I/O INPUT SET
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
SOURCE SELECT
Fs 44.1K
INT 44.1K
INT 48K
WCK IN Fs 44.1K
REF 59.94Hz
V SYNC ±0.1% DOWN
2TR IN A LOCK
SLOT1 AES/EBU LOCK
SLOT2 ADAT LOCK
SLOT3 NO CONNECT UNLOCK

D-I/O INPUT SET Window

When using the ***DA7*** as the master wordclock, there are two buttons in the **[SOURCE SELECT]** area for setting the sample frequency, **[INT 44.1K]** and **[INT 48K].** Cursor to the sample frequency that is common to your devices and press the **ENTER** button on the Top Panel to engage the appropriate sample frequency.

Or, if you prefer to use an external wordclock reference as the master wordclock, the external wordclock master must output a sample frequency that is common to all devices. When you are referencing the ***DA7*** to video, you should be very careful to set the ***DA7*** up properly.

For additional information about sample frequency and setting the clock rate of the ***DA7***, see **Chapter 12, D-I/O**, page **12-2**.

The key to getting the most out of your ***DA7*** is to learn it completely. We strongly recommend that you read at least **Chapter 2, DA7 Tour**, **Chapter 3, Quick Start**, **Chapter 4, Cursor Control** and become familiar with the factory default presets in **Appendix D**.

Chapter 2
DA7 Tour

2-1 Overview

Your tour of the ***DA7*** begins with a brief description of the Human-Machine Interface (HMI) design concept, and then an introduction to the elements, functions, and features of the ***DA7***. You may ask, “what is a Human-Machine Interface (HMI)?”

The HMI is an ergonomic design concept incorporated into most products, including the ***DA7*** mixer. Literately, it is how you (the human) and the mixer (the machine) communicate with each other. Using this concept, the ***DA7*** was designed to give you easy access to the hardware and software features built into the mixer, so that you can quickly learn to use your new ***DA7*** in an intuitive manner. The layout of these features and how you interact with the information they give you is described in detail in this manual. This is why we recommend that you keep this document nearby to use as a reference tool if you run into any problems.

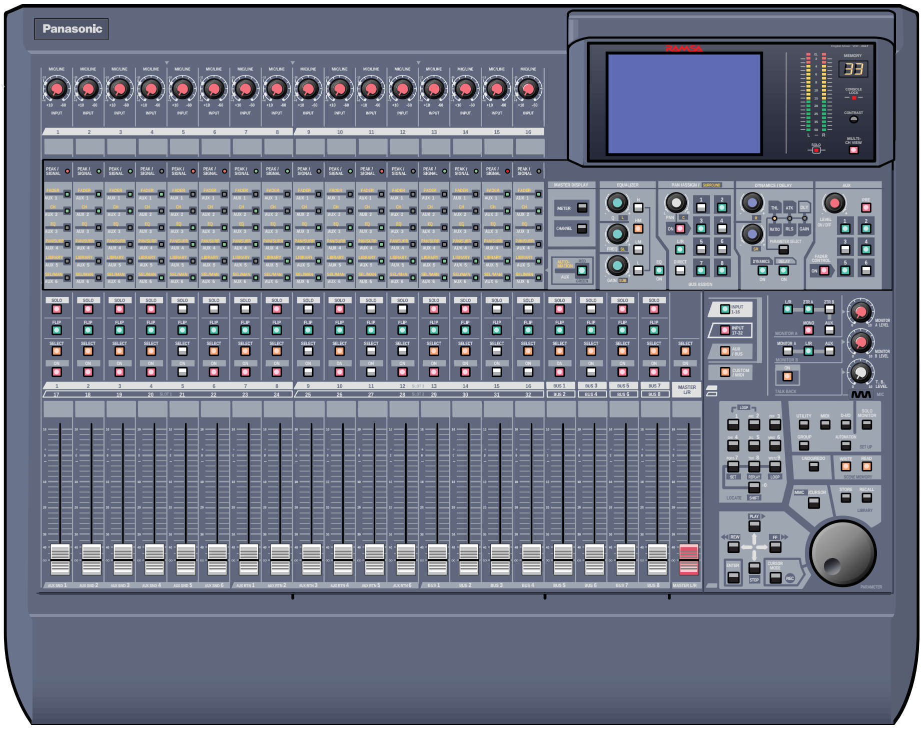
Shortcuts, unique features and alternative paths of operation are provided to make using the ***DA7*** faster. They are described throughout this manual, and pointed out in **Chapter 3**, ***Section 3-5***. Please read this section carefully. It will make using the ***DA7*** a more pleasurable experience.

Functions and features of the mixer are accessed via knobs, faders, and buttons on the Top Panel of the ***DA7***. The LCD screen reflects any adjustments and/or selections you make on the Top Panel. The cursor controls and the **JogDial** are both used to navigate the current window displayed or to make adjustments to the data fields. The LED indicators for the **Channel Strips** reflect the channel assignments, and their colors indicate the current mode.

We know you will develop your own personal style of operation. Once you become familiar with the proper operation and functions of the ***DA7***,your level of confidence and ability to operate this digital mixer will surpass anything you have previously done on a traditional analog console.

2-2 Top Panel

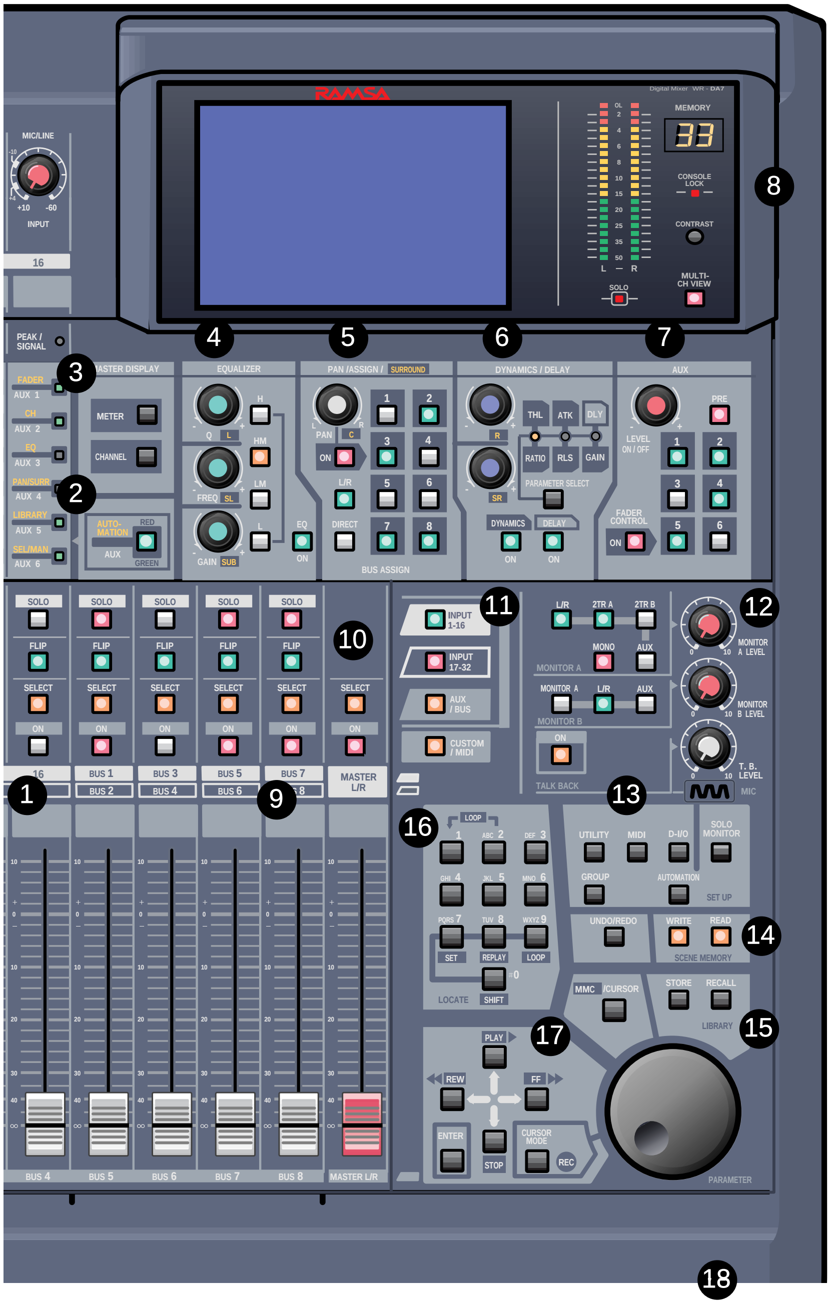
The illustrations on this page and the next depict the Top Panel of the ***DA7.*** The number assignments are reflected on the Top Panel cutaway view on page 2-4. Page 2-5, adjacent to the cutaway view, provides the explanation of the numbered sections of the Top Panel.



DA7 Top Panel

Illustrated Guide

Explanations of the numbered sections begins on the next page.


RAMSA
Digital Mixer WR-DA7
MEMORY
33
CONSOLE LOCK
CONTRAST
MULTI-CH VIEW
SOLO
MIC/LINE
INPUT
PEAK / SIGNAL
MASTER DISPLAY
FADER
AUX 1
CH
AUX 2
EQ
AUX 3
PAN/SURR
AUX 4
LIBRARY
AUX 5
SEL/MAN
AUX 6
METER
CHANNEL
AUTO-MATION
AUX
RED
GREEN
EQUALIZER
Q
FREQ
GAIN
H
HM
LM
L
EQ
ON
PAN /ASSIGN / SURROUND
PAN
ON
L/R
DIRECT
BUS ASSIGN
DYNAMICS / DELAY
THL
ATK
DLY
RATIO
RLS
GAIN
PARAMETER SELECT
DYNAMICS
DELAY
ON
AUX
PRE
LEVEL ON / OFF
FADER CONTROL
ON
SOLO
FLIP
SELECT
ON
BUS 1
BUS 2
BUS 3
BUS 4
BUS 5
BUS 6
BUS 7
MASTER L/R
BUS 4
BUS 5
BUS 6
BUS 7
BUS 8
MASTER L/R
INPUT 1-16
INPUT 17-32
AUX / BUS
CUSTOM / MIDI
L/R
2TR A
2TR B
MONO
AUX
MONITOR A
MONITOR A
L/R
AUX
MONITOR B
ON
TALK BACK
MONITOR A LEVEL
MONITOR B LEVEL
T. B. LEVEL
MIC
LOOP
SET
REPLAY
LOOP
LOCATE
SHIFT
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
UNDO/REDO
WRITE
READ
SCENE MEMORY
MMC /CURSOR
STORE
RECALL
LIBRARY
PLAY
REW
FF
ENTER
STOP
CURSOR MODE
REC
PARAMETER
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

DA7 Top Panel

❶ **Channel Strip** – input gain controls with channel control and status indicators. Also called a **Channel Fader Strip**.

❷ **AUTOMATION/AUX** LED button – selects the display mode of the Channel Strip LED field indicators, and arms the **AUTOMATION** system.

❸ **MASTER DISPLAY** section – the **METER** and **CHANNEL** buttons are direct buttons to the respective LCD screen windows. These should be considered "home base" for the LCD display.

❹ **EQUALIZER** section – controls for setting the equalization parameters for a selected channel.

❺ **PAN/ASSIGN/**SURROUND , **BUS ASSIGN** section – controls for setting the pan and bus assignments for a selected channel.

❻ **DYNAMICS/DELAY** section – controls for setting the onboard dynamics processing parameters for a selected channel.

❼ **AUX** section – controls for routing channels to outboard sources and for defining the signal path as either pre-fader or post-fader.

❽ **Display Bridge –** contains the LCD screen, L/R meter display, and primary mixer display status indicators.

❾ **BUS Fader Strip** – controls for output BUSes.

❿ **MASTER L/R Fader Strip** – controls for **L/R MASTER** output.

⓫ **Fader Layer Controls** section – selects the current fader layer to be displayed.

⓬ **MONITOR** section – volume and selection controls for monitoring.

⓭ **SETUP** section – mixer function, or display control buttons.

⓮ **SCENE MEMORY** section – buttons for writing and reading the 50 mixer scene memories.

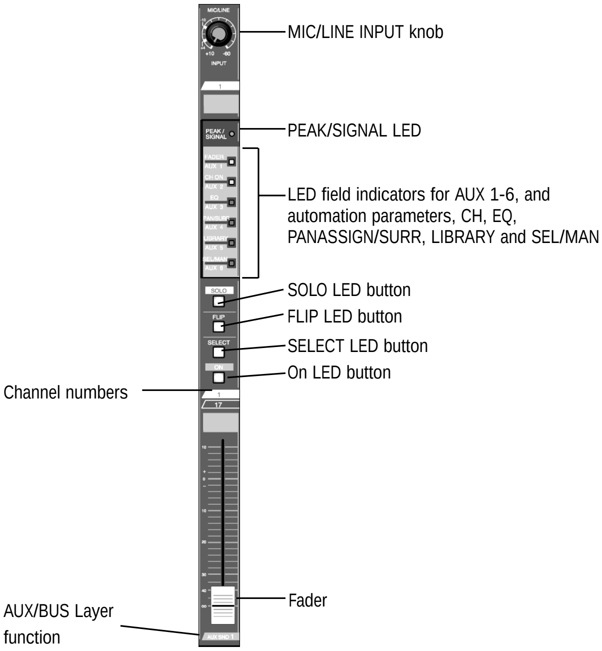
⓯ **LIBRARY** section – buttons for storing and recalling Channel, EQ and Dynamics libraries.

⓰ **Keypad** – alphanumeric keys for entering numbers or text.

⓱ **Cursor Control** section – buttons and controls for defining the cursor actions.

⓲ **Headset Control** section – the location of the headset connector and the level control of the ***DA7*** is immediately below the right front edge of the Top Panel.

① Channel Fader Strip


MIC/LINE INPUT knob
PEAK/SIGNAL LED
LED field indicators for AUX 1-6, and automation parameters, CH, EQ, PANASSIGN/SURR, LIBRARY and SEL/MAN
SOLO LED button
FLIP LED button
SELECT LED button
On LED button
Channel numbers
Fader
AUX/BUS Layer function

Channel Fader Strip

There are sixteen Channel Fader Strips on the ***DA7***. The functionality of each Channel Fader Strip is determined by which of the four **Fader Layer** controls selected: **INPUT 1-16**, **INPUT 17-32**, **AUX/BUS**, and a user **CUSTOM/MIDI** function.

The **MIC/LINE INPUT** knob varies the channel input gain volume and adjusts for either a mic or line-level input. Due to the high quality design of this circuit, there is no pad switch necessary; the input knob range sets the input level. This knob only affects the analog inputs 1-16.

The **PEAK/SIGNAL** LED indicates when an input signal is present *(green)*, and when the input signal level is too high *(red)*.

The LED field indicators reflect the auxiliary (**AUX**) routing assignments and automation parameters. The LED color signifies the **AUTOMATION/AUX** button selection, **AUX** *(green)*, or **AUTOMATION** *(red)*.

The **SOLO** LED button toggles on *(red)* or off. When on, the channel output will be routed to the **MONITOR A** speakers (overriding the **MONITOR A** input), and to the headphones.

The **FLIP** LED button flips the control of the **Channel Fader Strip** from one input layer to the other. The LED color indicates the current input selection and matches the **Fader Layer** control LED button colors, **INPUTS 1-16** *(green)* or **INPUTS 17-32** *(red)*.

The **SELECT** LED button, when on *(orange)*, identifies the channel as the current channel selected. Only one **Fader Strip** can be selected at a time (unless it's in stereo or link mode).

For more detail, see **Chapter 5**, **Channel**, **Library**, **and Meter Windows**.

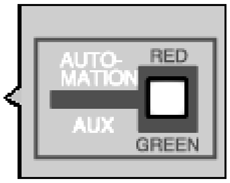
The **ON** LED button toggles on *(red)* and off. When on, the channel output is active.

There are two channel numbers for each strip, indicating the **INPUT** connections on the Rear Panel of the ***DA7***.

The **AUX/BUS** label at the bottom of a **Channel Fader Strip** indicates its function when the **AUX/BUS Fader Layer** control is selected.

See **Chapter 6, Fader Layers and Channel Strips** for additional information.

❷ AUTOMATION/AUX LED Button

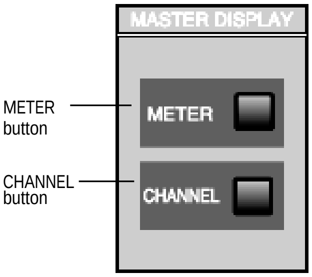


AUTOMATION/AUX LED Button

The **AUTOMATION/AUX** LED button toggles the display of the **Channel Fader Strips** LED field indicators. The LED color indicates the current selection.

See **Chapter 14, Automation** and **Chapter 10, AUX** for additional information.

❸ MASTER DISPLAY Section



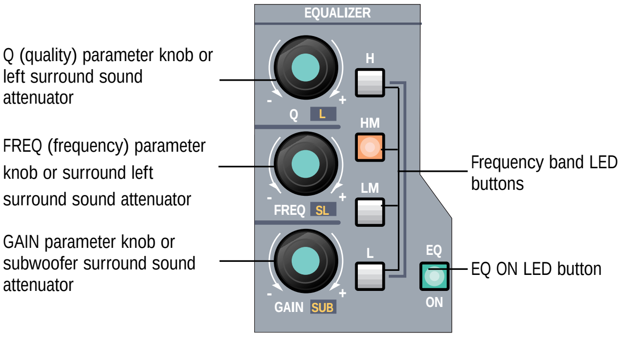
MASTER DISPLAY Section

Pressing the **METER** button will display the **[METER]** window group on the LCD screen in the **Display Bridge**. Pressing the **METER** button again will cycle the three window selections: **[METER INPUTS 1-32]**, **[BUS/AUX]**, **[SLOT]**.

Pressing the **CHANNEL** button will display the **[CHANNEL]** window group on the LCD screen in the **Display Bridge**. The window displayed will show the current mixer strip selected.

See **Chapter 5, Channel, Library, and Meter Windows** for additional information.

❹ EQUALIZER Section


EQUALIZER
Q (quality) parameter knob or left surround sound attenuator
FREQ (frequency) parameter knob or surround left surround sound attenuator
GAIN parameter knob or subwoofer surround sound attenuator
Q L
FREQ SL
GAIN SUB
H
HM
LM
L
EQ
ON
Frequency band LED buttons
EQ ON LED button

EQUALIZER Section

There are three parameter knobs and four frequency range LED buttons in the **EQUALIZER** section, which are used to change the EQ settings of the currently selected channel. The **EQ ON** LED button toggles the **EQUALIZER** on *(green)* and off. When the controls are active, adjustments can be made to the currently selected channel.

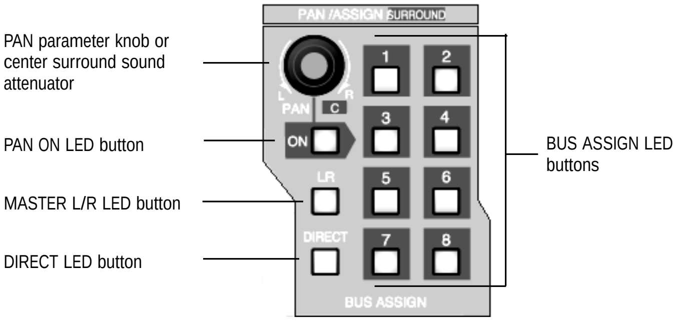
The three knobs are labeled **Q** (quality), **FREQ** (frequency), and **GAIN** (gain). The additional labeling of **L** (left), **SL** (surround left), and **SUB** (surround subwoofer) indicate the surround sound parameters that are controlled by the knobs when the **[SURROUND]** mixing area is activated. Surround sound capabilities are discussed in **Chapter 8**.

The four frequency band LED buttons can be selected one at a time, and turn on *(orange)* to show which band is operating. They are labeled **H** (high), **HM** (high-mid), **LM** (low-mid), and **L** (low).

Pressing the **GAIN** knob displays the **[EQUALIZER]** window on the LCD screen. Once the **[EQUALIZER]** is displayed in the LCD window, these buttons perform other shortcut functions.

The **EQUALIZER** section is detailed in **Chapter 7**.

⑤ PAN/ASSIGN/SURROUND, BUS ASSIGN Section


PAN /ASSIGN SURROUND
PAN parameter knob or center surround sound attenuator
PAN ON LED button
MASTER L/R LED button
DIRECT LED button
BUS ASSIGN LED buttons
L
R
PAN
C
ON
LR
DIRECT
1
2
3
4
5
6
7
8
BUS ASSIGN

PAN/ASSIGN/SURROUND, BUS ASSIGN Section

Pan, bus assignment, and surround sound parameters for the selected channel is set within this area. The pan control is always active for the **L/R** bus, so you do not need to activate the **ON** button to pan across the Master **L/R** out. However, if you wish to pan between odd/even buses, you must push the **ON** button. Assignment to the **DIRECT** output is not affected by the pan control.

The additional labeling of C (center) indicates the surround sound parameter that is controlled by the knob when the **[SURROUND]** mixing area is activated.

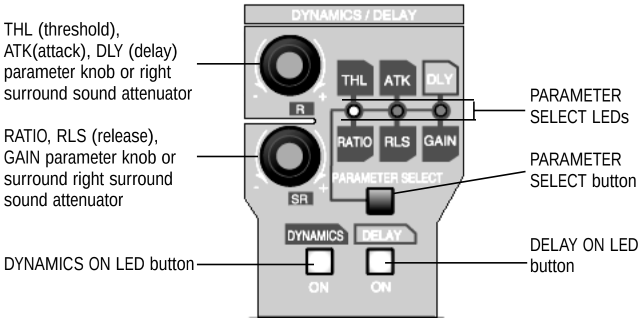
The **L/R**, the **DIRECT**, and the **BUS ASSIGN** LED buttons toggle on *(green)* and off. In addition to the eight bus selections, labeled **1 - 8**, selections for **L/R** (master L/R) output and **DIRECT** output are available. The **DIRECT** output works in conjunction with the option cards installed in the ***DA7*** Rear Panel, routing signals directly to the cards.

The **DIRECT** output is detailed in **Chapter 12, D-I/O**.

Pressing the **PAN** knob displays the **[SURROUND]** window on the LCD screen.

The **PAN/ASSIGN**SURROUND, **BUS ASSIGN** section of the Top Panel is detailed in **Chapter 8**.

⑥ DYNAMICS/DELAY Section


THL (threshold), ATK(attack), DLY (delay) parameter knob or right surround sound attenuator
RATIO, RLS (release), GAIN parameter knob or surround right surround sound attenuator
DYNAMICS ON LED button
PARAMETER SELECT LEDs
PARAMETER SELECT button
DELAY ON LED button
DYNAMICS / DELAY
THL
ATK
DLY
RATIO
RLS
GAIN
PARAMETER SELECT
R
SR
DYNAMICS
DELAY
ON
ON

DYNAMICS/DELAY Section

DYNAMICS and/or **DELAY** processing can be added to each of the ***DA7* Channels**. Pressing the **PARAMETER SELECT** button cycles the current parameter selections, which are grouped in pairs. The top knob adjusts the top parameter selection in the pair, and the bottom knob adjusts the bottom parameter selection in the pair. The **DYNAMICS ON** LED button toggles the dynamics processing on *(green)* and off for the selected channel, and the **DELAY ON** LED button toggles the delay on *(green)* and off.

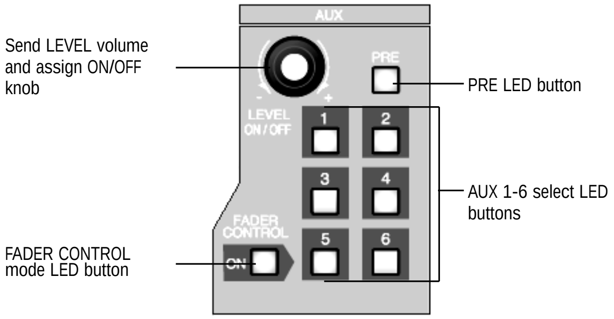
The additional labeling of R (right) and SR (surround right) indicates the surround sound parameters that are controlled by the knobs when the **[SURROUND SOUND]** mixing area is activated. The surround sound function is activated in the **[SURROUND]** window of the **[SURROUND]** window group.

See **Chapter 8** for more information on surround sound.

Pressing the bottom knob displays the **[DYNAMICS]** window group on the LCD screen.

For more information on the **DYNAMICS/DELAY** section of the Top Panel, see **Chapter 9**.

⑦ AUX Section


Send LEVEL volume and assign ON/OFF knob
AUX
PRE
LEVEL ON / OFF
1
2
3
4
5
6
FADER CONTROL
ON
PRE LED button
AUX 1-6 select LED buttons
FADER CONTROL mode LED button

AUX Section

This section of the Top Panel contains controls for routing selected channels from/to outboard sources. These six aux routes are independent of the channel input connectors on the Rear Panel of the ***DA7*** and greatly expand the flexibility of the mixer. They can be used as six mono sends, or in stereo pairs (such as 1&2, 3&4, 5&6), and six mono returns, or stereo pairs. There are two digital aux routes, **AUX 1/2**, and four analog aux routes, **AUX 3/4** and **AUX 5/6**. **AUX 3/4** and **AUX 5/6** are paired for convenience on the Rear Panel connectors. If you wish to use them as Mono channels, connect a standard audio “Y” cable (available at your dealer) to split the audio channels.

With a channel selected, press an **AUX 1-6** LED button *(green)* to select which aux route you wish to assign for the channel. The **LEVEL** knob performs two functions. By pressing the knob, you will assign the channel to the selected aux route, and by turning the knob, you can adjust the individual channel output to the aux selection. The LED field of the **Channel Fader Strips** will reflect the aux assignments for the channels.

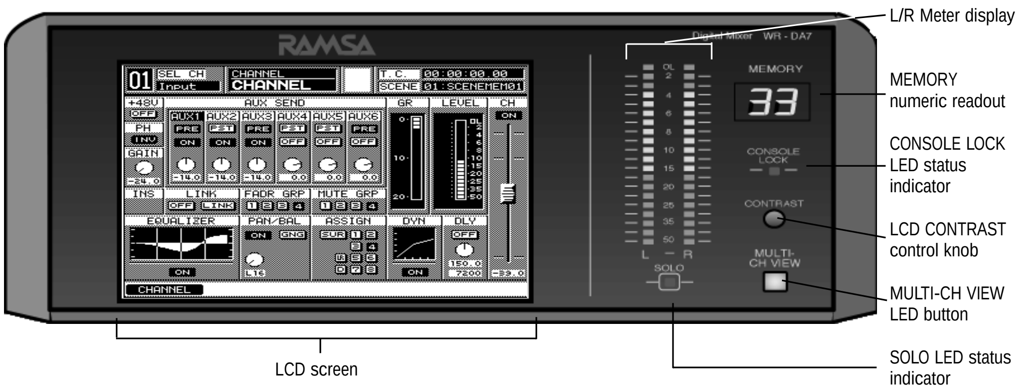
Aux routing is defaulted to a post-fader condition for the selected channel. Press the **PRE** LED button to select it *(red)* and change the aux routing function to a pre-fader condition.

Press the **FADER CONTROL** LED button to select it *(red)* and display the **[FADER CONTROL]** window group on the LCD screen. The window displayed will be determined by the current **AUX 1-6** LED button selection. The channel fader status of the 32 input channels for the aux selected will be reflected in the **[FADER CONTROL]** window, and the **Channel Faders** will reset to their respective level positions for the aux selected.

The **AUX/BUS** designations at the bottom of the **Channel Fader Strips** identify the strip functions when the **Fader Layer AUX/BUS** LED button is pressed.

For more information on the **AUX** section of the Top Panel see **Chapter 10**.

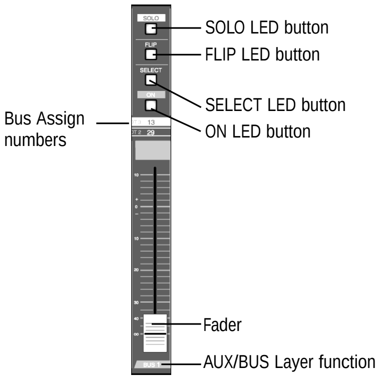
⑧ Display Bridge


RAMSA
Digital Mixer WR-DA7
MEMORY
33
CONSOLE LOCK
CONTRAST
MULTI-CH VIEW
SOLO
L R
L/R Meter display
MEMORY numeric readout
CONSOLE LOCK LED status indicator
LCD CONTRAST control knob
MULTI-CH VIEW LED button
SOLO LED status indicator
LCD screen

Display Bridge Section

The **Display Bridge** contains the information for the current status of the ***DA7*** and the LCD screen. The various windows for the functions and features of the mixer are displayed on the LCD screen.

⑨ BUS Fader Strip


SOLO
FLIP
SELECT
ON
SOLO LED button
FLIP LED button
SELECT LED button
ON LED button
Bus Assign numbers
Fader
AUX/BUS Layer function

BUS Fader Strip

There are four **BUS Fader Strips** on the ***DA7***. In conjunction with the **Fader Layer** controls, each strip directly controls the **BUS** outputs, or the **AUX/BUS** functions which are indicated on the bottom of the strip, or a user **CUSTOM/MIDI** function.

The **SOLO** LED button toggles on *(red)* or off. When on, the selected bus output will be routed to the **MONITOR A** speakers and headphones, overriding the previous input.

There are two bus numbers for each strip, indicating the **BUS ASSIGN** selections that can be controlled by the strip.

The **FLIP** LED button flips the **BUS Fader Strip** from controlling one bus to controlling the other bus for the strip. The LED color *(red* or *green)* indicates the current bus selection.

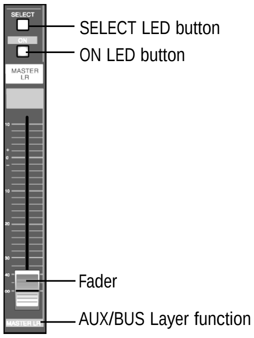
The **SELECT** LED button, when on *(orange)*, identifies the bus strip as the current bus strip selected. Only one **BUS Fader Strip** can be selected at a time unless they are paired for **LINK** or **STEREO** operation.

The **ON** LED button toggles on *(red)* and off. When on, the bus output is active.

The **AUX/BUS** indication at the bottom of the **BUS Fader Strip** indicates the strip function when the **AUX/BUS Fader Layer** control is selected.

See **Chapter 6, Fader Layers and Channel Strips** for additional information.

⑩ MASTER L/R Fader Strip



MASTER L/R Fader Strip

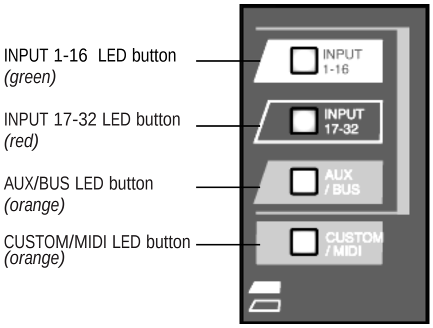
The **MASTER L/R Fader Strip** controls the ***DA7*** master **L/R** output.

The **SELECT** LED button, when on *(orange)*, identifies the strip as the current fader strip selection.

The **ON** LED button toggles on *(red)* and off. When on, the master output is active.

See **Chapter 6, Fader Layers and Channel Strips** for additional information.

⑪ Fader Layer Controls Section



Fader Layer Controls Section

The **Fader Layer** controls significantly expand the flexibility of the ***DA7*** mixer. The LED button selections define the current function for the fader strips.

LED buttons for the Fader Layer controls assist you in determining or checking the current channel and bus fader settings on the mixer.

INPUT 1-16, when selected *(green)*, resets the fader strips to control channel inputs 1 through 16, and buses 1, 3, 5, and 7. When selected, the faders move to the positions reflecting the current settings for the layer, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press the **INPUT 1-16 Fader Layer** control button and hold it for two seconds. This will set all faders to the selected layer.

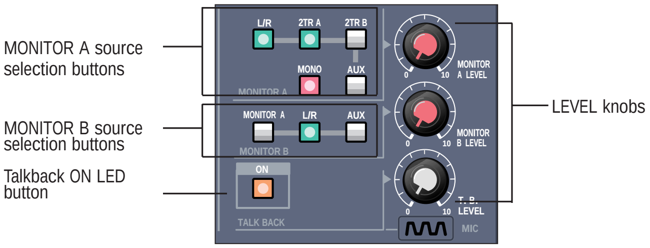
INPUT 17-32, when selected *(red)*, resets the fader strips to control channel inputs 17 through 32, and buses 2, 4, 6, and 8. When selected, the faders move to the positions reflecting the current settings for the layer, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press the **INPUT 17-32 Fader Layer** control button and hold it for two seconds. This will set all faders to the selected layer.

AUX/BUS, when selected *(orange)*, resets the fader strips to control the aux sends, aux returns, and bus outputs, while the faders move to the positions reflecting the current fader settings for the layer.

CUSTOM/MIDI is a user-definable **Fader Layer** control, where the functions are selectable.

See **Chapter 11, MIDI** for more information on the ***DA7*** MIDI feature, and **Chapter 6, Fader Layers and Channel Strips** for additional information.

⑫ MONITOR Section


MONITOR A source selection buttons
MONITOR B source selection buttons
Talkback ON LED button
LEVEL knobs
L/R
2TR A
2TR B
MONO
AUX
MONITOR A
MONITOR A
L/R
AUX
MONITOR B
ON
TALK BACK
0
10
MONITOR A LEVEL
0
10
MONITOR B LEVEL
0
10
T. B. LEVEL
MIC

MONITOR Section

The ***DA7*** provides controls for two monitor outputs and a talkback circuit. There are source selection LED buttons for the **MONITOR A** and **MONITOR B** outputs, and **LEVEL** knobs for both of the monitor outputs and the talkback circuit.

MONITOR A Controls

The **MONITOR A** selection LED buttons route the input selected *(green)* to the **MONITOR A OUTPUT (CR)** (Control Room) connections on the Rear Panel of the mixer and to the headphones. The selections are:

- **L/R** routes the **MASTER L/R** output to the monitors.
- **2TR A** routes the device that is connected to **2TR A IN** on the Rear Panel to the monitors.
- **2TR B** routes the device that is connected to **2TR B IN** on the Rear Panel to the monitors.
- **AUX** routes the **AUX SEND** outputs to the monitors. Press the **AUX** LED button to monitor the selections, beginning with **AUX SEND 1/2**, followed by **AUX SEND 3/4**, and **AUX SEND 5/6**. The **MEMORY** numeric readout on the **Display Bridge** will momentarily display the **AUX SEND** selections.

The **MONO** button, when on *(red)*, sums the selected input and sends a monaural signal to the monitors. This will not affect the **2TR B** output stereo signal.

MONITOR B Controls

The **MONITOR B** selection LED buttons route the input selected *(green)* to the **MONITOR B OUTPUT (STUDIO)** connections on the Rear Panel of the mixer. The selections are:

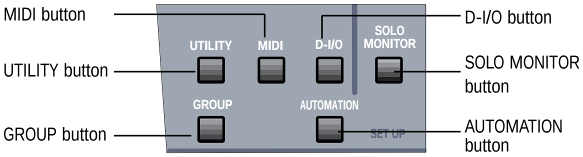
- **MONITOR A** routes the current **MONITOR A** selection to the studio monitors.
- **AUX** routes the **AUX SEND** outputs to the monitors. Press the **AUX** LED button to monitor the selections beginning with **AUX SEND 1/2**, followed by **AUX SEND 3/4**, and **AUX SEND 5/6**. The **MEMORY** numeric readout on the **Display Bridge** will momentarily display the **AUX SEND** selections.

TALKBACK

The **TALKBACK ON** button controls the talkback microphone installed in the Top Panel of the ***DA7***. When on *(orange)*, the MIC is active and the **MONITOR A** speakers will be dimmed. This can be either a “push-to-talk” momentary interrupt type button, or a “push on/push off” type button. This is selected in the **[UTILITY]** window. Talkback routing is selected in the **[SOLO MONITOR]** window. There is also a phone jack on the Rear Panel that allows for remote Talk back operation.

For additional information on the talkback, see **Chapter 16, Utility and Solo monitor**.

⑬ SETUP Section



SETUP Section

These are direct-action buttons that will display the selected windows in the LCD screen of the **Display Bridge**. In addition, pressing one of these buttons then one of the 10 **KeyPad** buttons, lets you directly recall the selected window of the window group. See page **Appendix B-3, LCD Screen Displays** for more information.

UTILITY Button

Pressing the **UTILITY** button will display the **[UTILITY]** window group on the LCD screen in the **Display Bridge**. The window displayed will be determined by the window selection buttons at the bottom of the window. Pressing the **UTILITY** button again will cycle the window selections: **[OSC_BATT]**, **[CONFIGuration]**, **[USER CuSToM]**.

See **Chapter 16, Utility and Solo Monitor** for additional information.

MIDI Button

Pressing the **MIDI** button will display the **[MIDI]** window group on the LCD screen in the **Display Bridge.** Pressing the **MIDI** button again will cycle the window selections: **[SETUP]**, **[PRoGram ASsiGN]**, **[ConTRoL ASsiGN]**, **[BULK]**, **[REMOTE]**.

See **Chapter 11, MIDI** for additional information.

D-I/O Button

Pressing the **D-I/O** button will display the **[D-I/O]** (Digital Input/Output) window group on the LCD screen in the **Display Bridge.** Pressing the **D-I/O** button again will cycle the window selections: **[INPUT SET]**, **[TO SLOT]**, **[DITHER]**.

See **Chapter 12, D-I/O** for additional information.

GROUP Button

Pressing the **GROUP** button will display the **[GROUP]** window selections on the LCD screen in the **Display Bridge**. Pressing the **GROUP** button again will cycle the window selections: **[FADER GRouP]**, **[MUTE GRouP]**, **[LINK/STR]**.

See **Chapter 13, Group** for additional information.

AUTOMATION Button

Pressing the **AUTOMATION** button will display the **[AUTOMATION]** window group on the LCD screen in the **Display Bridge.** Pressing the **AUTOMATION** button again will cycle the window selections: **[SETUP]**, **[EXECUTE]**, **[EVenT EDIT]** .

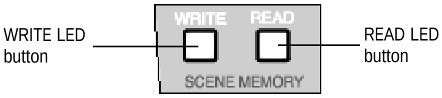
See **Chapter 14, Automation** for more information.

SOLO MONITOR Button

This button displays Solo Monitor mode, Talk back assignment, and Surround Monitor.

See **Chapter 16, Utility and Solo Monitor** for additional information.

⑭ SCENE MEMORY Section



SCENE MEMORY Section

SCENE MEMORY allows you to store and recall complete mixer setups and functions. There are fifty registers, numbered 01 through 50, available for storage of mixer settings. Memory 00 is reserved for Automation.

Press either the **WRITE** LED button or the **READ** LED button *(orange)* to select it and display the **[ReaD/WriTe]** window of the **[SCENE MEMORY]** window group on the LCD screen of the **Display Bridge**.

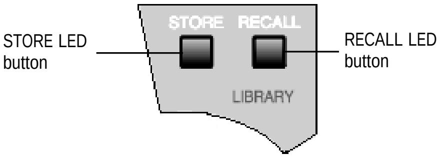
There are two windows in the group; **[RD/WT]**, and **[XFADE]**. The **[RD/WT]** window is always the initial window displayed when either button is selected. To change to the **[XFADE]** window, use the **ARROW** buttons to navigate to the respective window selection button, and then press the **ENTER** button, or press either the **WRITE** or **READ** LED buttons a second time.

When the **[RD/WT]** window is displayed, the **JogDial** will scroll the **[SCENE MEMORY]** list area of the window. This allows you to quickly access a previously stored scene, locate an empty scene memory, or locate a scene memory to be overwritten. By pressing the **ENTER** button after a scene has been located, the mixer will immediately assume the setting for the stored scene.

The **MEMORY** readout display will flash the memory number that is selected until it is recalled. The selected memory will be displayed without flashing once it has been recalled.

While the **[RD/WT]** window is displayed, pressing the **ENTER** button will immediately overwrite the current scene memory with the settings that are on the mixer at the moment the **ENTER** button is pressed, unless the register is write-protected. See **Chapter 15, Scene Memory** for additional information.

⑮ LIBRARY Section



LIBRARY Section

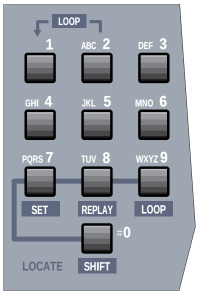
There are three mixer functions with associated libraries: **CHANNEL**, **EQUALIZER**, **DYNAMICS/DELAY**. The library feature allows you to store and recall individual function parameters to a separate library. There are fifty registers for each library, numbered 01 through 50.

The **RECALL** button opens the library window for the selected function. This means that if the **[CHANNEL]** window was displayed when you pressed the **RECALL** button, the **CHANNEL** library will be displayed. The same goes for the **EQUALIZER AND DYNAMICS/DELAY** libraries. Once selected, the parameter knob will allow you to scroll through the stored memories. After you have chosen a memory, press the **RECALL** button again and the selected memory will be recalled to the currently selected function. You will also automatically return to the main screen for the selected function.

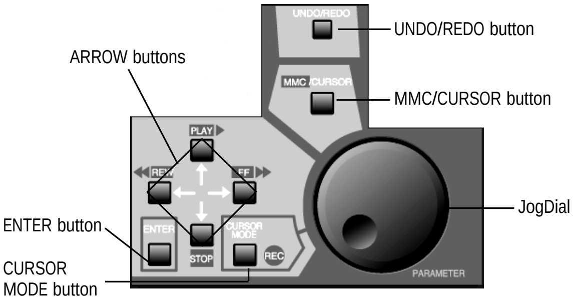
While the library is displayed, pressing the **STORE** button will immediately store the current function settings to the current memory location, unless the memory location is write-protected.

See **Chapter 5, Library** for additional information.

⑯ Keypad and ⑰ Cursor Control Section


LOOP
1
ABC 2
DEF 3
GHI 4
JKL 5
MNO 6
PQRS 7
TUV 8
WXYZ 9
SET
REPLAY
LOOP
#0
LOCATE
SHIFT

Keypad


UNDO/REDO
UNDO/REDO button
ARROW buttons
MMC/CURSOR
MMC/CURSOR button
PLAY
REW
FF
JogDial
ENTER button
ENTER
STOP
CURSOR MODE
REC
CURSOR MODE button
PARAMETER

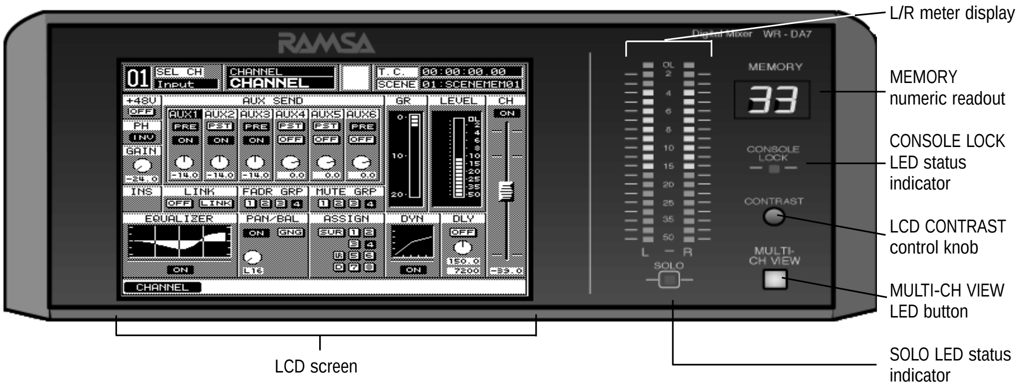
Cursor Control Section

Details on the **Keypad**, **UNDO/REDO** button, **MMC/CURSOR** button, **ARROW** buttons, **ENTER** button, **CURSOR MODE** button, and **JogDial** elements of the ***DA7*** Top Panel are provided in **Chapter 4** of the manual.

⑱ Headset Control Section

A stereo headset connector and the headset volume control are located under the right front edge of the Top Panel of the ***DA7***. The current **MONITOR A** selection is always routed to the headset connector.

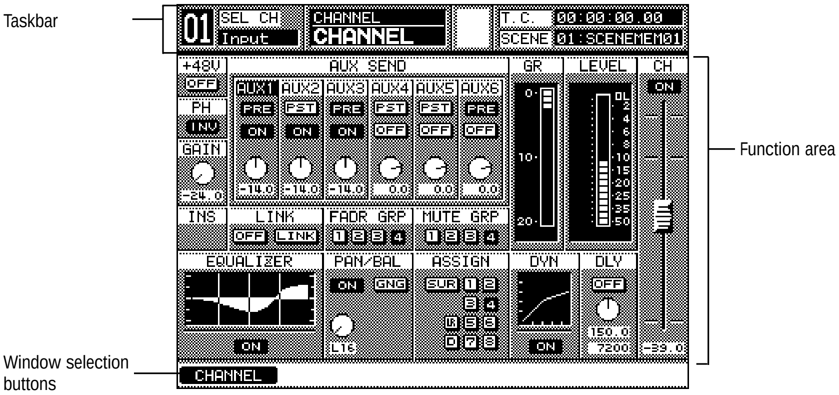
2-3 Display Bridge


L/R meter display
MEMORY numeric readout
CONSOLE LOCK LED status indicator
LCD CONTRAST control knob
MULTI-CH VIEW LED button
SOLO LED status indicator
LCD screen
RAMSA
Digital Mixer WR - DA7
MEMORY
33
CONSOLE LOCK
CONTRAST
MULTI-CH VIEW
SOLO
L
R

Display Bridge Section

The **Display Bridge** for the ***DA7*** is your “window” to the mixer functions and features. There are seven elements comprising the **Display Bridge:** the LCD screen, the **L/R** meter display, the **MEMORY** numeric readout, the **CONSOLE LOCK** LED status indicator, the **CONTRAST** control knob, the **MULTI-CH VIEW** (multi-channel) LED button, the **SOLO** LED status indicator.

LCD Screen

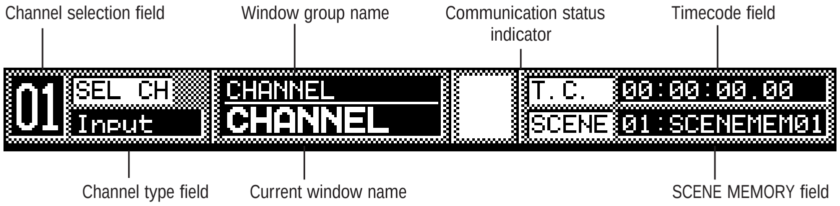

Taskbar
Function area
Window selection buttons
01
SEL CH
Input
CHANNEL
CHANNEL
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
+48V
OFF
PH
INV
GAIN
-24.0
AUX SEND
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6
PRE
PST
ON
OFF
-14.0
0.0
GR
LEVEL
CH
ON
INS
LINK
OFF
LINK
FADR GRP
MUTE GRP
EQUALIZER
PAN/BAL
ASSIGN
DYN
DLY
ON
GNG
SUR
L16
150.0
7200
-33.0
CHANNEL

Sample Window Display (CHANNEL window displayed)

The LCD screen is the 320x240 backlit liquid-crystal display (LCD) element of the **Display Bridge**. The screen displays the various windows that show the functions and status of the ***DA7***. The windows contain areas and items that can be accessed with the cursor control or **JogDial**.

There are three general areas for the windows displayed on the LCD screen: the **[taskbar]** area, the **[function]** area, the **[windows selection buttons]** area.

Taskbar Area


Channel selection field
Window group name
Communication status indicator
Timecode field
01
SEL CH
Input
CHANNEL
CHANNEL
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
Channel type field
Current window name
SCENE MEMORY field

Taskbar Area

The **[taskbar]** area of a window contains information about the current window and the most recent mixer selections. Several of the items in the **[taskbar]** will remain unaffected when you change to another window, depending on the new window selection.

Channel Selection Field

This field shows the currently selected **Channel, BUS**, or **MASTER L/R** strip selection. When channels or buses are paired, the field will display both of their numbers. The field will change when you press a different **SELECT** LED button on the Top Panel.

Channel Type Field

This field shows the most recently selected channel type. The field will change when you press a **SELECT** LED button on the Top Panel.

Window Group Name

The current window group name is displayed in this field.

Current Window Name

The name of the current window is displayed in this field.

Communication Status Indicator

This area of the **[taskbar]** displays the current communication status as configured in the **[MIDI>SETUP]** window. The selections are either **[TO PC]**, **[S I/O]**, or **[MIDI]**.

Timecode Field

This field displays the most recent time code value received by the mixer, as defined by the settings in the **[AUTOMATION>EXECUTE]** window.

SCENE Field

This field displays the most recently read **SCENE MEMORY** number and name.

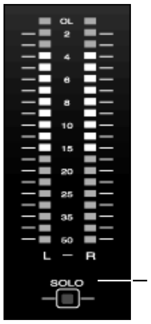
Function Area

The **[function]** area of a window contains the various controls, buttons, settings, and values for the current window.

Window Selection Buttons Area

This area of a window contains the buttons for the windows that comprise the current window group. The button for the current window will be highlighted.

L/R Meter Display



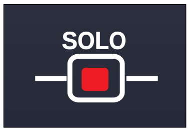
SOLO LED status indicator

L/R Meter Display

This meter reflects the current **MASTER L/R** (left/right) output of the ***DA7***, unless **SOLO** has been activated for a channel. If a **SOLO** LED button is selected on the mixer, the meter reflects the level of the solo’d channel(s) only.

In the **[METER>SLOT]** window, the **[RESPONSE]** area lets you select between **[VU]** (Volume Units) and **[PPM]** (Peak Program Meter). When **[VU]** is selected, the **L/R Meter Display** will show the mixer output in Volume Units, and when **[PPM]** is selected, the Meter reflects the mixer output as Peak Program Meter.

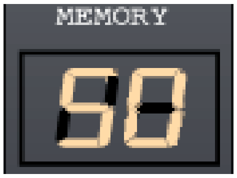
SOLO LED Status Indicator



SOLO LED Status Indicator

Located below the **L/R** meter display, the **SOLO** LED status indicator will light and flash *(red)* when **SOLO** has been activated for any channel on the mixer.

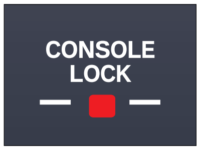
MEMORY Numeric Readout



MEMORY Numeric Readout

The two-digit numeric readout displays the most recently accessed **SCENE MEMORY**. Whenever an **AUX** monitoring selection button is activated for either **MONITOR A** or **MONITOR B**, the numeric display will momentarily display the **AUX** selections.

CONSOLE LOCK LED Status Indicator

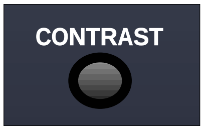


CONSOLE LOCK LED Status Indicator

When illuminated *(red)*, the password protection for an area or function of the mixer is engaged, and selected mixer operations cannot be performed.

See ***Section 16-3, Utility, Configuration (CONFIG) Window*** for more information.

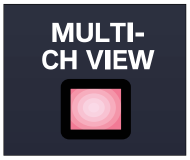
CONTRAST Control Knob



CONTRAST Control Knob

This knob controls the contrast value of the LCD screen. Rotate the knob to adjust the contrast value of the LCD screen for optimum viewing and to suit the operating environment.

MULTI-CH VIEW LED Button



MULTI-CH VIEW LED Button

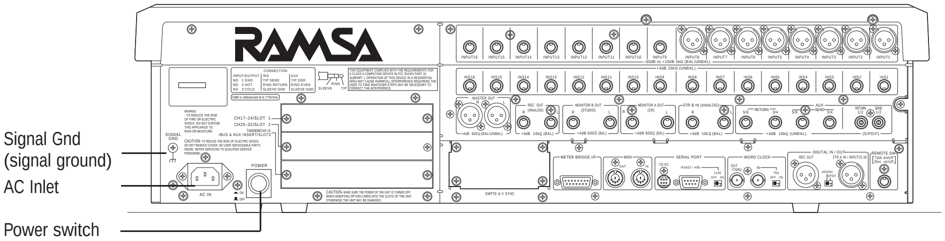
Press this LED button to activate the multi-channel viewing mode for the LCD screen. When on *(red)*, the LCD screen will display the currently selected **Channel Fader** and one of the other sources that can be used to compare or copy information from the current selection.

See **Chapter 5, Channel, Library, and Meter Windows** for more information.

2-4 Rear Panel

Everything that goes in, out, and through the ***DA7*** happens on the Rear Panel, with the exception of the headphone connector. The ***DA7*** provides multiple ways for doing many things, so let your creativity be your guide.

The rear of the ***DA7*** is configured in four rows. The top row contains analog **INPUTS 1-16** (inputs 1-8 are balanced XLR connectors and inputs 9-16 are balanced TRS (tip-ring-sleeve) phone plug connectors). Row 2 contains analog **INS 1-16 (**inserts) with (TRS) phone plug connectors. Row 3 contains outputs for **MASTER OUT**, **REC OUT** analog, **MONITORS A&B,** and **AUX** returns and sends 1 through 6. The bottom row contains the **METER BRIDGE** connection, **MIDI IN/OUT**, **SERIAL PORT** (for direct connection to a PC or a Macintosh computer), **WORD CLOCK IN/OUT**, **DIGITAL IN/OUT**, and a **REMOTE SW** connector.



DA7 Rear Panel

Power Switch

Turns the power on and off to the ***DA7***.

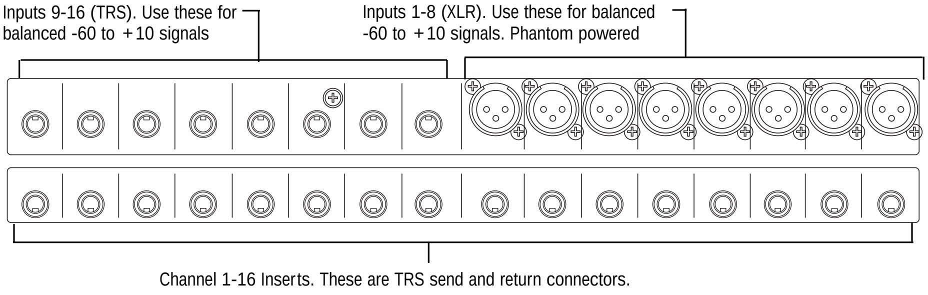
AC Inlet

Plug the AC power cord here.

Signal Ground [SIGNAL GND]

Connect to a grounded source to stabilize the voltage levels of the connected devices, and to prevent hum and buzz created by ungrounded sources.

Rows 1 & 2 Connectors


Inputs 9-16 (TRS). Use these for balanced -60 to +10 signals
Inputs 1-8 (XLR). Use these for balanced -60 to +10 signals. Phantom powered
Channel 1-16 Inserts. These are TRS send and return connectors.

Cutaway of DA7 Rear Panel (Rows 1 and 2) Input and Insert Connectors

Connectors in these two rows are numbered from right to left on the Rear Panel.

INPUTS 1-8

These inputs are designed for XLR connectors. The input range is from -60dB to +10dB, 5k Ω BAL. Use the **MIC/LINE INPUT** knobs on the **Channel Strips** for adjustment of the incoming level. From the **[CHANNEL]** window, the +48V phantom power can be individually turned on or off for each channel via the screen.

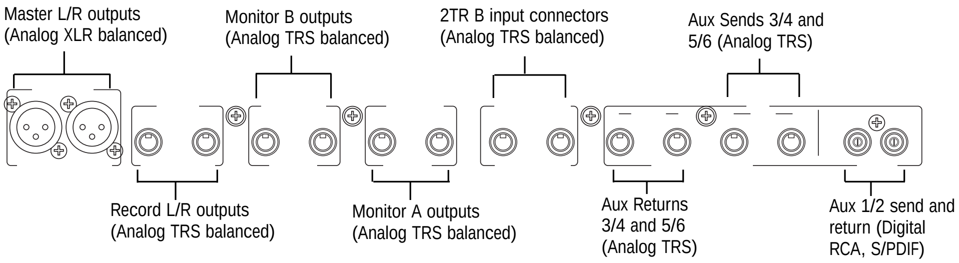
INPUTS 9-16

Use these inputs with a 1/4" TRS (tip-ring-sleeve) phone plug connector. Use the **MIC/LINE INPUT** knob to adjust the input level. The input range is from -60dB to +10dB, 5k Ω BAL. There is no +48V phantom power. Microphones used on these inputs must be externally powered if required.

INSERTS 1-16

These inserts are used for creating an effects loop. A 1/4" TRS phone plug, with a level of +4 dB, 10k Ω UNBAL, provides an output (tip) send to effects, or an input (ring) return from an outboard effects device.

Row 3 Connectors


Master L/R outputs
(Analog XLR balanced)
Monitor B outputs
(Analog TRS balanced)
2TR B input connectors
(Analog TRS balanced)
Aux Sends 3/4 and
5/6 (Analog TRS)
Record L/R outputs
(Analog TRS balanced)
Monitor A outputs
(Analog TRS balanced)
Aux Returns
3/4 and 5/6
(Analog TRS)
Aux 1/2 send and
return (Digital
RCA, S/PDIF)

Cutaway of DA7 Rear Panel (Row 3) Output Connectors

AUX SEND 1/2

Use RCA connectors to attach a digital effects device or another S/PDIF device to the **AUX SEND 1/2** and **AUX RETURN 1/2** digital terminals. **AUX/BUS Fader Layer** faders control the **AUX 1/2 SEND** and **RETURN**. These connections are not analog signals.

AUX SEND 3/4, 5/6

These terminals are 1/4" TRS phone plug connectors, at a level of +4dB, 10kΩ UNBAL. They can be used for connecting outboard signal processing devices, or for a studio headphone feed, or as part of a multitrack output setup. The possibilities are limited only by your imagination. The **AUX/BUS Fader Layer** is the fader control for these connections. Detailed cable connections are shown in **Appendix E, Cables and Connections**.

AUX RETURN 3/4, 5/6

These terminals are 1/4" TRS phone plug connectors, at a level of +4dB, 10kΩ UNBAL. The **AUX/BUS Fader Layer** is the fader control for these feeds. See **Appendix E, Cables and Connections** for more information.

2-Track B Input

This is used to connect an analog source strictly for monitoring purposes, as it does not appear as an input to the mixer. Connect a 1/4" TRS phone plug to the output signal from a cassette deck, for example. The input signals are sent to the **2 TR B IN** LED button in the monitor section. The level is +4dB, 10kΩ BAL.

Monitor A Out

These terminals are 1/4" TRS dual phone plugs at a level of +4dB, 600Ω BAL, and connect the output of the **MONITOR A** source selection to an external amplifier (or powered speaker) for monitoring in the control room (**CR**).

Monitor B Out

These terminals are 1/4" TRS dual phono plugs at a level of +4dB, 600Ω BAL, and connect the output of the **MONITOR B** source selection to an external amplifier for monitoring in the studio.

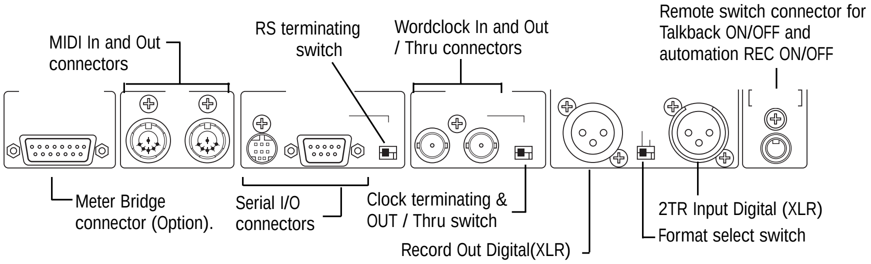
[REC OUT] Record Output

Use 1/4" TRS phone plugs, at a level of +4dB, 10kΩ BAL, to output signals for recording.

Master Output

Female XLR connectors send the **MASTER L/R** analog program output to external speakers and/or a recording device of +4 dB, 600Ω BAL.

Row 4 Connectors


MIDI In and Out connectors
RS terminating switch
Wordclock In and Out / Thru connectors
Remote switch connector for Talkback ON/OFF and automation REC ON/OFF
Meter Bridge connector (Option).
Serial I/O connectors
Clock terminating & OUT / Thru switch
Record Out Digital(XLR)
2TR Input Digital (XLR)
Format select switch

Cutaway of DA7 Rear Panel Row (4) Digital and Serial Connectors

Remote SW [Switch]

Connect a momentary or press-to-talk remote switch with a 1/4" TS phone plug for Talk Back or automation record functions. Parameters are assignable in the **[UTILITY>CONFIG]** window.

Digital Input [AES/EBU] [S/PDIF]

An XLR connector inputs an audio signal from a DAT or other digital source. Assignments can be made from the **[D-I/O>INPUT SET]** window. This incoming source can be monitored by selecting the **2TR A** LED button as the **MONITOR A** source selection, or, on **Channel Faders 15** and **16**, when **2TR A** is assigned in the **[D-I/O>INPUT SET]** window. The signal can also be directly assigned to the **MASTER L/R** program output.

Digital Record Output [AES/EBU] [S/PDIF]

XLR connections of the **MASTER L/R** digital output are for use in recording by a digital device with AES/EBU digital input capabilities.

Format Select Switch

This switch is used to select the signal format of the **Digital Record Output**, either **AES/EBU** (RS-422/110Ω) or **S/PDIF** (0.5 V[p-p]/ 75Ω) physically. The status information included in the output signals is always “professional” regardless of the switch position.
For S/PDIF usage, an optional adapter is required(Part No. DA/ADPTF). You must make certain that the adapter connects pin #1 and #3 together.

Clock Terminating 75 Ω ON/OFF & Out / Thru Switch

Located next to the **WORD CLOCK IN** BNC connection, this switch should be set to 75 Ω **OFF** and **Thru** position if the ***DA7*** is being used to pass the wordclock signal to other devices in the chain.

Set the switch to 75 Ω **ON** and **OUT** for terminating the wordclock, if the ***DA7*** is slaved and located at the end of the wordclock chain. The 75 Ω **ON** and **OUT** position should also be selected when the ***DA7*** is being used to slave other devices to the ***DA7’s*** wordclock. See **Chapter 12, D-I/O** for more information.

Clock Input

This is used to synchronize the ***DA7*** to an external wordclock source. This allows the ***DA7***’s internal clock to slave to another reference, such as a digital multi-track deck or other device. Use a BNC connector to attach an external wordclock source.

Clock Output

This is used to slave an external device, such as a digital multi-track machine, to the ***DA7*** internal clock. It can also be used to relay an external wordclock that is being used to synchronize the ***DA7*** to an external device. Using a BNC connector, other devices can synchronize to the ***DA7*** wordclock.

Serial Terminating Switch

Set the switch to **ON** if the ***DA7*** is the termination point of the RS-422/485 serial transmission path. The 110Ω switch turns this function **OFF/ON**.

Serial Port [RS-422/485]

Use this serial port to connect an IBM compatible computer that has an RS-422/485 port. Connect to the ***DA7*** with a D-SUB 9-pin connector. Optional remote control software for your computer can be used to control the ***DA7***, thus expanding the features and capabilities of the mixer.

Serial Port [TO PC]

Use this serial port to connect with a Macintosh computer. If the computer is IBM compatible, you may need a conversion cable that changes a Mini-DIN 8 pin (for TO PC) to a D-sub 9 pin(for RS-232C), available at your nearest dealer, shown in **Appendix E, Cables and Connections.** Optional remote control software for your computer can be used to control the ***DA7***, thus expanding the features and capabilities of the mixer.

> ⊗ For **TO PC**, use only a Macintosh Printer Cable (cross type) to connect two ***DA7***s each other, or between the ***DA7*** and the serial port of a Macintosh computer. Using a straight type of modem cable may cause malfunctions in serial communications. For more details see **Appendix E, Cables and Connections**.

MIDI IN

This connector is used to receive signals from peripheral MIDI devices.

MIDI OUT

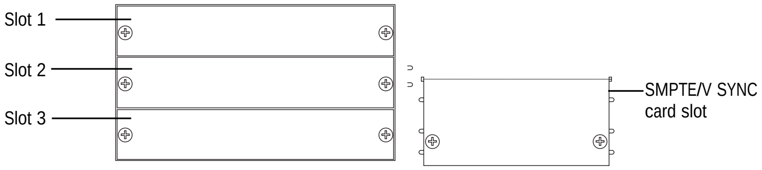
This connector is used to send signals to peripheral MIDI devices. The ***DA7*** can be used as a MIDI controller. See **Chapter 11, MIDI** for details.

METER BRIDGE Connector

This is used to connect the optional Meter Bridge to the ***DA7***.

See **Chapter 17, Options** for more details.

Option Card Slots



Option Card Slots

There are three slots for the optional audio Input/Output cards, plus one dedicated slot for the **SMPTE/V SYNC** card. The space for the **SMPTE/V SYNC** card is located directly under the **MASTER OUT** XLR connectors. Audio option cards are next to the power switch. The audio option cards can be used in any of the audio slots, but for TANDEM operation, the TANDEM card MUST be used in Slot 3.

Video Sync Input [V SYNC]

This is used to connect a vertical synchronizing signal from a video device.

See **Chapter 17, Options** for more about SMPTE/V SYNC.

Digital I/O Slot 1 [CH17-24/SLOT 1]

When an option card is inserted into Slot 1, the output of the connected device appears on **Channel Faders** 17 through 24, and is controlled by the **Fader Layer Inputs 17-32**.

Digital I/O Slot 2 [CH25-32/SLOT 2]

When an option card is inserted into Slot 2, the output of the connected device appears on **Channel Faders** 25 through 32, and is controlled by the **Fader Layer Inputs 17-32**.

Digital I/O Slot 3 [CH9-16/SLOT 3]

When an option card is inserted into Slot 3, the output of the connected device appears on **Channel Faders** 9 through 16, and is controlled by the **Fader Layer Inputs 1-16**. This connection TOGGLES the analog inputs 9-16 with whatever is connected to the option card in Slot 3.

For more information regarding optional slots, see **Chapter 12, D-I/O** and **Chapter 17, Options**.

Chapter 3
Quick Start

As with any mixer, the basics come first. Take it out of the box, plug it into a standard three-prong, 120v 60Hz electrical outlet, and turn it on. Once the novelty has passed of seeing all the colored lights and the faders going up and down when the buttons are pressed, your real fun can begin.

There are several basic functions that, once you become familiar with, will make the ***DA7*** easy to use. This ***Quick Start Guide*** assumes that you have a basic knowledge of audio technology.

If you have already started pushing buttons, press the **Fader Layer INPUT 1-16** LED button, turn off all the channels, and lower all the faders. Then, press the **CHANNEL** button to display the **[CHANNEL]** window. Or, if you wish to start fresh, reset the ***DA7*** back to the factory presets by turning the unit off. Then hold down both the **METER** and **CHANNEL** buttons in the **MASTER DISPLAY** area. While holding these buttons down, turn the ***DA7*** back on. Your mixer will restart automatically.

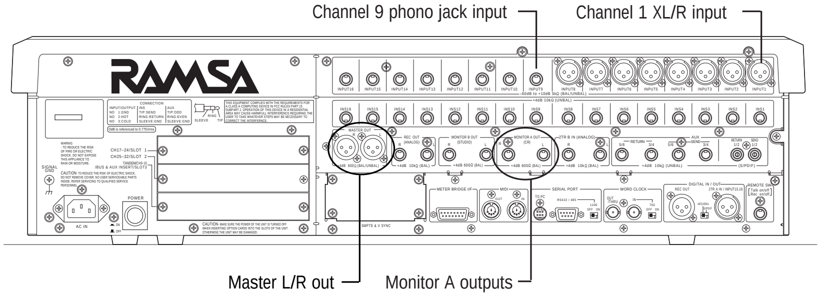
The “reset to default” procedure, in the tip above, will reset all the mixer functions and clear all the library and memory registers. This is an irrevocable procedure. You can protect your data by copying it to a backup using the **[MIDI>BULK]** procedure described in ***Section 11-4***.

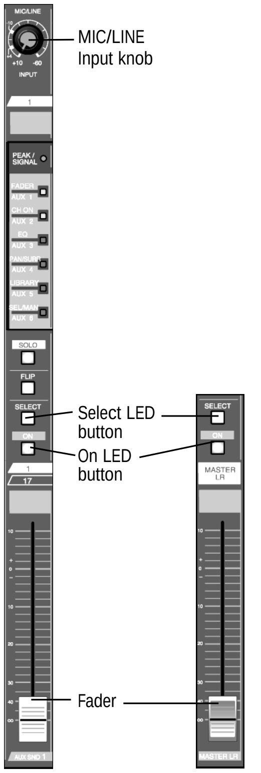
The following five modules will give you a fundamental understanding of the primary features of the ***DA7***. This chapter does not cover all of the features of a particular example, since it is meant as an introduction. If you do not understand something, go to the chapter that is referenced for further information. MIDI and automation functions are not included in this chapter and will be addressed later in this ***Users' Guide***.

3-1 Module A, Getting Sound Out

No Waiting . . . Join the 10 Step Program!

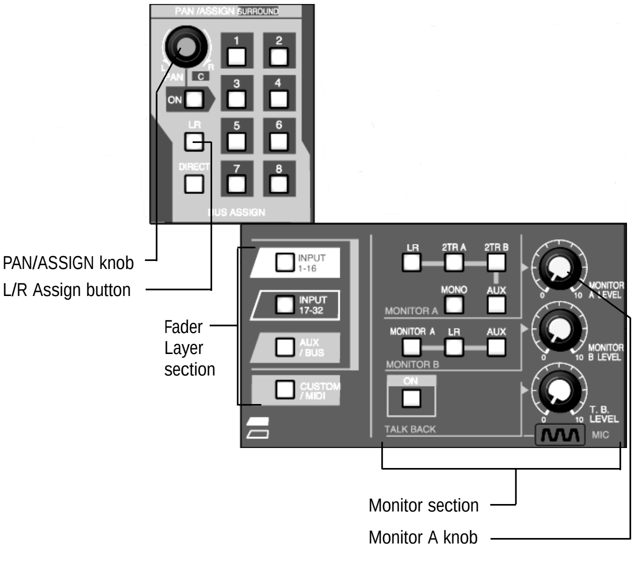
Look at the Rear Panel of the mixer. Everything that goes in and out of your ***DA7*** comes through here. This Module describes the process for achieving sound output from the mixer.


Channel 9 phono jack input
Channel 1 XL/R input
RAMSA
Master L/R out
Monitor A outputs


MIC/LINE
INPUT
MIC/LINE Input knob
PEAK / SIGNAL
SOLO
FLIP
SELECT
ON
Select LED button
On LED button
MASTER LR
Fader
MASTER L/R

Channel strip

Master L/R fader strip


PAN /ASSIGN /SURROUND
PAN
ON
LR
DIRECT
1
2
3
4
5
6
7
8
BUS ASSIGN
PAN/ASSIGN knob
L/R Assign button
Fader Layer section
INPUT 1-16
INPUT 17-32
AUX / BUS
CUSTOM / MIDI
LR
2TR A
2TR B
MONO
AUX
MONITOR A
MONITOR A
LR
AUX
MONITOR B
ON
TALK BACK
MONITOR A LEVEL
MONITOR B LEVEL
T. B. LEVEL
MIC
Monitor section
Monitor A knob

1. Connect an input source – From the source to the Rear Panel of the ***DA7***, connect an XLR connector to **INPUT 1**, or to a 1/4” TRS phone plug to **INPUT 9**.

2. Attach an output monitor – In a production environment, attach the amplifier input to the ***DA7*** **MONITOR A OUT** and press the **L/R** selection button of the **MONITOR A** section. In a live mix situation, attach the amplifier input to the ***DA7*** **MASTER OUT**.

3. Preset the **MASTER L/R** – Raise the **MASTER L/R** fader to zero. This fader sets the master output level.

> There is a shortcut to placing any Fader to zero level. Hold down the **SELECT** LED button for the Channel and simultaneously press the **ON** LED button. The Fader will move to zero level.

4. Press the **MASTER L/R ON** LED button – This LED button turns the **MASTER L/R** channel strip on *(red)*.

5. Press the **Fader Layer INPUT 1-16** LED button – This will assign the **Channel Faders** to inputs 1-16.

6. Activate **SELECT** – Above each **Channel Fader ON** LED button is an LED button labeled **SELECT**. Pressing this will turn it on *(orange)*. Once selected, it activates the area near the LCD display. Here, parameters can be assigned to the channel, such as EQ, dynamics, pan, or aux, if desired.

7. Press the **L/R** LED button in the **PAN/ASSIGN** section – This is where you assign an output path. Pressing the **L/R** LED button turns it on *(green)*. This will assign the selected **Channel Fader** to the **L/R** outputs of the mixer. (Pan is always active on the **L/R** output of the ***DA7***.)

8. Select **Channel Fader 1** or **9**, and then press the **Channel Fader ON** LED button to turn the channel on *(red).* Raise the Fader to zero.

9. Adjust the input gain – Turn the **MIC/LINE INPUT** knob on the **Channel Strip** to set the incoming signal type and level.

While sending a signal through the channel, look below the **MIC/LINE** knob, and you will find the **PEAK/SIGNAL** LED. This LED will light *(green)* when the signal is present and below clipping.

When the signal is near clipping, it will light *(red)*, showing that you are either close to or at an overload condition (something you should not do in digital recording), and you should reduce the level using the **MIC/LINE** knob.

This is an important adjustment. Since this stage of gain is before the A/D converter, it is important to get the maximum signal (without overload) to the converter so that you will have the best possible signal to noise ratio. Too high of a signal will cause distortion, and too low of a signal will quite possibly introduce unwanted noise to your recording.

> With the **Channel Fader** and **MASTER L/R Fader** set at 0, while watching the **PEAK/SIGNAL LED** of the **Channel Strip**, turn the **MIC/LINE INPUT** knob to adjust the level to “peak”. Generally, “peak” is when the **PEAK/SIGNAL** LED flashes *(red),* which should be very rare!

10 Adjust the levels – With a source connected to the mixer, audio levels can be adjusted via the **MIC/LINE INPUT** knob. This controls the channel input level.

Channel Fader. This controls the channel output level to the selected bus or direct out.

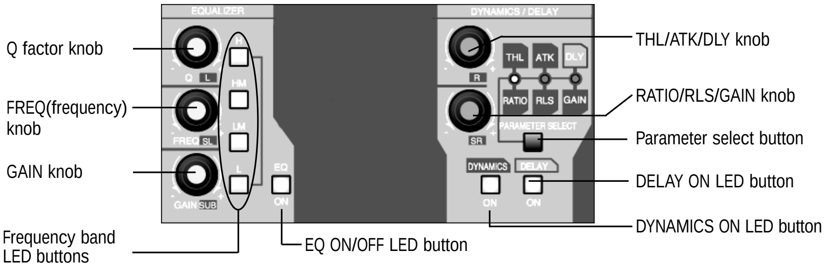
MASTER L/R Fader. This controls the **MASTER L/R** output level of the ***DA7***.

MONITOR A LEVEL knob. This adjusts the control room monitor volume without affecting the mixer output level.

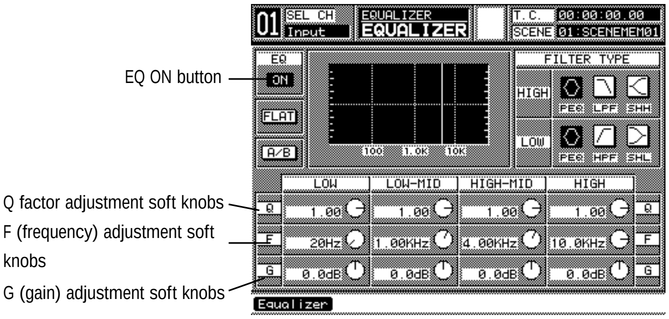
> The **[GAIN]** soft knob in the **[CHANNEL]** window provides additional level control for the selected channel. Cursor to the soft knob and rotate the **JogDial** to boost the audio level, when additional gain is needed. The **[GAIN]** soft knob range is -24dB to +12dB.

3-2 Module B, Onboard Signal Processing

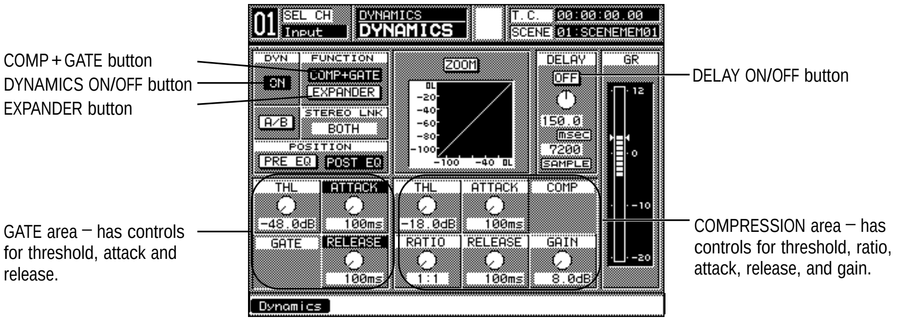
Each of the 32 input channels, the 8 buses and the **MASTER L/R** output of the ***DA7*** has the option of inserting a 4-band Parametric Equalizer with various filter types. There is also a Dynamics Processor on these same channels that offers you a choice of **GATE** + **COMPRESSOR** or **EXPANDER**. There is also a 0 to 300 ms Delay Processor for each of the 32 input channels. AUX 1-6 Returns have a 2 band Parametric Equalizer.


Q factor knob
FREQ(frequency) knob
GAIN knob
Frequency band LED buttons
EQ ON/OFF LED button
THL/ATK/DLY knob
RATIO/RLS/GAIN knob
Parameter select button
DELAY ON LED button
DYNAMICS ON LED button
EQUALIZER
DYNAMICS / DELAY
THL
ATK
DLY
RATIO
RLS
GAIN
PARAMETER SELECT
DYNAMICS
DELAY
EQ
ON

Top Panel Sections


EQ ON button
Q factor adjustment soft knobs
F (frequency) adjustment soft knobs
G (gain) adjustment soft knobs
01
SEL CH
Input
EQUALIZER
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
EQ
ON
FLAT
A/B
FILTER TYPE
HIGH
LOW
PEQ
LPF
SHH
HPF
SHL
100
1.0K
10K
LOW
LOW-MID
HIGH-MID
HIGH
Q
F
G
1.00
20Hz
1.00KHz
4.00KHz
10.0KHz
0.0dB
Equalizer

Equalizer Window


COMP+GATE button
DYNAMICS ON/OFF button
EXPANDER button
GATE area – has controls for threshold, attack and release.
DELAY ON/OFF button
COMPRESSION area – has controls for threshold, ratio, attack, release, and gain.
01
SEL CH
Input
DYNAMICS
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
DYN
ON
FUNCTION
COMP+GATE
EXPANDER
STEREO LNK
BOTH
A/B
POSITION
PRE EQ
POST EQ
ZOOM
DELAY
OFF
150.0
msec
7200
SAMPLE
GR
THL
ATTACK
-48.0dB
100ms
GATE
RELEASE
-18.0dB
RATIO
1:1
COMP
GAIN
8.0dB
Dynamics

Dynamics Window

When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is **ON**, the LCD screen will update and display the respective window for the EQ or dynamics/delay adjustment that is currently being performed.

Equalizer

The **EQUALIZER** section contains controls for the adjustment of the frequency characteristics for the selected channel.

1. Select a channel – Press the **ON** LED button *(red)* on a channel, and press the **SELECT** LED button *(orange)* for the channel.
2. Display the **[EQUALIZER]** window – Press the **GAIN** knob, and the LCD screen will display the **[EQUALIZER]** window.
3. Press the **EQ ON** LED button – This button toggles EQ on *(green)* and off for the selected channel.
4. Select a frequency band button – Activate the **H** (high), **HM** (high-mid), **LM** (low-mid), or **L** (low) frequency band by pressing the respective LED button to turn it on *(orange)*.
5. Adjust an EQ parameter – Rotating the **Q**, **FREQ**, or **GAIN** knobs will give you enormous control over the timbre of the sound.

   For a more detailed explanation of the Equalizer, refer to **Chapter 7**.

An alternate method for adjusting EQ is to use the **ARROW** buttons to move the cursor to the **[EQUALIZER]** window soft knob controls, and then use the **JogDial** to adjust the parameters.

Dynamics/Delay

Each channel of the ***DA7*** can have unique dynamics and/or delay processing assigned to it.

1. Display the Dynamics window – Press the SR knob and the LCD will display the **[DYNAMICS]** window.
2. Activate the **DYNAMICS/DELAY** section – Press the **DYNAMICS ON** LED button, which turns it on *(green)*.

3. Select a dynamics type – Cursor to either the COMP+GATE button or the EXPANDER button in the **[FUNCTION]** area of the **[DYNAMICS]** window, and press the **ENTER** button.

4. Either

   Adjust the Compressor+Gate – The **[COMP]** area has software control for **[THL]** (threshold), **[RATIO]**, **[ATK]** (attack), **[RLS]** (release), **[GAIN]**, and **[DLY]** (delay). The **[GATE]** area gives you control over **[THL], [ATK]** and **[RLS]**.

   Or,

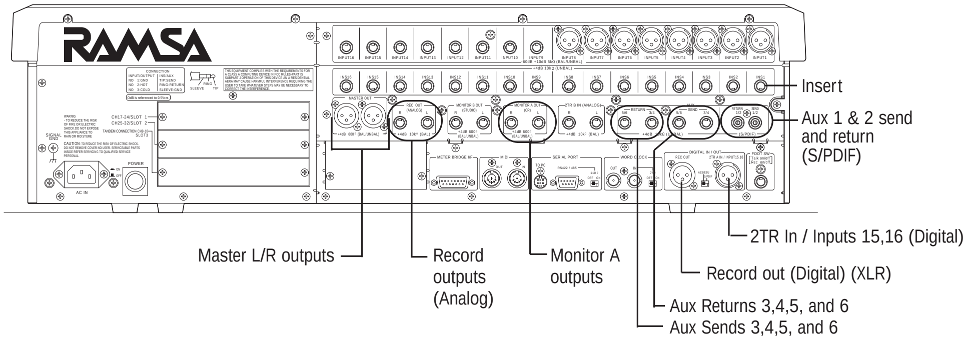
   Adjust the Expander – This is similar in appearance to the **[COMP]** area, except **[GAIN]** is replaced by **[RANGE]**.

   Adjust the Delay – This area has two fields for adjustment. The first one allows you to change the Delay for the selected channel by 1 msec step. The other allows you to change the Delay for the selected channel by 1 sample step. You can also enter a number in either field using the numeric keypad.

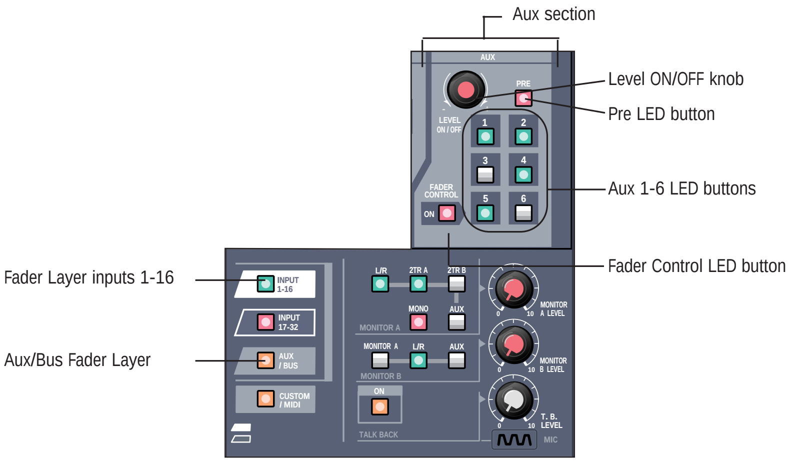
   See **Chapter 9, Dynamics / Delay** for more details.

3-3 Module C, Outboard Processing

The ***DA7*** has the ability to route signals outside of the program buses for processing by outboard devices. Outboard effects devices, such as a reverb unit or an effects processor, can be attached to the ***DA7*** in several ways. By using the aux sends and returns and the analog Inserts, you have tremendous flexibility for getting the signal where you need it. Let's look at the Auxiliaries first.


RAMSA
Insert
Aux 1 & 2 send and return (S/PDIF)
2TR In / Inputs 15,16 (Digital)
Record out (Digital) (XLR)
Aux Returns 3,4,5, and 6
Aux Sends 3,4,5, and 6
Master L/R outputs
Record outputs (Analog)
Monitor A outputs

Rear Panel


Aux section
AUX
PRE
LEVEL ON / OFF
1
2
3
4
5
6
FADER CONTROL
ON
Level ON/OFF knob
Pre LED button
Aux 1-6 LED buttons
Fader Control LED button
Fader Layer inputs 1-16
Aux/Bus Fader Layer
INPUT 1-16
INPUT 17-32
AUX / BUS
CUSTOM / MIDI
L/R
2TR A
2TR B
MONO
AUX
MONITOR A
MONITOR A
L/R
AUX
MONITOR B
ON
TALK BACK
MONITOR A LEVEL
MONITOR B LEVEL
T. B. LEVEL
MIC
0
10

Top Panel Sections

Auxs (Auxiliaries)

The ***DA7*** has six **AUX** sends and six **AUX** returns. **AUX1** & **2** are **S/PDIF** digital **IN+OUT**, while **AUX3** through **6** are analog.

While Aux feeds are generally used to send signals to outboard signal processing devices, they are also commonly used for headphone sub-mixes, Cue feeds for announcers in post production environments, etc. They can also be used to feed a tape machine when you need more buses. If you let creativity be your guide, you will find many uses for the aux send and returns. Later in this chapter we will show you examples of some unique uses of the Auxes.

These Auxes can be used as six mono sends or in stereo pairs (such as 1&2, 3&4, 5&6), and six mono returns or stereo pairs. These six returns can also be used as an additional six inputs to the mixer, bringing the total of inputs to 38. Additionally, these six returns have a 2-band Parametric EQ on each channel.

Aux selections and assignments are displayed in both the **[CHANNEL]** window and the appropriate **[FADER CONTROL>AUX]** window, as well as the LED field. However, the **[CHANNEL]** window will initially be displayed on the LCD when selecting and assigning aux functions.

See **Chapter 10, AUX** for additional information.

Working with the Aux Send and Return

1. Connect the output – Connect the output of **AUX 5/6 SEND** on the Rear Panel of the ***DA7*** to the inputs of the effects device.
2. Connect the input – Connect the output of the effects device to **AUX 5/6 RETURN** on the Rear Panel of the ***DA7***.
3. Assign channels – Either in the appropriate **[CHANNEL]** windows or in the **[FADER CONTROL]** window, assign the channels that you want to send to **[AUX 5/6]** for processing.
4. Adjust the aux send levels – Rotate the **LEVEL ON/OFF** knob for **AUX SEND 5** and for **AUX SEND 6** to set the channel levels for the aux sends.
5. Press the **AUX/BUS Fader Layer** LED button *(orange)* – This will activate the **Fader Layer** for **AUX RTN** and **AUX SND**.
6. Send the signal out – Press both the **AUX SND 5** and **AUX SND 6 Channel Strip ON** buttons, and raise the faders to send the signal out to the effects processor.

7. Bring the signal in – To hear the effects processors' signal, turn on the **AUX RTN 5** and **AUX RTN 6 Channel Strips**, assign them to an output, and raise the faders.

How to send to an aux:

1. Select a channel – Press the **SELECT** LED button on the channel you want to assign to an aux send.

2. Assign the channel to an aux – Press one of the **1-6** LED buttons in the **AUX** section to turn it on *(green)*.

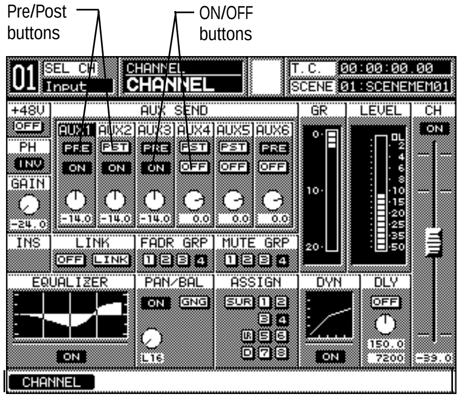
3. Press the **LEVEL ON/OFF** knob – This toggles the selected channels' aux assignment on or off. As seen in the **[CHANNEL]** window, the software button will appear as OFF, changing to ON when engaged. Pressing the **AUX** knob while in any other window will change the LCD to the **[CHANNEL]** window.

   You can also view the aux assignments on the LED field of the selected channel. You will see a *green* LED in the appropriate locations, when the **AUTOMATION/AUX** LED button is toggled to **AUX**.

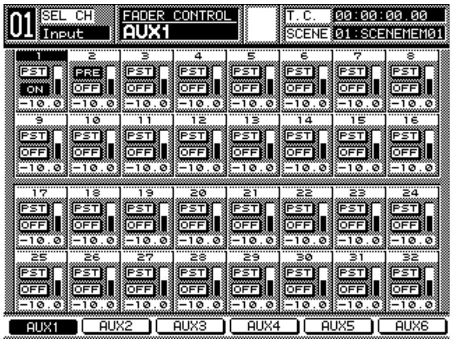
4. Adjust the aux level – Rotating the **LEVEL ON/OFF** knob adjusts the channel level to the selected aux.

5. Press the **PRE** LED button to turn pre-fade on *(red)* – This button toggles the assignment of the selected aux from the default PST (post-fader) to PRE (pre-fader), as seen in the **[CHANNEL]** window.

6. Press the **FADER CONTROL** LED button – To see the aux assignment status of all 32 channels, press the **FADER CONTROL** LED button to turn it on *(red),* and the **[FADER CONTROL>AUX]** window group will be displayed. The faders can be used to adjust levels of the selected AUX Send.


Pre/Post buttons
ON/OFF buttons
SEL CH
Input
CHANNEL
AUX SEND
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6
PRE
PST
ON
OFF
GR
LEVEL
CH
+48V
PH
INV
GAIN
INS
LINK
FADR GRP
MUTE GRP
EQUALIZER
PAN/BAL
ASSIGN
DYN
DLY
CHANNEL

CHANNEL Window


SEL CH
Input
FADER CONTROL
AUX1
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
PST
PRE
ON
OFF
-10.0
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6

FADER CONTROL AUX Window

Effects

Outboard effects devices, such as a reverb unit or an effects processor, can be attached to the ***DA7*** in several ways. In conjuction with the aux sends and returns, one of the great features of the ***DA7*** is the **Fader Layer** controls, which expands the use of the channel faders. By designing the mixer this way, channel faders are not tied up with effects returns. This also permits effects assignment to groups, not just to individual sources.

Let's look at both setups.

Analog Inserts

Inserts can be used to add processing to a specific channel. Use the analog **INS** (insert) jacks on the Rear Panel (channels 1-16) to add outboard processing directly into a **Channel Strip**. This puts the effect device into the signal path after the Mic pre-amp, and before anything else in the **Channel Strip**. Use a stereo cable that has a Y connector with two mono phono plugs (unless the effects device uses a stereo phono plug). For details on connector wiring see **Appendix E, Cables and Connections**.

How to Connect the Analog Inserts (1-16)

1. Plug in the effects processor – Plug the send into the input of the effects device and plug the return into the output of the effects device.
2. Raise the source fader on the ***DA7***. Adjust the mix balance from the effects device. For further information see page **Appendix E-2, Cables and Connections**.

Digital Send and Return

1. Connect the output – Using an XLR cable, connect the **REC OUT** of the **DIGITAL IN/OUT** on the Rear Panel of the ***DA7*** to the recording device.
2. Connect the input – Using an XLR cable, connect the output from the digital recording device to the **2TR A IN / INPUT 15, 16 DIGITAL IN/OUT** of the ***DA7***.
3. Send the signal out – This output is the same as the **MASTER L/R** output.
4. Listen to tape playback – Optionally, you may return **2 TR IN A** as **INPUT 15, 16** on the mixer. To do this, go to the **[D-I/O>INPUT SET]** window, and select **2 TR IN A** to **INPUT 15, 16**.

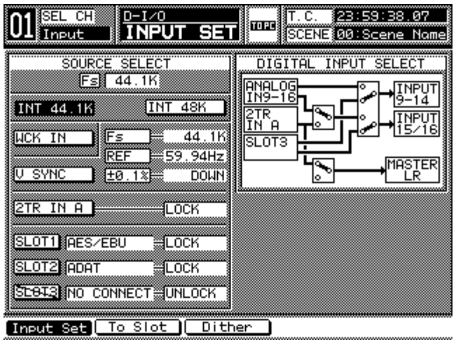
Or,

1. Connect the output – Connect the **AUX 1/2 SEND** to the input of a digital recorder, or to the input of a digital effects device.
2. Connect the input – Connect the stereo outputs of the digital device to the **AUX 1/2 RETURN**.

3. Press the **Fader Layer AUX/BUS** LED button.

4. Send the signal out – Turn on the **AUX SND 1** and **AUX SND 2 Channel Strips** by pressing their **ON** buttons *(red)*, and raise the faders to send the signal to the digital device.

5. To listen to the return signal – Turn on the **AUX RTN 1** and **AUX RTN 2 Channel Strips**, assign an output, and raise the faders to hear the return signal.


01
SEL CH
Input
D-I/O
INPUT SET
TO PC
T.C.
23:59:38.07
SCENE
00:Scene Name
SOURCE SELECT
Fs 44.1K
INT 44.1K
INT 48K
WCK IN
Fs 44.1K
REF 59.94Hz
V SYNC
±0.1% DOWN
2TR IN A
LOCK
SLOT1 AES/EBU LOCK
SLOT2 ADAT LOCK
SLOT3 NO CONNECT UNLOCK
DIGITAL INPUT SELECT
ANALOG IN9-16
2TR IN A
SLOT3
INPUT 9-14
INPUT 15/16
MASTER LR
Input Set
To Slot
Dither

[D-I/O>INPUT SET] Window

Additional TAPE Sends and Returns

The ***DA7*** is a very fexible mixer because it has 8 buses available in either digital or analog (through the option slots).

There are other ways to use the mixer in a creative manner. You can use the analog features of the ***DA7*** for analog multi-tracking. Your creativity here can produce wonders. Here are a few examples:

Analog 2-Track Tape Sends and Returns

1. Connect the output – Connect the **REC OUT** (analog) 1/4" TRS outputs on the Rear Panel of the ***DA7*** to the inputs of an analog recording device.

2. Connect the input – Take the outputs from the analog recording device and attach to either:
   - **INPUTS 9** and **10** (listen via the **MASTER L/R OUTPUT**)
   - **2TR B IN** (listen to the **2TR B** source for **MONITOR A**)
   - **AUX RETURN 3/4** or **5/6** (listen via the **AUX/BUS** faders, or the **AUX** source for **MONITOR A**)

3. Repeat steps 3 through 7 under Analog 4-Track Sends and Returns which are listed on the following page.

Analog 4-Track Sends and Returns

1. Connect the output – Connect the stereo 1/4" TRS connectors (with mono Y connections) to the **AUX SEND 3/4** and **5/6** outputs on the Rear Panel of the ***DA7***. Connect the four mono connectors to inputs 1 through 4 of your 4-track tape machine.
2. Connect the input – Connect the output channels of the tape machine to **AUX RETURN 3/4** and **5/6** on the Rear Panel of the ***DA7***. They could be connected to four separate input channels.
3. Assign channel outputs – In the **[CHANNEL]** window for each channel, assign the desired aux outputs and levels.
4. Activate the **AUX/BUS Fader Layer** – Press the **AUX/BUS Fader Layer** LED button *(orange)*.
5. Send the signal out – Turn on the **AUX SEND 3,4,5** and **6 Channel Strips** by pressing their **ON** buttons *(red)*, and raise the faders to send the signal to your tape deck.
6. Record the source material on tape.
7. Listen to tape playback – Turn on the **AUX RTN 3,4,5** and **6 Channel Strips**, assign an output, and raise the faders to hear the tape output signal.

3-4 Module D, Monitoring

There are several ways to listen to sources on the ***DA7***. This section describes the **MONITOR A (CR)** selections. The ***DA7's*** operator/engineer will usually monitor from the control room(CR). We assume that an amplifier is already connected to the speakers.

1. Connect the output – Connect the **MONITOR A OUT** to the amplifier.
2. Select the output – Press the **L/R** LED button *(green)* in the **MONITOR A** section to route the **MASTER L/R** to **MONITOR A**.
3. Adjust the **MASTER L/R Fader Strip** – Press the **ON** button for the **MASTER L/R Fader Strip,** and raise the fader to set the level.
4. Adjust the gain – Turn the **MONITOR A LEVEL** knob clockwise to increase the volume.
5. Select **2TR B** in the **MONITOR A** selections – Plug a source, such as an analog tape deck, into the **2TR B IN (ANALOG)** connectors on the Rear Panel. This bypasses the mix bus of the ***DA7*** and routes the signal directly to the Control Room monitors.

> When using the optional meter bridge, the **MONITOR A / MASTER L/R** meter will not respond to a signal from **2TR B**. This is because it is an analog signal, and the meter can only display a digital signal.

In conjuction with the digital send and return examples in the preceding Module C:

1. Listen to the tape playback – Turn on the **AUX RTN 1** and **2 Channel Strips**, assign an output, and raise the faders to hear the tape signal.
2. Select **AUX** in the **MONITOR A** selections – This permits monitoring of aux sends **1/2**, **3/4**, or **5/6**. The selected auxes will appear in the **MEMORY** readout momentarily when the **MONITOR A AUX** LED button is pressed. Press the **AUX** button to cycle through them.
3. Choose **MONO** from the **MONITOR A** selections – This will sum any of the sources selected in the **MONITOR A** area (except **2TR B**). This is useful to check for out of phase signals. It will not affect the signal being output to the **L/R** bus.

3-5 Module E, Tips, Shortcuts and Warnings

If you read nothing else, this is the section of the manual you should read. It contains information about the ***DA7*** that will make it easier to use and understand. These tips, shortcuts and warnings contain essential information.

There are several hidden functions in the ***DA7***. Some items discussed here are not described elsewhere in this manual. We recommend you take a few minutes to look over these features, as well as review **Appendix D, Default Settings**. These settings are the ones the ***DA7*** will return to if you reset the mixer. It is a good idea for you to review them so that you know what these settings are before you begin using the ***DA7*** on an important project.

Tips

- **To reset the *DA7* to factory default settings:**
  Simultaneously press the **CHANNEL** and **METER** buttons in the **[MASTER DISPLAY]** area. This will reset all the mixer functions and clear the libraries and memories. Please note that this is an irrevocable procedure. You can protect your mixer settings from being lost by using the **[MIDI>BULK]** procedure described in **Chapter 11, MIDI** to back up your data. See page 11-10 **MIDI, BULK** (Bulk Out) Window for more information.

- **To automatically set the fader of an individual channel to zero level:**
  Simultaneously press the **SELECT** LED button and the **ON** LED button of the channel strip, and the fader will move to the zero level position.

- **To automatically set the faders of BUS 1-8 and MASTER L/R to zero level:**
  Simultaneously press the **SELECT** LED button, the **ON** LED button of the **MASTER L/R** strip and the **AUX/BUS** LED button of the **Fader Layer** section and all of these faders will move to the zero level position.

- **To recalibrate the faders:**
  Press the **INPUT 1-16** button and the **CUSTOM/MIDI** button simultaneously. The faders will immediately clear themselves of all settings, and will perform the recalibration. This will take several seconds. When this operation is finished, the faders will return to the positions they were in before the recalibration. It is a good idea to periodically recalibrate the faders. It can increase the accuracy and performance of the moving fader system in the ***DA7***.

- **To restart the *DA7*:**
  Simultaneously press the **METER** button in the **[MASTER DISPLAY]** section and the **H**(High) LED button in the **[EQUALIZER]** section, if you need to restart the ***DA7*** without shutting down.

- **To clear flipped faders to a specific layer:**
  Press and hold the master fader layer button for the layer you want all the faders to switch to for two seconds. See page 6-2**, Fader Layers,** for more information.

- **To clear all solo'd channels:**
  When you have solo'd multiple channels, you may wish to clear them all at the same time. You may not be able to see all the channels you have solo'd at any one time because they may be on different fader layers, thus causing confusion as to what is or is not solo'd. In either case, simply press any solo button for two seconds and all the solos will clear. See page 16-2**, Utility, Solo Monitor (SOLO/MON) Window, f**or more information.

- You should consider the **CHANNEL** button in the **[MASTER DISPLAY]** area of the top panel "Home Base" or the "safety" or "*PANIC*" button for the ***DA7****'s* LCD display. If you get lost or cannot find your way out of a particular screen, press this button to return the LCD screen to the **[CHANNEL]** window. This window shows you the current status of the main features of the mixer.

- The cursor appears in the screen as a "highlight selection" device, not a typical pointer or arrow. As you use the controls to navigate around the LCD screen, the various areas, buttons, fields, and lists in the windows will be selected by a border or highlight designating the current area or item.

- Remember that the knobs located in the EQ, PAN DYNAMICS and AUX area are buttons that have several functions. See the appropriate chapter for the functions of these buttons. See page 7-3, **EQUALIZER** Section, page 8-1, **PAN/BUS ASSIGN Controls,** page 9-3, **DYNAMICS/ DELAY Section Controls**, and page 10-3, **AUX Section Controls**, respectively for more information.

- Setting Gain structure in a digital mixer is extremely important. The way to do this on the ***DA7***, is to start with the signals coming into Inputs 1-16. Since these are the signals that will be passed through an A/D converter, you should try to get as high a level as possible without overloading the circuit. With the **Channel Fader** set at 0, while watching the **PEAK/SIGNAL** LED of the **Channel Strip**, turn the **MIC/LINE INPUT** knob to adjust the signal to gently "peak". You will know you are there when the **PEAK/SIGNAL** LED flashes (*red*) which should be very rare. Another area where you can adjust for proper input gain is the **[GAIN]** soft knob in the **[CHANNEL]** window. This control provides an additional level of control for the selected channel. Cursor to the soft knob, and rotate the **JogDial** to boost the audio level when additional gain is needed. The **[GAIN]** soft knob range is -24dB to +12dB. Further Gain changes should be controlled by the fader levels of the channel. See more information described on page 5-3, **Channel Window** and page 6-3, **Channel Strip**.

- If you are not familiar with a digital metering system that uses dBFS (decibels Full Scale), it may take you a little while to get used to the meter characteristics of the ***DA7***. What dBFS means is that 0dB is at the top of the meter, and instead of showing a level above 0dB, it shows OL (OverLoad). In digital metering you should never go above the full scale 0dB level. Remember that the digital format is very unforgiving of overmodulation. Too high a level will create noise or even distortion to a recorded signal and you may not be able to correct it.
  These meters can either be VU or PPM with no peak hold, momentary peak hold or infinity peak hold. Take a few minutes to try out all the possible settings in order to aquatint yourself with this type of metering before you use the ***DA7*** on a project. If you are using the optional meter bridge, you should be aware of the **CONSOLE LINK** button. When activated, this feature allows the meter bridge to reflect the action of the **FADER LAYER** buttons. If you flip a fader, the meter will follow. If you wish to monitor manually, press the master fader layer button on the meter bridge to select which layer you will monitor. You should also be aware that you will not see the level of **2TR B** displayed on the **MONITOR A** section of the meter bridge (extreme right hand side). This is because these meters can only measure a digital signal, and **2TR B** is an analog signal.
  See page 5-3, **Channel Window**, page 6-3, **Channel Strip**, and page 17-16, **METER BRIDGE**, for more information.

- For functions other than **AUTOMATION**, you must execute **UNDO** immediately after performing the memory-related action that you want undone. After you change to another register or change to another window display, you cannot execute the **UNDO** function.
  For **AUTOMATION** operations, **UNDO** can be executed at any time for the current event only. **UNDO** cannot be performed if either the **[UNDO]** BUF CLR (clear buffer) or the **[UNDO]** DISABLE buttons in the **[AUTOMATION>SETUP]** window have been executed. See page 14-2, **AUTOMATION, SETUP** Window, for more information.

- If you want to view the **AUX SEND** status on the LED field while **AUTOMATION** is **[ENABLE]** and **[MMC]** is active, simultaneously press the **SHIFT** key of the **Keypad** and the **AUTOMATION/AUX** LED button. This will only change the LED display, and will not interrupt the **AUTOMATION** operation. See page 14-5, **AUTOMATION, EXECUTE** Window, for more information.
- Dithering the output of the ***DA7*** to fewer than 24 bits is sometimes required. If the correct Dither adjustment is not applied to the signals output from the ***DA7***, the sound quality of the audio will be affected. In normal operation, the digital audio signals output from the ***DA7*** are 24 bit word lengths. If the device connected to the ***DA7*** operates at fewer than 24 bits (such as a DAT machine), you will be unable to completely record the signal. Dithering permits you to connect two devices together that do not have matching bit rates (but have matching sample rates) by using a complex algorithm that reduces the word length. For example, you may wish to record to a DAT machine which only records 16 bit words. This problem can be solved by adjusting the word length output from the ***DA7*** by Dithering. The bit number output by the mixer should be set to match the device connected to the ***DA7***. See page 12-14, **D-I/O, DITHER** Window, for more details.
- Pressing the **FLIP** LED buttons is an easy way to access specific channels that are not in the current **Fader Layer** without flipping the entire mixer to a new layer. See **Chapter 6, Fader Layers and Channel Strips** for more information.
- When you are in the D-I/O page, you may encounter a source field or button that is "crosshatched" and/or cannot be selected. This means that the source or slot is either improperly connected, or the attached external device is not presently turned on. See page 12-2, **D-I/O, INPUT SET** Window, for more information.
- When producing material for use with a video production, reference the ***DA7*** to an incoming video signal. Do this during all stages of the production. You will need to know the video reference characteristics for the production, so that you can reference the ***DA7*** correctly. See page 14-5, **AUTOMATION, EXECUTE Window**, and page 10 of the Glossary for more details.
- Data with an -∞ (infinity) fader level and flat equalizer settings are stored to the scene library memory number 01 when the ***DA7*** is delivered. Data with 0 dB fader level is stored in the other memories of the library. See **Chapter 15, Scene Memory,** for more details.
- Once the groups have been activated in the **[FADER GRP]** or **[MUTE**

GRP] windows, the window does not have to be displayed when you want to register a group. Use the fader group or mute group selection buttons in the **[CHANNEL]** window to register the channel to a group. See **Chapter 13, Group**, for more information.

- **To clear all grouped channels:**
  In the **[FADER GROUP]** and **[MUTE GROUP]** windows, pressing any one of the **SELECT** LED buttons in the group for two seconds will clear all channels assigned. See **Chapter 13, Group**, for more information.
- When using a DTRS (Tascam) DA88, DA38 or DA98, check the settings of the dip switches located on the optional TDIF card. Improper operation can be avoided by correct selection of these switches. See page 17-6, **TDIF Card**, for more information.
- It is also an excellent idea to check the default setting of areas that you will be using often. A good example of this is the SOLO MONITOR area. You can avoid being confused about the way the ***DA7*** operates by looking over the default settings in **Appendix D**. Also, check the settings on the **UTILITY, D-I/O** and **MIDI** pages so you can set the ***DA7*** defaults to the way you prefer to operate.
- **To monitor surround sound:**
  You should turn ON and assign the buses as surround sound in the **[SURROUND SOUND]** area of the **[SOLO/MONITOR]** window. See page 16-2, **Utility and Solo/Monitor** (**SOLO/MON**) **Window,** for more details.
- **To change the channel for [EQ] or [DYN/DLY] in the Automation:**
  Simultaneously press the **SHIFT(#0)** button and the **SELECT** LED button of the channel to change its parameters. See page 14-5, **AUTOMATION, EXECUTE Window**, for more information.

Shortcuts

- Pressing the **AUTOMATION/AUX** button on the top panel of the ***DA7*** to select automation acts as a shortcut to the **RECORD** button in the **AUTOMATION EXECUTE** screen. See page 14-5**, Automation, Execute Window,** for more information.
- You can create a stereo or link channel pair by simultaneously pressing the appropriate channel **SELECT** LED buttons, when the **[CHANNEL]** window **[LINK]** area is **ON**. To cancel, simultaneously press the buttons a second time. Be very careful with the use of this feature, as you can create a LINKED pair (two Mono faders with two Mono EQ's, Dynamics, etc.) or a true STEREO pair (two faders with the same operation and stereo EQ, Dynamics, etc.). See **Chapter 13, Group** for more information.

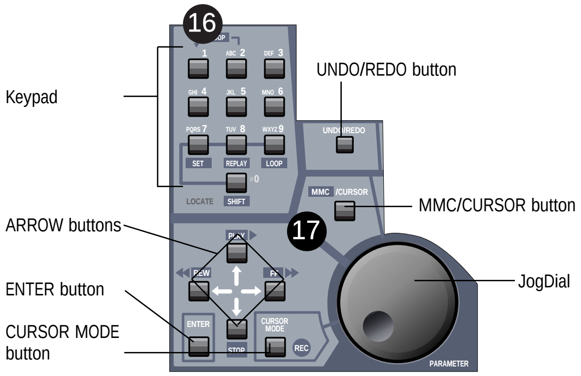
- When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON , the **DIRECT** LED button in the **PAN/ASSIGN/** SURROUND **, BUS ASSIGN** section of the Top Panel is a shortcut to the **[TO SLOT]** window. See page 12-10**, D-I/O TO SLOT Window,** for more information.
- There is a shortcut to recall desired windows directly by pressing one of the **SETUP** buttons, then one of the buttons on the 10 **KeyPad**. See page **Appendix B-3, LCD Screen Displays** for more information.

⊗ **Warnings**

- You should make certain that the ***DA7*** is properly ventilated on the sides and bottom. Otherwise, the ***DA7*** could overheat and compromise it's performance.
- When connecting recording devices to the ***DA7***, such as a DAT, ADAT, DA88 or a similar device, pay attention to the fact that these devices ALL operate using a wordclock reference signal. It is therefore important that you make sure that they are all referenced to the same clock signal. This is the reason that we have provided a WORDCLOCK IN and OUT connector on the rear panel. You can also select one of the option Slots to be the master wordclock, or the **2TR A** source. This is a VERY important item in proper operation of any digital audio system. Please make sure that you set this function properly. Poor sound quality can result from improper wordclock operation. It can also affect the operation of the ***DA7***. For example, the SOLO system may seem to malfunction by not selecting a particular channel or channels. This can be due to Clock related issues. See **Chapter 17, Options** for specific information regarding the connection requirements of these devices. Also see **Chapter 12, D-I/O** for setting the master wordclock source. If after reading this information you are unsure of the operation or setup of this function, please consult your dealer.
- It is imperative that the sampling frequency settings for the ***DA7*** and all digital peripheral devices connected to the ***DA7*** are set to the same sampling frequency. These devices cannot perform properly if the frequency settings do not match. The ***DA7*** does not convert from one sample frequency to the other. See **Chapter 12, D-I/O** for more information.

- When the **[BATTERY]** graph displays "LOW BATTERY", you should contact a Panasonic Service Center to replace the battery immediately. You should also back up the ***DA7*** memory by performing a MIDI bulk back up routine from the **[MIDI>BULK]** window. Do not let the battery run out, or you may inadvertently lose the settings in the ***DA7*** memory. See **page 11-10**, **MIDI, BULK (Bulk Out) Window**, and **page 16-8, Utility, Oscillator/Battery** (OSC/BATT) **Window**, for more details.

Chapter 4
Cursor Control


16
Keypad
UNDO/REDO button
1
ABC 2
DEF 3
GHI 4
JKL 5
MNO 6
PQRS 7
TUV 8
WXYZ 9
SET
REPLAY
LOOP
0
LOCATE
SHIFT
UNDO/REDO
MMC/CURSOR
MMC/CURSOR button
ARROW buttons
17
JogDial
REW
FF
ENTER button
ENTER
CURSOR MODE
CURSOR MODE button
STOP
REC
PARAMETER

Cursor Control Section

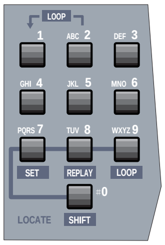
The **Cursor Control** section includes the **Keypad,** the **Parameter/JogDial**, and the **UNDO/REDO**, **MMC/CURSOR**, **CURSOR MODE**, **ENTER**, and **ARROW** buttons. Use these tools to control the cursor in the LCD screen of the **Display Bridge,** and to add information to areas in the windows that are displayed on the LCD screen.

> The cursor appears in the screen as a “highlight selection” device, not a typical pointer or arrow. As you use the controls to navigate around the LCD screen, the various areas, buttons, fields, and lists in the windows will be selected by a border or highlight designating the current area or item.

Several of the buttons in this section perform special functions when **MIDI** control is active. Special labeling - - text on a dark background - - identifies the buttons that also perform MIDI Machine Control functions.

MIDI functions and operations are discussed in **Chapter 11, MIDI**.

Keypad


LOOP
1
ABC 2
DEF 3
GHI 4
JKL 5
MNO 6
PQRS 7
TUV 8
WXYZ 9
SET
REPLAY
LOOP
0
LOCATE
SHIFT

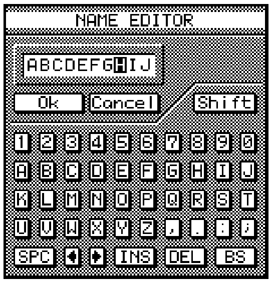
Keypad Display

Each of the ten **Keypad** buttons have several assigned characters (depending on the area or field selected in a window that is displayed on the LCD screen). The buttons are either numeric, symbolic, or alphanumeric.

When a selected area or field in the current window accommodates only numeric entries, the buttons only input the assigned numerals.

When a selected area or field in the current window accommodates alphanumeric entries, press the buttons to cycle the assigned letter, numeral, or symbol selections for the button, and then press the **ENTER** button to select the desired character. The character selected will be displayed in the window, and data entry will advance to the next character position for the area or field.

The three library windows - - **[CH LIB]**, **[EQ LIB]**, and **[DYN LIB]**, the **[SCENE MEMORY>RD/WT]** window, the **[MIDI>REMOTE]** window, and the **[AUTOMATION>SETUP]** window - - each contain a **NAME** button. When a **NAME** button is selected in a window, - - the **[NAME EDITOR]** window is added to the LCD screen display.

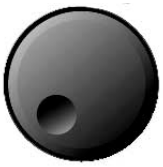

NAME EDITOR
Ok
Cancel
Shift
1 2 3 4 5 6 7 8 9 0
A B C D E F G H I J
K L M N O P Q R S T
U V W X Y Z , . : ;
SPC ◀ ▶ INS DEL BS

ABCDEFGHIJ

NAME EDITOR Window

Use the cursor controls to navigate to the various character and symbol buttons in the **[NAME EDITOR]** window, and press the **ENTER** button to update the highlighted character position in the window data entry field. Rotate the **JogDial** to select the highlighted character position. Press the Ok button in the **[NAME EDITOR]** window to accept the data entry and close the window. You can use up to ten characters for a name.

JogDial



JogDial Display

The **JogDial** performs several functions, either directly or in conjunction with other controls on the ***DA7***.

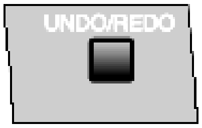
- The LCD display will show which mode you are in by a display of the function in the lower right hand corner. If you are in the MMC mode, it will show you the **MMC** MMC command being sent. If it is in the CURSOR mode, it will display the **CURSOR** CURSOR. If it is in the **PARAMETER** mode, the display will be blank.
- You can use the **JogDial** to rapidly navigate the cursor to the various buttons, areas, and fields in a window. Or, you can use it as a **Parameter** knob to change values entered in the selected field. To change the mode from **JogDial** to **Parameter**, simply press **CURSOR MODE** and it will toggle between these two functions.
- When the **[SCENE MEMORY>RD/WT]** window is initially displayed, the **JogDial** is assigned to the register list area of the window and can be used to scroll the list.
- When an element is selected in the **[LIBRARY DATA]** area of the **[CH LIB]**, **[EQ LIB]**, or **[DYN LIB]** windows, you can use the **JogDial** to scroll the register list.
- When the **[list table]** element is selected in the **[AUTOMATION>SETUP]** window or the **[AUTOMATION>EVT EDIT]** window, you can use the **JogDial** to scroll the items in the list.
- When the **[list table]** element is selected in the **[MIDI>PRG ASGN]**, **[MIDI>CTRL ASGN]**, or **[MIDI>MIDI RMT]** windows, you can use the **JogDial** to scroll the items in the list.

- When the **[fader]** element of the **[CHannel]** area of a window is selected, the **JogDial** can control the level setting of the **[fader]**. The **Channel Fader** will follow the **JogDial** level adjustments.
- When a **[knob]** is selected in a window, you can use the **JogDial** to adjust the value of that **[knob].**
- When a numeric field is selected in a window, you can use the **JogDial** to adjust the numeric value in that field.

The **JogDial** can be used to perform several functions while the **[PAN/SURROUND>SURROUND]** window is displayed.

See **Chapter 8, Pan/Assign, Surround, Bus Assign** for additional information.

UNDO/REDO Button



UNDO/REDO Button

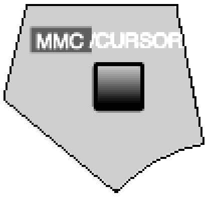
The **UNDO/REDO** functions are active when you store or recall data for **SCENE MEMORY**, **LIBRARY**, or **AUTOMATION** operations. The **UNDO** function of the ***DA7*** cancels the most recent memory-related action and returns to the previous condition. The **REDO** function cancels the cancellation.

Press the **UNDO/REDO** button immediately after performing the memory-related operation to cancel the operation. Pressing the **UNDO/REDO** button again restores the operation condition that was undone.

For functions other than **AUTOMATION**, you must execute **UNDO** immediately after performing the memory-related action that you want undone. After you change to another register or change to another window display, you cannot execute the **UNDO** function.

For **AUTOMATION** operations, **UNDO** can be executed at any time for the current event only. **UNDO** cannot be performed if either one of the **[UNDO]** BUF CLR (clear buffer) or the **[UNDO]** DISABLE buttons in the **[AUTOMATION>SETUP]** window are executed.

MMC /CURSOR Button



MMC/CURSOR Button

MMC is an acronym for **MIDI MACHINE CONTROL**. Additional button labelling of text on a dark background identifies the buttons that perform the indicated functions when **MIDI** control is active.

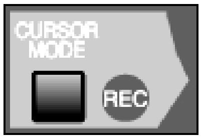
Press the MMC **/CURSOR** button to switch the buttons from cursor control mode to the indicated **MMC** functions. Press the MMC **/CURSOR** button a second time to return the buttons to cursor control mode.

On the lower right of the screen, MMC or CURSOR appears.

See **Chapter 11, MIDI** for additional information.

See **Chapter 14, Automation** for addition information on **MMC**.

CURSOR MODE/REC Button

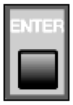


CURSOR MODE Button

When **MIDI** control is not active, you can use the **JogDial** to rapidly navigate the cursor to the various buttons, areas, and fields in a window. Or, you can use it as a **Parameter** knob to change values entered in the selected field. To change the mode from **JogDial** to **Parameter**, press the **CURSOR MODE** button and it will toggle between these two functions.

When **MIDI** control is active, and the MMC **/CURSOR** has switched button functions, the **CURSOR MODE** button function is switched to the REC function. Pressing the button initiates recording on the associated **MIDI** device.

ENTER Button

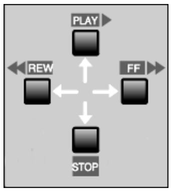


ENTER Button

Press the **ENTER** button to activate functions and/or toggle buttons selected in the windows displayed on the LCD screen.

When MMC is active press the **ENTER** button to have the **JogDial** switch to the **PARAMETER** mode. Press the **ENTER** a second time to return to **MMC**.

ARROW Buttons



ARROW Buttons Display

When **MIDI** control is not active, the **ARROW** buttons control the cursor movement in the LCD screen. The buttons move the cursor in the direction of the associated arrows.

- Press the **UP ARROW** button to move the cursor up in the display. When the cursor is positioned at the top of a window, pressing the **UP ARROW** button will move the cursor to the bottom of the window.
- Press the **RIGHT ARROW** button to move the cursor to the right in the display. When the cursor is positioned on the extreme right of the window, pressing the **RIGHT ARROW** button will move the cursor to the extreme left of the window.
- Press the **DOWN ARROW** button to move the cursor down in the display. When the cursor is positioned at the bottom of a window, pressing the **DOWN ARROW** button will move the cursor to the top of the window.

- Press the **LEFT ARROW** button to move the cursor to the left in the display. When the cursor is positioned on the extreme left of the window, pressing the **LEFT ARROW** button will move the cursor to the extreme right of the window.

When **MIDI** control is active and the MMC **/CURSOR** has switched button functions, the **ARROW** buttons are switched to the **MIDI** functions indicated.

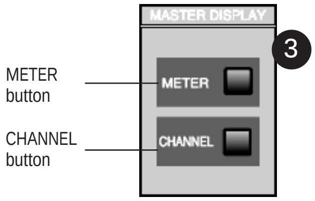
- The **UP ARROW** button is switched to the PLAY▶ function. Press the button to initiate playing of the active **MIDI** device.
- The **RIGHT ARROW** button is switched to the FF▶▶ function. Press the button to initiate fast forward shuttling of the active **MIDI** device.
- The **DOWN ARROW** button is switched to the STOP function. Press the button to stop the playing of the active **MIDI** device.
- The **LEFT ARROW** button is switched to the ◀◀REW function. Press the button to rewind the active **MIDI** device.

See **Chapter 11, MIDI** for additional information.

Chapter 5
Channel, Library, and Meter Windows

5-1 Overview

This chapter provides information on the **MASTER DISPLAY** section of the Top Panel and the primary LCD screen windows for the ***DA7***. The **MASTER DISPLAY** section is "home base" when operating the mixer. Although you will be accessing and using the various features of the ***DA7***, the windows that are accessed via the buttons in the **MASTER DISPLAY** section provide a ready-reference for the current settings of the mixer.



Master Display Section

The **CHANNEL** button is the "safety" or "*PANIC*" button for the ***DA7***. Press this button to return the LCD screen to the **[CHANNEL]** window from any other window that is currently displayed. This window reflects the current status of the primary features of the mixer.

Section 5-2 Channel Window, details the elements of the **[CHANNEL]** window and the controls that are accessible directly from the window.

Section 5-3 Library Windows, provides information on the library windows of the mixer. Using the **[CH LIB]** (channel library) window as the example, the common elements found in all of the library windows are detailed in this section.

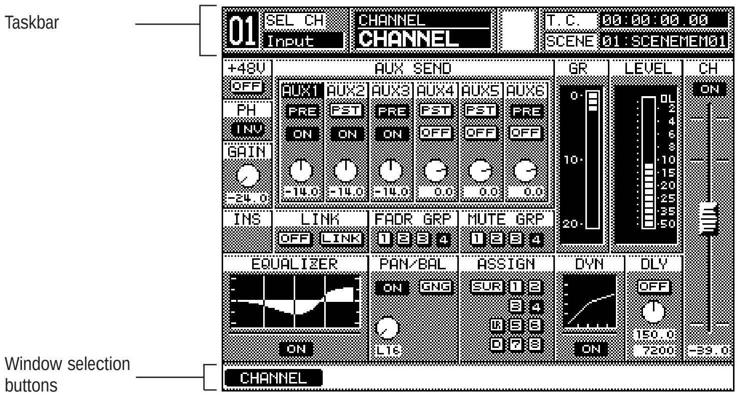
Section 5-4 METER Group Windows, details the windows accessed via the **METER** button in the **MASTER DISPLAY** section of the Top Panel.

Section 5-5 Channel Window, Multi-Channel View, details the elements of the **[CHANNEL]** window in the multi-channel view.

5-2 Channel Window

The **[CHANNEL]** window is displayed on the LCD screen by pressing the CHANNEL button in the **MASTER DISPLAY** section of the Top Panel. When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON, you can also display the **[CHANNEL]** window by pressing one of the **AUX** section LED buttons, or adjusting the **AUX** section **LEVEL ON/OFF** knob.

When **[AUTO CHANNEL SELECT]** in the **[UTILITY>CONFIG]** window is ON, you can display the **[CHANNEL]** window by pressing the **SELECT** button, or the **ON** button, or adjusting the fader for any channel.


Taskbar
Window selection buttons
01
SEL CH
Input
CHANNEL
CHANNEL
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
+48V
OFF
PH
INV
GAIN
-24.0
AUX SEND
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6
PRE
PST
PRE
PST
PST
PRE
ON
ON
ON
OFF
OFF
OFF
-14.0
-14.0
-14.0
0.0
0.0
0.0
GR
LEVEL
CH
ON
INS
LINK
OFF
LINK
FADR GRP
1 2 3 4
MUTE GRP
1 2 3 4
EQUALIZER
ON
PAN/BAL
ON
GNG
L16
ASSIGN
SUR 1 2
3 4
5 6
7 8
DYN
ON
DLY
OFF
150.0
7200
-39.0
CHANNEL

Channel Display Window

The **[CHANNEL]** window areas reflect the current status of the selected channel, and include indicators and controls for the primary functions of the ***DA7***. By using the **SELECT** buttons on a **Channel Strip**, any channel can be selected. The number of the selected channels appears in the **[taskbar]** area in the LCD, and the window information will reflect the newly selected channel.

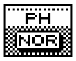
The following areas in the **[CHANNEL]** window can be changed to user-selected parameters using the cursor controls:

Phantom Power [+48V] Area

+48V OFF

A button is displayed when a **Channel Strip** for inputs 1 through 8 is selected, and should be engaged when the source microphone requires phantom power. To turn power on, cursor to the OFF button, and press the **ENTER** button. The OFF button will toggle to ON.

Phase [PH] Area

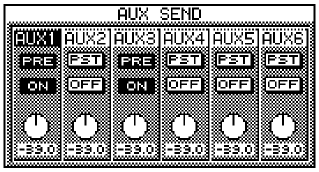


The phase normal and the invert function switches the signal phase of the selected channel. Cursor to the NOR (normal) button, and press the **ENTER** button to invert the signal. The NOR button will toggle to INV (invert).

[GAIN] Area

By using the **JogDial,** gain or trim can be added to the selected channel. This should be considered as an additional gain stage. Cursor to the soft knob, and rotate the **JogDial** to either boost or cut the level of the selected source. The **[GAIN]** value is displayed in the field below the soft knob. The adjustable range is -24dB to 12dB.

[AUX SEND] Area ([AUX1] to [AUX6])

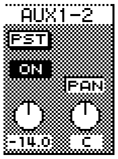


[AUX SEND] Area ([AUX1] to [AUX6])

This area of the window is displayed when a channel with aux send capability is selected. Use the **ARROW** buttons and the **JogDial** to navigate to the various elements in the window area. The PST (post-fader) and PRE (pre-fader) buttons are toggled by pressing the **ENTER** button, after selecting them with the cursor. The OFF and ON buttons are also toggled by selecting them with the cursor and pressing the **ENTER** button.

An **[AUX SEND]** level soft knob can be adjusted by rotating the **JogDial,** after selecting it with the cursor. Rotate the **JogDial** clockwise to increase the gain or counter clockwise to decrease it. The level value is displayed in the field below the level soft knob. The level range is - ∞ to +10db.

Alternatively, selections made with the Top Panel **AUX** section controls will update the **[AUX SEND]** window area.



When a selected channel is set for mono and a target aux is set for stereo, cursor to the soft knob, and turn the **JogDial**. A pan value appears in the data field from **L16** - **C** -**R16**.

When a selected channel is set for stereo and a target aux is set for stereo, cursor to the soft knob, and turn the **JogDial**. A balance value appears in the data field from **L16** - **C** -**R16**.

[INS] Area INS

The insertion mode allows you to send a signal to an external device when an audio option card is installed in **SLOT 3** and the **[INSERT]** mode is selected for **[SLOT 3]** in the **[D-I/O>TO SLOT]** window. You can only use the AD/DA card or the AES/EBU card for this purpose. This signal is routed to an outboard device, and then it is returned to the ***DA7*** via **SLOT 3**. You can return to AUX returns 1 through 6, buses 1 through 8, or **MASTER L/R**.

[LINK] Area LINK OFF LINK

There are two buttons in the **[LINK]** area of the window, an OFF button and a LINK button. Cursor to the OFF button, and press the **ENTER** button to toggle the OFF button to an ON button. This will preset the link function for the channel. The LINK button toggles to the STR (stereo) button, if desired.

Activating link or stereo for an odd-numbered channel joins it with the channel to the right, while activating link or stereo for an even-numbered channel joins it with the channel to the left.

The link function joins adjacent channels to create a pair, while respecting the current individual channel settings (such as EQ and DYN), including fader and pan position. The stereo function joins adjacent channels to create a stereo pair, and overwrites the even-numbered channel settings with the current odd-numbered channel settings for phantom power, phase, gain, aux send, fader group, mute group, equalizer, dynamics, delay, channel on or off, and fader.

When OFF and LINK are displayed, simultaneously pressing both channel **SELECT** buttons, or toggling to ON will link the channels. When OFF and STR are displayed, simultaneously pressing both channel **SELECT** buttons, or toggling to ON will create a stereo pair. Simultaneously pressing the **SELECT** buttons, once the channels have been joined, will cancel the setting.

If the **AUTOMATION/AUX** button is set to **AUTOMATION**, you will not be able to create or cancel the channel pair.

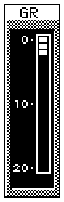
When the channels are joined, either as a linked pair or a stereo pair, the **Channel Faders** will operate as a pair. Adjusting one of the faders will automatically adjust the other.

The channel area in the **[taskbar]** of the LCD screen windows will show both channel numbers.

In the fader link, you can change the fader position that is linked, while pressing the **SELECT** LED button of that channel.

The soft knob in the **[PAN/BAL]** area of the **[CHANNEL]** window controls the balance for the paired channels. When the stereo setting is switched off, the balance value returns to pan value, but the bus assignment status, if any, does not change.

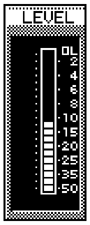
Gain Reduction Meter [GR] Area



The **[GR]** meter is displayed when you select a channel that supports dynamics.

See **Chapter 9, Dynamics/Delay** for more on gain reduction metering.

[LEVEL] Area



The level meter indicates the outgoing level of the selected channel to the **MASTER L/R** output. When in stereo mode, left and right level meters are displayed.

The range of the level meter is **-50** to **OL** (overload).

Remember that the digital format is very unforgiving of overmodulation. Too high a level will create noise and distortion in the recording process.

[FADR GRP] Area

FADR GRP
1
2
3
4

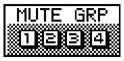
The **[FADR GRP]** (fader group) lets you tie a selected group of faders together. Operating one fader affects all the other channels in that group. To assign the current channel to a group, cursor to the 1, 2, 3, or 4 button, and press the **ENTER** button.

To activate a fader group, select the **[GROUP>FADR GRP]** window, cursor to the group number status line in the **[FADR GRP]** window, and press the **ENTER** button.

Once you have grouped several faders, move one and see how it controls the others. When a fader in the **[FADR GRP]** is selected, all other fader group conditions are canceled.

See **Chapter 13, Group** for additional information.

[MUTE GRP] Area



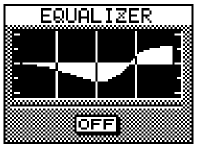
A mute group is similar to a fader group. When a fader is assigned to an already activated mute group, pressing the **ON** LED button of the current **Channel Strip** will affect the on and off status of all channels in that group.

To assign the current channel to a mute group, cursor to one of the mute group choices, 1, 2, 3, or 4, and press the **ENTER** button.

To activate a mute group, change to the **[GROUP>MUTE GRP]** window, cursor to the group number status line in the **[MUTE GRP]** window, and press the **ENTER** button.

See **Chapter 13, Group** for more information.

[EQUALIZER] Area



[EQUALIZER] Area

The **[EQUALIZER]** area is displayed when you select a channel that supports equalization. The equalizer graph reflects the equalizer characteristics that you have set in the four-band parametric EQ, accessed by pressing the **[H]**, **[HM]**, **[LM]**, or **[L]** buttons in the **EQUALIZER** section, and turning the **[Q]**, **[FREQ]**, or **[GAIN]** knobs.

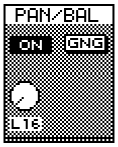
To activate the channel equalizer, cursor to the OFF button, and press the **ENTER** button. The OFF button will toggle to ON.

Alternatively, pressing the **EQ ON** LED button in the **EQUALIZER** section switches the equalizer for a selected channel off and on.

To view the **[EQUALIZER]** window, cursor to the equalizer graph displayed, and press the **ENTER** button. The LCD switches to the **[EQUALIZER]** window for the selected channel. Or, you can reach the **[EQUALIZER]** window by pressing the **GAIN** SUB knob in the **EQ** section on the Top Panel. When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON, you can also display the **[EQUALIZER]** window by either pressing one of the LED buttons or by adjusting one of the knobs in the **EQUALIZER** section.

See **Chapter 7** for more information on the **EQUALIZER** section.

[PAN/BAL] Area



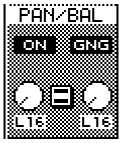
[PAN/BAL] Area

Use this area to set the pan or balance characteristics of the current channel. A monophonic channel can be panned. The soft knob controls the pan characteristics for the channel. When a stereo channel is selected, you can adjust its balance. The pan value appears in the field with values of **L16 - C - R16**.

When a channel is assigned to the **L/R** output selection in either the **PAN/ASSIGN** SURROUND, **BUS ASSIGN** section, or the **[ASSIGN]** area in the **[CHANNEL]** window, the pan controls are always active, regardless of the OFF or ON status in the **[PAN/BAL]** area of the **[CHANNEL]** window.

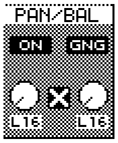
When a stereo channel (a channel set to **[STeReo]** ON or **[ASSIGN]** LR) is selected, the **[PAN/BAL]** area consists of the ON or OFF button, a **[BAL]** label, and one soft knob that controls the balance for the stereo pair.

To activate the **[PAN/BAL]** controls, cursor to the OFF button, and press the **ENTER** button. The OFF button toggles to ON . Alternatively, pressing the **ON** LED button *(red)* in the **PAN/ASSIGN** SURROUND section toggles the pan off and on to the buses for a selected channel. The PAN does not affect Direct Out. Pan is always selected to the L/R bus regardless of the position of the **ON** LED (*red*).



The GNG (gang) button appears only when you select a monophonic channel. To activate gang, cursor to the GNG button, and press the **ENTER** button. The GNG button toggles to GNG .

When the GNG button is activated, the adjacent channel soft knob and a gang type button (⊟ is for normal clockwise direction and ⊠ is for reverse direction) are added to the **[PAN/BAL]** window area.



To change the gang type, cursor to the ⊟ or ⊠ button, and press the **ENTER** button. The connective turn direction of the pan soft knobs for the ganged channels is now switched. When ⊟ is visible, the **JogDial** performs a connective turn in the normal direction. When ⊠ is visible, the **JogDial** performs a connective turn in the reverse direction.

If either soft knob is rotated to the end of its range under the ganged condition, it can not be rotated further in that direction.

Pan Adjustment for a Selected Channel

Adjust the pan for a selected channel by selecting the pan soft knob with the cursor, and turning the **JogDial**. Or, turn the Pan knob in the **PAN/SURROUND** area.

Pan Adjustment of an Adjacent Channel

When GNG is active, the knob for the odd-numbered channels appears on the left of the area, and the knob for the even-numbered channels appears on the right.

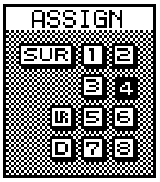
Cursor to a soft knob, and turn the **JogDial**. A pan value appears in the data field.

Stereo Balance Adjustment

Cursor to a balance soft knob, and turn the **JogDial**. When **[STEREO]** is ON, the balance soft knob is visible.

See **Chapter 8** for more information on **Pan/Assign, Surround, Bus Assign.**

[ASSIGN] Area



[ASSIGN] Area

The bus assign off or on switching will send the selected channel to **BUS 1-8**, **MASTER L/R**, or **DIRECT** (**DIRECT** works exclusively with the D-I/O card). To select a bus assignment, cursor to the 1, 2, 3, 4, 5, 6, 7, 8, LR, or D button in the bus assign area, and press the **ENTER** button. The selected bus assignment will toggle and become highlighted. Multiple bus assignments can be selected for a channel.

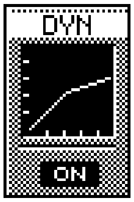
To disable or enable the surround sound function, cursor to the SUR button, and press the **ENTER** button. When the surround function is enabled, assignment to buses 1 through 6 is automatically activated.

The channels set to stereo are assigned to buses in odd/even order. The **[ASSIGN]** area will show the new assignment mode. When the channels are set for stereo assign to LR, the odd-numbered channels are left and the even-numbered channels are right.

The buttons in the **[ASSIGN]** area mimic the LED buttons in the **PAN/ASSIGN** SURROUND **BUS ASSIGN** section. For example, the 1 button in the **[ASSIGN]** area of the LCD has the same function as the **1** LED button in the **BUS/ASSIGN** section on the ***DA7*** Top Panel. When the assignment is active, the relevant LED is on *(green)*. When the assignment is off, the related LED goes off. If a selected channel is set for stereo, bus numbers are paired in the **[ASSIGN]** area of the window.

See **Chapter 8** for more information on ouput assignments and surround sound functionality.

[DYN] Area



[DYN] Area

The **[DYN]** (dynamics) area is displayed for a channel with dynamics capabilities.

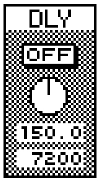
To turn dynamics on or off from the **[CHANNEL]** window, cursor to the ON or OFF button, and press the **ENTER** button.

The dynamics graph reflects the characteristics that are set in the **DYNAMICS/ DELAY** section of the ***DA7***.

To switch to the **[DYNAMICS]** window, cursor to the **[DYN]** graph, and press the **ENTER** button. The LCD will switch to the **[DYNAMICS]** window of a selected channel, or you can reach the **[DYNAMICS]** window by pressing the SR knob in the **DYNAMICS/DELAY** section. When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON , you can also display the **[DYNAMICS]** window by either pressing one of the LED buttons or by adjusting one of the knobs in the **DYNAMICS/DELAY** section.

See **Chapter 9, Dynamics/Delay** for additional information.

[DLY] Area



DLY Area

The **[DLY]** (delay) area soft knob and data fields are seen only when channels 1 through 32 are selected.

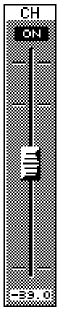
Pressing the **[DLY]** area ON or OFF button will disable or enable delay for the selected channel. Use the **JogDial** to adjust the delay value for increased fine tuning. You can adjust either the msec area or the sample area.The range of the delay is from 0 to 300 msec.

You can input the values directly using the **Keypad** when the **[10KEY SCENE RECALL]** selection in the **[UTILITY>CONFIG]** window is OFF. The input values are scrolled from right to left in the data field. To fix the value, press the **ENTER** button, move the cursor, and change the screen. If the fixed value is out of the adjustable range, the operation is cancelled. The adjustable delay range is based on the related sampling frequency of either 48 kHz or 44.1 kHz.

When the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON , you can also display the **[DYNAMICS]** window by either pressing one of the LED buttons or by adjusting one of the knobs in the **DYNAMICS/DELAY** section.

See **Chapter 9, Dynamics/Delay** for more information.

[CH] Area



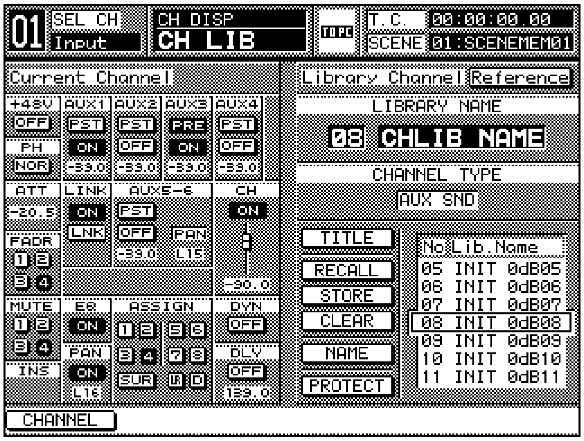
There are two parts to the **[CH]** (channel) area. Cursor to the ON or OFF button, and press the **ENTER** button to switch the channel off or on. The fader level adjustment can be made by turning the **JogDial,** after selecting the fader element with the cursor, or by actually moving the **Channel Fader** to the desired level. The fader level value is displayed in the field.

The adjustable range for the fader is -∞ to +10dB.

5-3 Library Windows

The three libraries in the ***DA7*** each contains fifty memories, the channel library, the equalizer library, and the dynamics library.

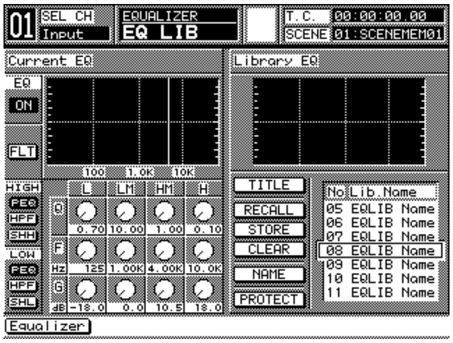
To access the Library windows, first press the function selection buttons on the **TopPanel.** Press the **CHANNEL** button in the **MASTER DISPLAY** section for the **[CHANNEL]** window. Press the **GAIN** knob in the **EQUALIZER** section for the **[EQUALIZER]** window or the **SR** knob in the **Dynamics/Delay** section for the **[DYNAMICS]** window.


01
SEL CH
Input
CH DISP
CH LIB
TO PC
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Current Channel
+48V OFF
PH NOR
AUX1 PST ON -39.0
AUX2 PST OFF -39.0
AUX3 PRE ON -39.0
AUX4 PST OFF -39.0
ATT -20.5
LINK ON LNK
AUX5-6 PST OFF -39.0 PAN L15
CH ON -90.0
FADR 1 2 3 4
MUTE 1 2 3 4
INS
EQ ON
PAN ON L16
ASSIGN 1 2 5 6 3 4 7 8 SUR
DYN OFF
DLY OFF 139.0
Library Channel
Reference
LIBRARY NAME
08 CHLIB NAME
CHANNEL TYPE
AUX SND
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 INIT 0dB05
06 INIT 0dB06
07 INIT 0dB07
08 INIT 0dB08
09 INIT 0dB09
10 INIT 0dB10
11 INIT 0dB11
CHANNEL

Channel Library Window

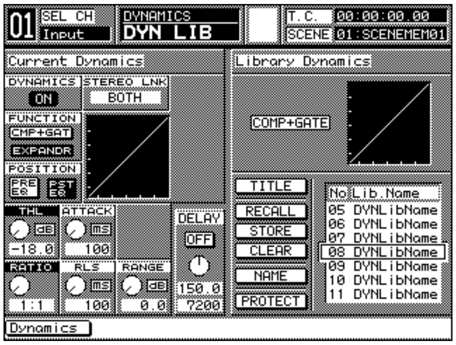
Then press either the **[RECALL]** or **[STORE]** button in the library area. The selected library will appear in the window. You can also store and recall data in a library memory from these windows.

You can then select the **LIBRARY** number you want by pressing the button and scrolling through the selections.


01
SEL CH
Input
EQUALIZER
EQ LIB
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Current EQ
Library EQ
EQ
ON
FLT
100
1.0K
10K
HIGH
PEQ
HPF
SHH
LOW
PEQ
HPF
SHL
L
LM
HM
H
Q
0.70
10.00
1.00
0.10
F
Hz
125
1.00K
4.00K
10.0K
G
dB
-18.0
0.0
10.5
18.0
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 EQLIB Name
06 EQLIB Name
07 EQLIB Name
08 EQLIB Name
09 EQLIB Name
10 EQLIB Name
11 EQLIB Name
Equalizer

EQ LIB Window

If the **[EQUALIZER]** window is currently displayed on the LCD, pressing either the **STORE** or the **RECALL** button in the **LIBRARY** section of the Top Panel will display the **[EQ LIB]** window. Pressing either the **STORE** or **RECALL** button again will return the window to the **[EQUALIZER]**.


01
SEL CH
Input
DYNAMICS
DYN LIB
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Current Dynamics
Library Dynamics
DYNAMICS
ON
STEREO LNK
BOTH
FUNCTION
CMP+GAT
EXPANDR
POSITION
PRE EQ
PST EQ
THL
dB
-18.0
ATTACK
ms
100
RATIO
1:1
RLS
ms
100
RANGE
dB
0.0
DELAY
OFF
150.0
7200
COMP+GATE
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 DYNLibName
06 DYNLibName
07 DYNLibName
08 DYNLibName
09 DYNLibName
10 DYNLibName
11 DYNLibName
Dynamics

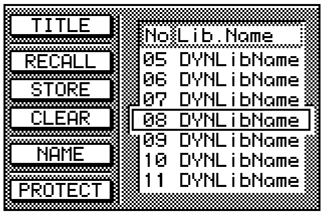
DYN LIB Window

If the **[DYNAMICS]** window is currently displayed on the LCD, pressing either the **STORE** or the **RECALL** button in the **LIBRARY** section of the Top Panel will display the **[DYN LIB]** window. Pressing either the **STORE** or **RECALL** button again will return the window to the **[DYNAMICS]**.

Library Window Elements

List Area

This area indicates the numbers and titles of the fifty library memories for the current library window.



No	Lib.Name
05	DYNLibName
06	DYNLibName
07	DYNLibName
08	DYNLibName
09	DYNLibName
10	DYNLibName
11	DYNLibName

List Area

TITLE Button

Use this button to store library settings without displaying the Name Editor. When TITLE is activated, a setting is stored with the name **[NoTitle##A]**. This setting can later be recalled and renamed by using the NAME button. Data is automatically stored to the currently selected library memory.

The **MEMORY** numeric readout on the **Display Bridge** blinks for three seconds, displaying the selected library memory number during the storage process.

RECALL Button

Use this button to recall a previously stored memory from the memory list. Cursor to the RECALL button in the library window, and press the **ENTER** button. The current memory settings will be recalled from the library listing. You can also press the **RECALL** button in the **LIBRARY** section of the Top Panel to recall the current memory settings.

The **MEMORY** numeric readout on the **Display Bridge** blinks for three seconds, displaying the selected library memory number during the recall process.

STORE Button

Use this button to store the current window settings in the selected library memory. Cursor to the STORE button, and press the **ENTER** button. This function will overwrite any data that may have been in the memory. You can also press the **STORE** button in the **LIBRARY** section of the Top Panel to store the current window settings.

The **MEMORY** numeric readout on the **Display Bridge** blinks for three seconds, displaying the selected library memory number during the storage process.

CLEAR Button

This button clears the current memory settings. Cursor to the CLEAR button, and press the **ENTER** button to delete the contents of the selected memory.

NAME Button

This button opens the **[NAME EDITOR]** window where you can enter a name for the selected memory, using up to ten characters. Cursor to the NAME button, and press the **ENTER** button to display the **[NAME EDITOR]** window.

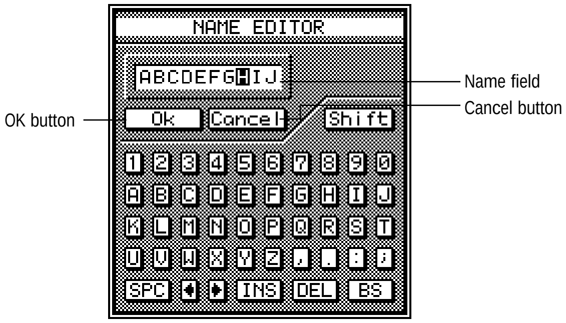
PROTECT Button

Activate the PROTECT button to prevent the accidental clearing of a selected library memory. Cursor to the PROTECT button, and press the **ENTER** button to activate the protection function. The button will become highlighted.

Library Window Operations

Memory Name Function

When the **[NAME]** button in a library window is activated, the **[NAME EDITOR]** window is displayed on the LCD, overlaying the current library window.



Name Editor Window

Enter a name for the current memory selection, using the keyboard element of the **[NAME EDITOR]** window and/or the **Keypad** on the Top Panel. After the memory name has been entered in the name field of the window, select the OK button in the window, and press the **ENTER** button to assign that name to the memory. Selecting the Cancel button in the window cancels the name change.

Library Memory Selection

When an element in the **[Library Data]** area is selected with the cursor, you can rotate the **JogDial** to scroll the memory list. Position the desired memory in the current field of the list area. The desired memory will move to the current field of the list in the window.

Library Reference Function

Cursor to the **[Reference]** button in the **[Library Data]** area of the **[CH LIB]** window, and press the **ENTER** button to activate the reference function. The parameter settings stored in the current memory are displayed on the right side of the library window. You can view the selected memory data, and compare it to the selected channel data that remains displayed on the left side of the library window. With the cursor positioned on the **[Reference]** button, pressing the **ENTER** button deactivates the reference function and returns the library window to the previous display.

You cannot access or adjust any of the parameter settings indicated on the right side of the **[CH LIB]** window since the cursor cannot be moved into that area.

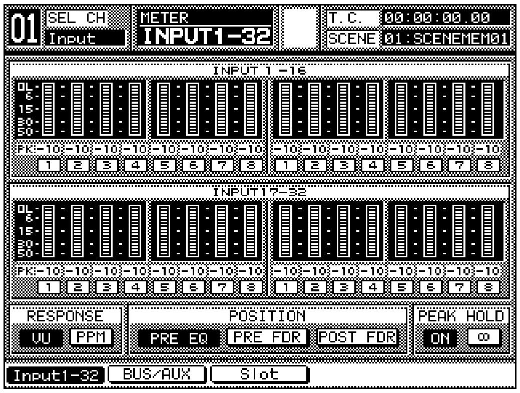
> Data with an –∞ (infinity) fader level and flat equalizer characteristics is stored to the library memory number 01 when the ***DA7*** is delivered. Data with 0 dB fader level is stored to the other memory numbers of the libraries. Library memory number 01 has a title of **[INIT OFF 1]**, and the other library memories have a title of **[INIT 0 dB*]** (* is a library number). The default type is INPUT.

5-4 **METER** *Group Windows*

[INPUT 1-32] Meter Window

Pressing the METER button on the Top Panel displays the last window used from the **[METER]** group, (**[INPUT 1-32]**, **[BUS/AUX]**, or **[SLOT]**). Repeated presses of the METER button will display the windows in this order.

This window shows the meters for the 32 input channels and allows for level adjustments.


01
SEL CH
Input
METER
INPUT1-32
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
INPUT 1-16
INPUT17-32
PK:
RESPONSE
VU
PPM
POSITION
PRE EQ
PRE FDR
POST FDR
PEAK HOLD
ON
∞
Input1-32
BUS/AUX
Slot

INPUT 1-32 Meter Window

[INPUT 1-16], [INPUT 17-32] Areas

These areas show the signal input levels of all 32 channels simultaneously.

[PK Lvl] Area

This data field, below the individual channel level meters, displays a numeric peak value when **[PEAK HOLD]** is ON .

[RESPONSE] Area

Select meter response of either PPM or VU. See **Glossary** for additional information.

[POSITION] Area

Cursor to the PRE EQ button, and press the **ENTER** button to meter the point immediately after analog-to-digital conversion before processing an input signal. Cursor to the PRE FDR button, and press the **ENTER** button to meter the point immediately before the channel **ON** LED button. Cursor to the POST FDR button, and press the **ENTER** button to meter the point after the **Channel Fader**.

[PEAK HOLD] Area

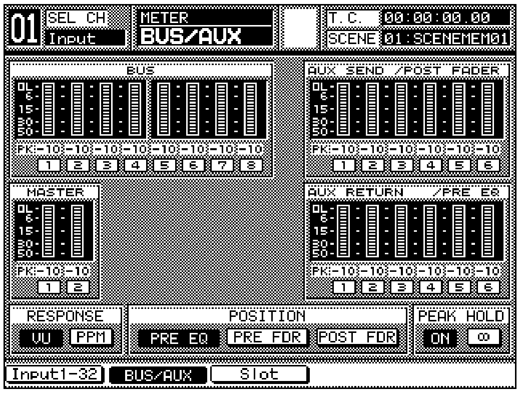
This area sets the peak hold ON or OFF. Cursor to the selection button, and press the **ENTER** button. Peak hold dots will appear on the meter. The current peak hold levels appear in the data fields of the **[PK]** area. When ON, hold time is 0.3 seconds. When ∞ (infinity) is selected, the peak hold indicator remains until overwritten by a new peak level or is turned OFF.

When the **SELECT** LED button of any channel is pressed, the **[METER]** window for the selected channel appears.

Cursor to the PPM or the VU button in the **[RESPONSE]** area, and press the **ENTER** button. The selected button will be highlighted. This setting is common to all of the input and output channel windows, the panel, and the **Display Bridge**. The setting from the factory when the ***DA7*** is first turned on is VU.

To cancel the peak hold function, cursor to the ON button, and press the **ENTER** button. The ON button will toggle to OFF. To reset the infinite hold, cursor to the ∞ button, and press the **ENTER** button.

[BUS/AUX] Meter Window

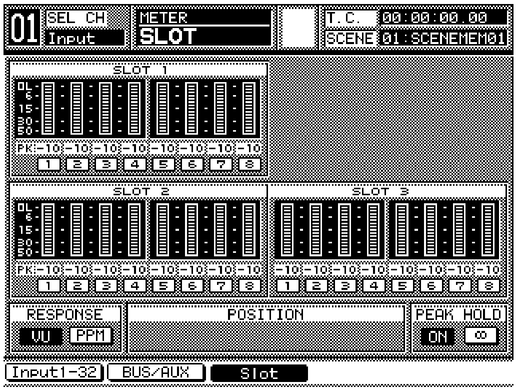

01
SEL CH
Input
METER
BUS/AUX
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
BUS
AUX SEND /POST FADER
OL
6
15
30
50
PK
-10
1
2
3
4
5
6
7
8
MASTER
AUX RETURN /PRE EQ
RESPONSE
VU
PPM
POSITION
PRE EQ
PRE FDR
POST FDR
PEAK HOLD
ON
∞
Input1-32
BUS/AUX
Slot

BUS/AUX Meter Window

This window has meters for **[BUS]**, **[AUX SEND]**, **[AUX RETURN]**, and **[MASTER]**, and permits meter operation modes adjustments for **[RESPONSE]**, **[POSITION]**, and **[PEAK HOLD].**

The **[RESPONSE]**, **[POSITION]**, and **[PEAK HOLD]** operations are the same as in the **[INPUT 1-32]** window. However, you can have inputs selected PRE FDR while the BUS/AUX meters are set to POST FDR.

[METER>SLOT] Window


01
SEL CH
Input
METER
SLOT
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
SLOT 1
SLOT 2
SLOT 3
OL
6
15
30
50
PK
-10
1
2
3
4
5
6
7
8
RESPONSE
VU
PPM
POSITION
PEAK HOLD
ON
∞
Input1-32
BUS/AUX
Slot

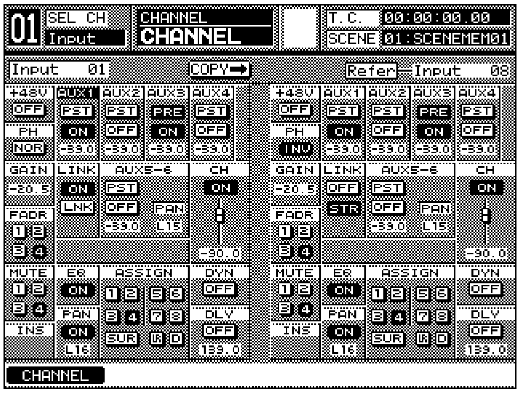
METER>SLOT Window

This window has meters for **[SLOT 1]**, **[SLOT 2]**, and **[SLOT 3]**, and sets meter operation modes adjustments for **[RESPONSE]**, **[POSITION]**, and **[PEAK HOLD]**.

For additional technical specifications, refer to **Appendix F, Technical Specifications**.

The **[RESPONSE]**, **[POSITION]**, and **[PEAK HOLD]** operations are the same as in the **[INPUT 1-32]** window.

5-5 **Channel** *Window, Multi-Channel View*


01
SEL CH
Input
CHANNEL
CHANNEL
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
Input 01
COPY➡
Refer
Input 08
+48V
AUX1
AUX2
AUX3
AUX4
PH
GAIN
LINK
AUX5-6
CH
FADR
PAN
MUTE
EQ
ASSIGN
DYN
DLY
INS
CHANNEL

[CHANNEL] Window, Multi-Channel View

In the Multi-Channel View window, which is selected by the **Multi CH View** button on the **Display Bridge**, the selected channel appears in a split screen. On the left side of the window you will see the selected channel, and on the right, you can choose a channel.

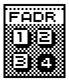
When a channel and its data are copied to another channel, all its attributes are transferred. Any conditions on the second channel will be overwritten, such as **EQ, PAN, DYNAMICS/DELAY, AUX,** and **Channel On** and **Off**.

The channel on the right side of the screen can be selected by moving the cursor to the field to the right of the Refer field. Once highlighted, use the **JogDial** to scroll through the channel choices: **Inputs 1-32**, **AUX SND 1-6**, **AUX RTN 1-6**, **BUS 1-8**, or **MASTER**.

The COPY➡ button copies the parameters from the selected channel to the reference channel.

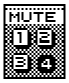
The Multi-Channel View window has all the functionality of the regular **[CHANNEL]** window. Because of the condensed space, several names have been abbreviated to accommodate the space restrictions:

[FADR] Button



This button selects a Fader Group, and has the same function as the **[FADR GRP]** area in the **[CHANNEL]** window.

[MUTE] Button



This button selects a Mute Group, and has the same function as the **[MUTE GRP]** area in the **[CHANNEL]** window.

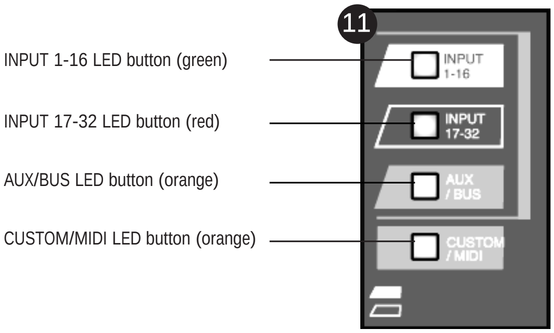
[LINK] Button

LINK
OFF
STR

This button has the same function as the **STR** button in the **[LINK]** area in the **[CHANNEL]** window. Selecting it will turn stereo pairing **ON** or OFF.

There is an additional function of the Multi-Channel View button. If you are looking at either the EQ or DYNAMICS section of a selected channel on the LCD screen, you can only copy the selected EQ or DYNAMICS settings for that channel to another channel. This is useful if you do not wish to disturb the other settings of the selected channel.

Chapter 6
Fader Layers and Channel Strips


INPUT 1-16 LED button (green)
INPUT 17-32 LED button (red)
AUX/BUS LED button (orange)
CUSTOM/MIDI LED button (orange)
11
INPUT 1-16
INPUT 17-32
AUX / BUS
CUSTOM / MIDI

Fader Layer Section

6-1 Fader Layers

The **Fader Layer** section is where you select the current function you want to use for the **Channel Strips**. When you change layers, the ***DA7*** updates the fader positions to reflect the current status of the channel levels for that layer. Any of the **Channel Strips** in that layer can now be edited.

The **INPUT 1-16** LED button when selected *(green)* controls analog inputs 1 through 16, and buses 1, 3, 5, and 7. The **INPUT 17-32** LED button when selected *(red)* controls inputs 17 through 32 (if there are audio option cards installed), and buses 2, 4, 6, and 8. The **AUX/BUS** layer controls aux sends 1 through 6, aux returns 1 through 6, and buses 1 through 8, and has an *(orange)* LED button. The **CUSTOM/MIDI** layer gives you a layer where all functions are selectable from the **[UTILITY>USER CSTM]** (user custom) window, and is also an *(orange)* LED button. One of these LED buttons blinks when selected, if the FADER is set to off in the **[UTILITY>CONFIG]** window.

For additional information on utility functions, see **Chapter 16, Utility and Solo Monitor**.

INPUT 1-16 LED Button

When you press this button on *(green)*, the faders reset to control analog inputs 1 through 16, and buses 1, 3, 5, and 7, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press and hold the **INPUT 1-16** LED button for two seconds.

INPUT 17-32 LED Button

When you press this button on *(red)*, the faders reset to control inputs 17 through 32, and buses 2, 4, 6, and 8, unless previously flipped. To reset a flipped **Channel Fader Strip**, press the **FLIP** button. To reset all the currently flipped **Channel Fader Strips**, press and hold the **INPUT 17-32** LED button for two seconds.

These channels are for additional inputs, and are not accessible unless you have installed at least one of the optional audio I/O cards.

For more information on adding additional inputs to the ***DA7***, see **Chapter 17, Options**.

AUX/BUS LED Button

When you press this button on *(orange)*, the faders reset to control the six aux sends, the six aux returns and the eight buses as the active layer. The aux or bus designations are located immediately below the fader on the **Fader Strips**.

For more information on the **AUX** section, see **Chapter 10, AUX**.

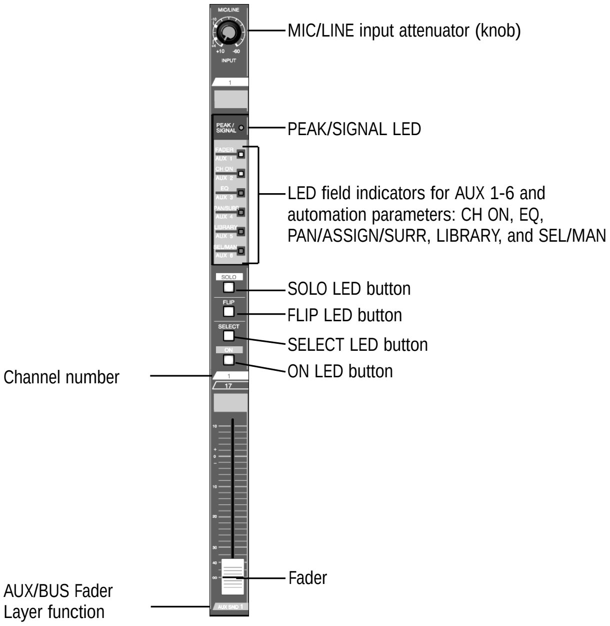
CUSTOM/MIDI LED Button

CUSTOM
/ MIDI

This is the fun layer. Press the **CUSTOM/MIDI** LED button and the faders will control 20 channels of audio or MIDI commands. An *(orange)* LED indicates when the **CUSTOM/MIDI** layer is active. The controls for programming the faders in this layer are in the **[UTILITY>USER CSTM]** (user custom) window.

For more information on the **CUSTOM/MIDI** layer, see ***Section 16-4 Utility, User Custom Window***.

6-2 Channel Strip


MIC/LINE input attenuator (knob)
PEAK/SIGNAL LED
LED field indicators for AUX 1-6 and automation parameters: CH ON, EQ, PAN/ASSIGN/SURR, LIBRARY, and SEL/MAN
SOLO LED button
FLIP LED button
SELECT LED button
ON LED button
Channel number
Fader
AUX/BUS Fader Layer function

Channel Strip

Each **Channel Strip** has several tools that assign and control parameters for that channel.

MIC/LINE INPUT Knob

MIC/LINE
-10
+4
+10
-60
INPUT

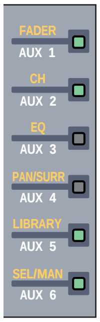
The **MIC/LINE INPUT** knobs, located at the top of each **Channel Strip**, adjust the channel input signal level. They only control analog inputs 1 through 16. When the **Channel Strip** is used in any fader layer except **INPUT 1-16**, the **MIC/LINE INPUT** knob has no effect, unless, when in the **CUSTOM/MIDI Fader Layer,** there are audio sources assigned to channels 1 through 16.

PEAK/SIGNAL LED

PEAK / SIGNAL

This LED indicates the channel input signal level (controlled by the **MIC/LINE INPUT** knob). The LED illuminates *(green)* when a signal is sensed. A *(red)* LED indicates that the input is close to clipping. Try to keep all signals below this point by adjusting the input gain via the **MIC/LINE INPUT** knob.

LED Status Indicators



These LEDs show whether **AUX 1-6** or automation parameters (**FADER**, **CH**, **EQ**, **PAN/SURR**, **LIBRARY**, and **SEL/MAN**) are on. The LED status indicators can be toggled by pressing the **AUTOMATION/AUX** LED button. The LEDs will flash *(red)* when **[AUTOMATION]** is enabled in the **[AUTOMATION>EXECUTE]** window. When an automation event is currently recording, the affected LEDs will remain illuminated *(red)*. The LEDs will flash *(green)* when an automation is currently playing. Automation function indicators will take priority over the **AUX 1-6** indicators.

When an automation event is not active, and the **AUTOMATION/AUX** button is toggled to **AUX** *(green)*, the LEDs will illuminate *(green)* to indicate the current **AUX** assignments.

Automation features and additional information can be found in **Chapter 14, Automation**.

FADER or AUX 1 LED

The LED color indicates whether the selected channel is assigned to either **AUX 1** or to **FADER** automation. When nothing is assigned, the LED is not lit.

CH or AUX 2 LED

The LED color indicates whether the selected channel is assigned to either **AUX 2** or to **CH** (channel on/off) automation. When nothing is assigned, the LED is not lit.

EQ or AUX 3 LED

The LED color indicates whether the selected channel is assigned to either **AUX 3** or to **EQ** (equalizer) automation. When nothing is assigned, the LED is not lit.

PAN/SURR or AUX 4 LED

PAN/SURR
AUX 4

The LED color indicates whether the selected channel is assigned to either **AUX 4** or to **PAN/ASSIGN** SURROUND automation. When nothing is assigned, the LED is not lit.

LIBRARY or AUX 5 LED

LIBRARY
AUX 5

The LED color indicates whether the selected channel is assigned to either **AUX 5** or to **LIBRARY** automation. When nothing is assigned, the LED is not lit.

SEL/MAN or AUX 6 LED

SEL/MAN
AUX 6

The LED color indicates whether the selected channel is assigned to either **AUX 6** or to **SEL/MAN** (select/manual) automation. When nothing is assigned, the LED is not lit.

SOLO LED Button

Use the solo function to monitor a single channel or multiple channels via the **MONITOR A** outputs. When a **SOLO** LED button is on *(red)*, the selected source is assigned to **MONITOR A** and all other signals are muted. When **SOLO** is selected, the **MONITOR A** source selection LED will turn off, indicating that **SOLO** is the source being monitored.

The **Display Bridge SOLO** LED turns on *(red)* and flashes, and the output level of the channel being solo'd will be displayed by the **L/R METER**.

The **[SOLO/MON SETUP]** window offers several solo configuration options. See **Chapter 16, Utility and Solo Monitor** for more information.

FLIP LED Button

The **FLIP** LED button on the **Channel Strip** shows whether that fader is controlling the input from **Fader Layer INPUT 1-16** or **Fader Layer INPUT 17-32**. When the **FLIP** LED is *(green)*, inputs 1 through 16 are being controlled. When the **FLIP** LED is *(red)*, inputs 17 through 32 are being controlled. You can use channels 1 through 8 and 25 through 32 at the same time. Simply raise all the **Channel Faders** and press the **FLIP** LED buttons for channels 9 through 16, which will turn the LEDs *(red)*. Once they are *(red)*, they will control channels 25 through 32.

When the **[FADER]** selection in the **[UTILITY>CONFIG]** window is **ON**, pressing a **FLIP** button will update the respective **Channel Strip** to the appropriate settings for the **Fader Layer** selection, and the fader will reset. When the **[FADER]** selection is **OFF**, the fader will not reset but the flip function can still be performed.

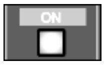
Pressing the **FLIP** LED buttons is an easy way to access specific channels that are not in the current **Fader Layer** without flipping the whole board to a new layer.

SELECT LED Button

When a **SELECT** LED button is pressed **ON** *(orange) for* a **Channel Strip**, it becomes the current channel in the LCD screen as displayed in the **[taskbar]**. Pressing once the **SELECT** LED button takes you to the **[CHANNEL]** window if you are in the **[SOLO MONITOR]**, **[D-I/O]**, **[MIDI],** or **[UTILITY]**. While **[METER]**, **[EQUALIZER]**, **[PAN/ASSIGN/SURROUND]** or **[DYNAMICS/DYNAMICS]** is displayed, pressing this twice takes you to the **[CHANNEL]** window.

This button also sets **LINK** or **STEREO** pairs if you press the adjacent buttons simultaneously. To release the pair, press the same buttons again simultaneously. A **SELECT LED** button blinks when pressed, if the selected channel has been preset to a **LINK** or **STEREO** pair.

ON LED Button



The **ON** LED button simply turns the **Channel Strip** on or off so that no signal goes to the assigned bus or buses. *(Red)* indicates that the channel is on, and no illumination means it is off.

Fader

The fader is used to adjust the output level of the **Channel Strip** during normal operation. Faders have a range of -∞ (infinity) to +10dB.

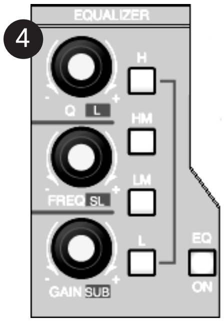
If you press the **FADER CONTROL** LED button in the **AUX** section, the faders for the selected **AUX** send channel levels will be displayed. Pressing this button also updates the LCD screen to display the **[FADER CONTROL]** window, which shows metering and numeric values in the data field of the selected channel (1 through 32).

If you press the **FLIP** LED button to execute automation playback, change **Fader Layers**, change scene memories, or remotely control the ***DA7***, the fader's position is automatically updated, unless **[FADER]** is turned OFF in the **[UTILITY>CONFIG]** window.

If you are a MIDI enthusiast, you will love using the faders to send MIDI control change data to other MIDI devices. Faders can also be controlled by an external MIDI sequencer.

See **Chapter 11, MIDI** for more information.

Chapter 7
Equalizer

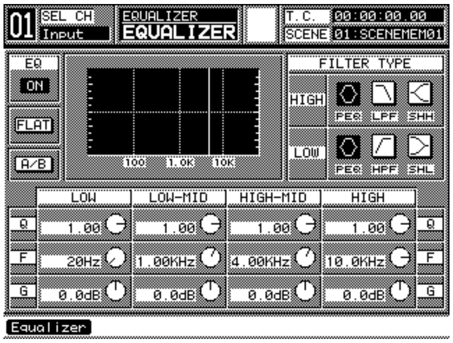


EQUALIZER Section

7-1 Overview

This chapter provides information on the **EQUALIZER** section of the Top Panel and the **[EQUALIZER]** window group selections. A 4-band parametric equalizer is available for each of the 32 channels, each of the 8 buses, and **MASTER L/R**. A 2-band parametric equalizer is available for each of the six aux returns. There are no parametric equalizers provided for the six aux sends, which is not a problem because you can apply equalization to the channel prior to assigning an aux send. Each equalizer band has controls for Q factor, Frequency, and Gain.

The **[EQUALIZER]** window provides filter type selections for refining the specific equalization settings. In addition to the default filter type of **[PEQ]** (parametric equalizer) filtering, high pass, low pass, shelf high, and shelf low filter types are available. The **[EQUALIZER]** window also contains an **[A/B]** function area which allows you to compare two equalizer settings for the selected channel, and a FLAT or “clear” function.


01
SEL CH
Input
EQUALIZER
EQUALIZER
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
EQ
ON
FLAT
A/B
100
1.0K
10K
FILTER TYPE
HIGH
PEQ
LPF
SHH
LOW
PEQ
HPF
SHL
Equalizer

	LOW	LOW-MID	HIGH-MID	HIGH	
Q	1.00	1.00	1.00	1.00	Q
F	20Hz	1.00KHz	4.00KHz	10.0KHz	F
G	0.0dB	0.0dB	0.0dB	0.0dB	G

EQUALIZER window

Section 7-2 EQUALIZER Section details the controls and buttons accessible on the Top Panel of the ***DA7***.

Section 7-3 EQUALIZER Window provides information on the various elements and areas of the **[EQUALIZER]** window.

Section 7-4 EQUALIZER Library Window covers the library memory functions that are available for storing and recalling equalizer settings. This library is accessible via the **LIBRARY STORE/RECALL** buttons.

Section 7-5 EQUALIZER Window, Multi-Channel View contains additional information that is unique to the multi-channel view for the **[EQUALIZER]** window.

7-2 EQUALIZER Section

The primary settings for the equalizer can be accessed on the Top Panel while the LCD screen continues to display the **[CHANNEL]** window. Although this **[CHANNEL]** window functionality is convenient when you are making general equalizer adjustments, to aid you in understanding the following information, please follow these steps to access and activate the controls in the **EQUALIZER** section:

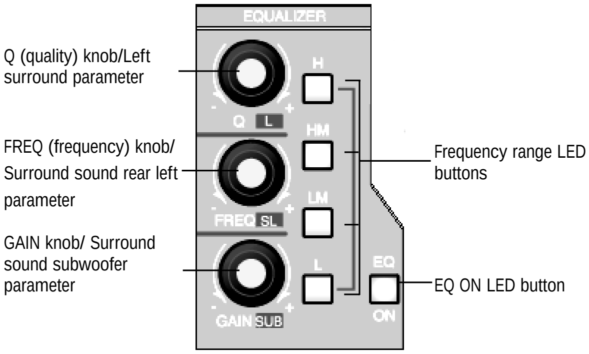
1. Press the GAIN knob in the **EQUALIZER** section to display the **[EQUALIZER]** window. Or, cursor to the **[EQUALIZER]** area in the **[CHANNEL]** window, and press the **ENTER** button to display the **[EQUALIZER]** window. Or, when the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON, press an LED button or adjust a knob in the **EQUALIZER** section to automatically display the **[EQUALIZER]** window.

2. Press a **SELECT** button to select the channel you want to adjust.

3. Turn the equalizer on by pressing the **EQ ON** LED button on the Top Panel, or cursor to the **[EQ]** area OFF button, and press the **ENTER** button.

4. Select a band to adjust by pressing one of the frequency band LED buttons, **H**, **HM**, **LM**, or **L**.

5. Adjust EQ parameters by turning the **Q**, **FREQ**, and **GAIN** knobs, or cursor to a soft knob, and adjust with the **JogDial**. The EQ characteristics are displayed on the graph in the **[EQUALIZER]** window, and are also displayed in the **[EQUALIZER]** area of the **[CHANNEL]** window.


EQUALIZER
Q (quality) knob/Left surround parameter
FREQ (frequency) knob/ Surround sound rear left parameter
GAIN knob/ Surround sound subwoofer parameter
Q L
FREQ SL
GAIN SUB
H
HM
LM
L
EQ
ON
Frequency range LED buttons
EQ ON LED button

EQUALIZER Section

There are three knobs and four frequency band LED buttons in the **EQUALIZER** section, which are used to modify the frequency characteristics of the selected channel. The **EQ ON** LED button toggles the equalizer on *(green)* and off. When on, frequency adjustments set with the controls are active on the selected channel.

The three knobs are labeled **Q** (quality), **FREQ** (frequency), and **GAIN** (gain). The additional labeling of L (left), SL (surround left), and SUB (surround bass) identify the surround sound parameters that are controlled by the knobs when the **[SURROUND]** window is displayed. There are also four LED buttons on the Top Panel with which you select the EQ band to adjust.

EQUALIZER Section Elements

GAIN or SUB Knob

Pressing this knob, while in any window, will update the LCD to the **[EQUALIZER]** window. Once you select one of the four bands (**H**, **HM**, **LM**, **L**), turning the **GAIN** knob adjusts the gain of the selected frequency.

> This knob is also a shortcut to the A/B compare function. By pressing this knob, once you have the **[EQUALIZER]** window displayed, it will toggle between the setting in the A/B memories. You can use this to compare two different EQ settings, and then send your preference to the channel or store it in a library.

This knob also works as a level adjustment in a surround sound mix. When the SEND VOL button in the **[MODE]** area of the **[PAN>SURROUND]** window is activated, the SUB knob controls the level for the surround sound subwoofer output by adjusting the send level of the selected channel to the surround sound BUS 4.

Q or L Knob

Turning the **Q** knob adjusts the width of the frequency range for the currently selected band, centered on the selected frequency. A very narrow setting can be used to pin-point a troubling frequency by acting like a notch filter. A wide setting will adjust a large range of frequencies, as much as several octaves. This function can be used to clean up muddy audio, or to give a specific instrument more definition.

This knob is also a shortcut to the selection of filter types. When the **H** or **L** band of the EQUALIZER is selected, pressing this knob cycles through the three filter types for these bands.

This knob also acts as a level adjustment in a surround sound mix. The L knob controls the level for the surround sound left output by adjusting the send level of the selected channel to the surround sound BUS 1.

FREQ or SL Knob FREQ SL

The **FREQ** knob sets the frequency point of the currently selected band. A vertical line will move across the graph as you rotate the knob, indicating where you are in the frequency spectrum.

This knob is also a shortcut to the **FLAT** button. If you press this knob, it will clear any EQ setting in the current window.

This knob also makes level adjustments in a surround sound mix. The SL knob controls the level for the surround sound rear left output by adjusting the send level of the selected channel to surrond sound BUS 5.

H, HM, LM, and L LED Buttons H, HM, LM, and L

There are four discrete parametric equalizer bands in the **EQUALIZER** section. The LED buttons are labeled **H** (high), **HM** (high-mid), **LM** (low-mid), and **L** (low). The **H** and **HM** bands are adjustable from 500 Hz to 20 kHz, and the **LM** and **L** bands are adjustable from 20 Hz to 20 kHz.

Press the LED button for the respective band to select it *(green)*. The **Q**, **FREQ**, and **GAIN** knobs can be used to adjust the selected parametric equalizer band. The selected EQ band is displayed in the **[EQUALIZER]** window in inverse video. Press a LED button for 2 seconds to reset all attributes of the band to a flat reference.

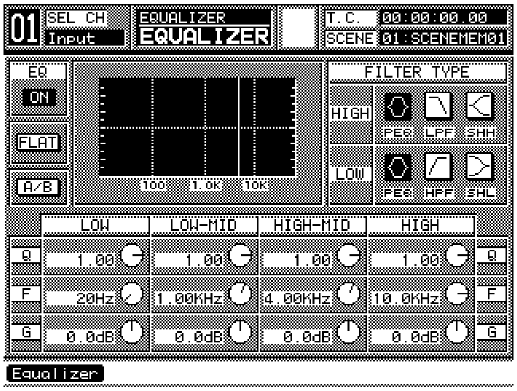
There are additional filter type selections in the **[EQUALIZER]** which augment or modify the selected equalizer band. See ***Section 7-3 EQUALIZER Window*** for descriptions of these filter types.

EQ ON LED Button EQ ON

Press this button to turn equalization on *(green)* or off for the selected channel.

For additional information on surround sound mixing, see **Chapter 8, Pan/Assign, Surround, Bus Assign**.

7-3 EQUALIZER Window


01
SEL CH
Input
EQUALIZER
EQUALIZER
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
EQ
ON
FLAT
A/B
100
1.0K
10K
FILTER TYPE
HIGH
PEQ
LPF
SHH
LOW
PEQ
HPF
SHL
LOW
LOW-MID
HIGH-MID
HIGH
Q
F
G
1.00
1.00
1.00
1.00
20Hz
1.00KHz
4.00KHz
10.0KHz
0.0dB
0.0dB
0.0dB
0.0dB
Equalizer

EQUALIZER Window

The **[EQUALIZER]** window has several areas of functionality. Use the **ARROW** buttons or **JogDial** to access the parameters in the windows. The data fields, graph, and soft knob positions update in real time to show the adjustment results.

[EQ] Button EQ ON

Using the **ARROW** buttons or **JogDial**, cursor to the **[EQ]** area, and press the **ENTER** button to switch the equalizer ON.

FLAT Button

If there are any adjustments in any of the EQ parameters, pressing the FLAT button will reset all of them to a flat reference (no equalizer attributes) for the selected channel.

A/B Button

The A/B function lets you compare two equalizer settings. Cursor to the A/B button, and press the **ENTER** button. The equalizer graph will update to the most recently established temporary equalizer settings, and the A/B button will turn to inversed video. Toggle the A/B button to return to the current equalizer settings.

The temporary equalizer settings are retained in library memory 00 until modified. The A/B function does not have to be activated, because it is always active and available.

Filter Types

The ***DA7*** equalizer can be used in several modes, parametric, high and low pass filtering, and shelving. Cursor to one of the filter type buttons, and press the **ENTER** button.

◙ PEQ Buttons

The ◙ **[PEQ]** filter type is the default setting.

HPF Filter Button

The **[HPF]** (high pass filter) cuts off low frequencies and lets high frequencies pass. The Q factor is not applicable here, since everything below the assigned frequency is cut off. In the **[LOW]** band the G (gain) soft knob sets the filter on or off, and the F (frequency) soft knob selects the point at which the roll-off starts (selectable between 20 Hz and 1.6 kHz).

LPF Filter Button

The **[LPF]** (low pass filter) cuts off high frequencies and lets low frequencies pass. The Q factor is not applicable here, since everything above the assigned frequency is cut off. In the **[HIGH]** band, the G (gain) soft knob sets the filter on or off, and the F (frequency) soft knob selects the point at which the roll-off starts (selectable between 1 kHz and 20 kHz).

SHL Filter Button

Selecting the **[SHL]** (shelf low) filter type treats the lowest band (**L**) of the EQ much like a bass volume control. Again the Q factor is not necessary here and is, therefore, not selectable. In the **[LOW]** band the G (gain) soft knob sets the gain of the selected frequency, and the F (frequency) soft knob selects the point at which the roll-off starts (selectable between 20 Hz and 1.6 kHz).

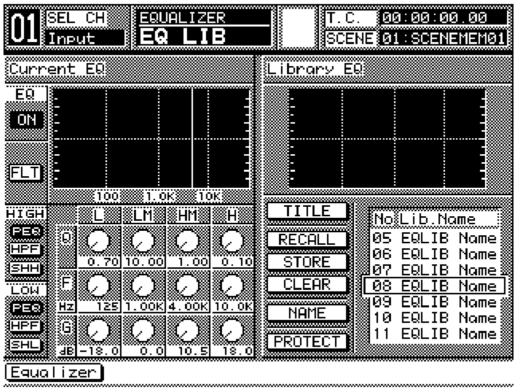
SHH Filter Button

Selecting the **[SHH]** (shelf high) filter type treats the highest band (**H**) of the EQ much like a treble volume control. There is no Q factor necessary here either. In the **[HIGH]** band, the G (gain) soft knob sets the gain of the selected frequency, and the F (frequency) soft knob selects the point at which the roll-off starts (selectable between 1 kHz and 20 kHz).

7-4 EQUALIZER Library Window

This window shows the **[EQ LIB]** (equalizer library) functions and status of a selected channel. You can edit, store, and recall presets from the EQ library.

Pressing the **LIBRARY RECALL** or **STORE** buttons on the Top Panel displays the **[EQ LIB]** window.


01
SEL CH
Input
EQUALIZER
EQ LIB
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
Current EQ
Library EQ
EQ
ON
FLT
100
1.0K
10K
HIGH
PEQ
HPF
SHH
LOW
PEQ
HPF
SHL
L
LM
HM
H
Q
F
Hz
G
dB
0.70
10.00
1.00
0.10
125
1.00K
4.00K
10.0K
-18.0
0.0
10.5
18.0
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 EQLIB Name
06 EQLIB Name
07 EQLIB Name
08 EQLIB Name
09 EQLIB Name
10 EQLIB Name
11 EQLIB Name
Equalizer

Equalizer Library Window

Library Window Elements

TITLE Button

Use this button to store library settings without displaying the Name Editor. When TITLE is on, a setting is stored with the name **[NoTitle##A]**. This setting can later be recalled and renamed by using the NAME button.

RECALL Button

Selecting this button and pressing the **ENTER** button recalls one of the fifty stored memories, along with all of the EQ settings. With the **JogDial** in the **[No. Lib Name]** area, scroll through the memory lists and make a selection by pressing the RECALL button.The **MEMORY** numeric readout will flash for two seconds, indicating that a new preset is being loaded.

STORE Button

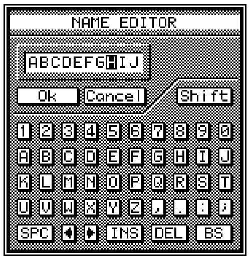
Activating this button stores the current EQ settings into one of the fifty memories. The **[NAME EDITOR]** window pops up, prompting you to name the new preset. After naming it, scroll to the Ok button, and press the **ENTER** button. The **MEMORY** numeric readout will flash for two seconds, indicating that you have written to the memory. The library comes with all presets named **INITIAL** *.

CLEAR Button

Activating this button initializes the current memory to the factory settings. When cursoring to this button, you should be asking yourself if you have "backed-up" your current memory.

NAME Button

Activating this button opens up the **[NAME EDITOR]** window, prompting you to name the new memory. After naming it, scroll to the Ok button in the **[NAME EDITOR]** window, and press the **ENTER** button. The **MEMORY** numeric readout will flash for two seconds, indicating that you have written to that memory location.



ABCDEFGHIJ

Name Editor Window

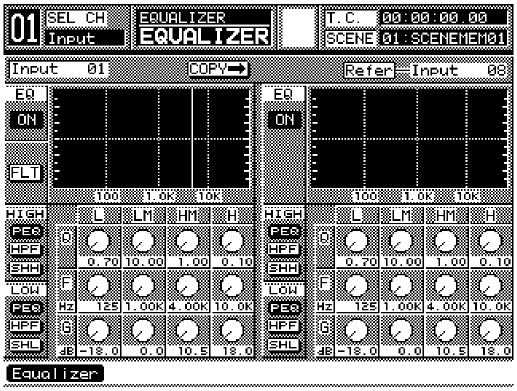
PROTECT Button

Select this button, and press the **ENTER** button to protect the current memory from being cleared or over-written.

Library selections are made when the cursor is within the **[Library Data]** area by rotating the **JogDial**. Rotating it clockwise moves the cursor through the library numbers from low to high (1-50), while turning it counter-clockwise moves through the library from high to low (50-1).

7-5 EQUALIZER Window, Multi-Channel View

While an **[EQUALIZER]** window is displayed on the LCD screen, press the **MULT CH** button on the **Display Bridge** to change the display to the multi-channel view. This window shows the selected channel on the left side of the LCD and a reference channel on the right. Only the selected channel can be modified. However, you can copy entire settings either way.


01
SEL CH
Input
EQUALIZER
EQUALIZER
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Input 01
COPY➡
Refer
Input 08
EQ
ON
FLT
100
1.0K
10K
HIGH
PEQ
HPF
SHH
LOW
PEQ
HPF
SHL
L
LM
HM
H
Q
0.70
10.00
1.00
0.10
F
Hz
125
1.00K
4.00K
10.0K
G
dB
-18.0
0.0
10.5
18.0
Equalizer

Equalizer Window (Multi-View)

Multi-channel View Window Elements

COPY➡ Button

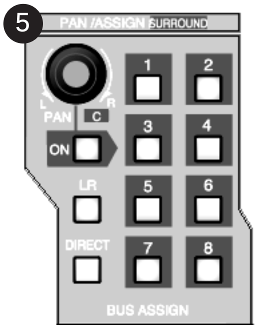
Activating this button copies the EQ parameters from the currently selected channel to the reference channel.

Refer Field

The Refer field displays the name of the channel being auditioned (**INPUTS 1-32, AUX RTN 1-6, BUSES 1-8,** and **MASTER**). When this field is active, use the **JogDial** to scroll through all of the input channels to select the EQ settings you want to use.

Chapter 8
Pan/Assign, Surround, Bus Assign

8-1 PAN/BUS ASSIGN Controls

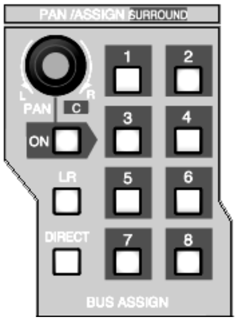


PAN/ASSIGN/SURROUND Section

This section explains access to the **PAN** and 5.1 surround sound controls, and the assignment of **L/R**, **DIRECT**, and **BUSES 1-8** for a selected channel.

The **ON** LED button in this section only switches the pan on *(red)* or off for odd and even selected buses. It has no effect on **DIRECT** assignments. Pan is always active for the **L/R** outputs. Pressing the **PAN** knob displays the **[PAN/SURROUND]** window on the LCD. It also controls the level for the center output in surround sound mode, which goes out on surround sound **BUS 3**.

BUS ASSIGN Controls



BUS ASSIGN Control Area

Use the **BUS ASSIGN** section to assign a channel to an output. Once a channel is selected, select either **MASTER L/R**, **DIRECT**, or **BUS 1, 2, 3, 4, 5, 6, 7,** or **8** by pressing the corresponding LED button.

BUS LED Buttons

These buttons switch the indicated assignment on *(green)* or off to that bus for the selected channel. Press the LED button to turn it on from the Top Panel, or cursor to the **[ASSIGN]** area of the **[CHANNEL]** window, and press the **ENTER** button.

L/R LED Button

This button switches the selected channel on *(flashing green)* or off to the **MASTER L/R OUTPUT** of the ***DA7***.

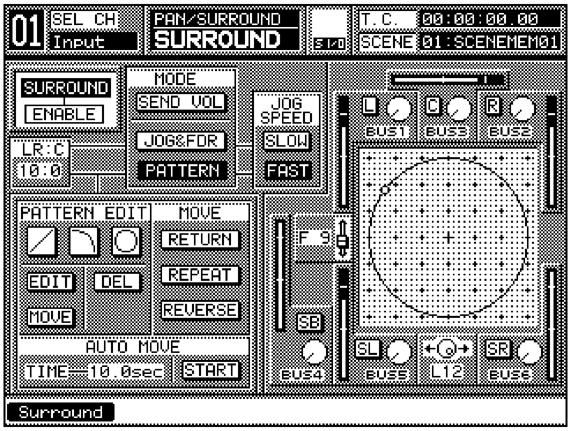
DIRECT LED Button

This button is a shortcut to display the **[D-I/O > TO SLOT]** window. Pressing this button a second time recalls the previous window.

See **Chapter 12, D-I/O** for additional information.

8-2 **SURROUND** *Window*

The parameters for surround sound are set in this window.


01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
SURROUND
ENABLE
MODE
SEND VOL
JOG&FDR
PATTERN
JOG SPEED
SLOW
FAST
LR:C
10:0
PATTERN EDIT
MOVE
RETURN
REPEAT
REVERSE
EDIT
DEL
MOVE
AUTO MOVE
TIME 10.0sec
START
L
BUS1
C
BUS3
R
BUS2
F 9
SB
BUS4
SL
BUS5
L12
SR
BUS6
Surround

SURROUND Window, Single Channel View

The computer age has made surround sound much easier to create. The phrase 5.1 is a little misleading since there are six discrete channel outputs by the ***DA7***. These channels are Left Front, Center, Right Front, Left Surround, Right Surround, and Subwoofer. However, you will have to run the outputs from these six discrete channels into an external processor to create a true 5.1 mix because the .1 channel is usually derived by filtering the five main channels and taking a mix of the low frequencies of all of these channels to make the subwoofer signal. The ***DA7*** gives you a discrete subwoofer channel so that special effects can be sent directly to this channel.

Your outboard surround sound processor should be able to handle this with no problem.

Several of the better known surround sound formats are Dolby Pro Logic Surround, Dolby Digital(AC-3), and DTS (Digital Theater Systems).

SURROUND Button

The surround sound function can be turned on from both the **[PAN/SURROUND>SURROUND]** window or the assign switch on the **[CHANNEL]** window. Move the cursor to the SURROUND button, and press the **ENTER** button. The button appears as inverse video when engaged, and the data field below it changes from DISABLE to ENABLE.

> To monitor surround sound, turn ON and assign the buses as surround sound in the **[SURROUND MONITOR]** area of the **[SOLO/MONITOR]** window.
>
> See page 16-3, **[SURROUND MONITOR]** area for more details.

> To control the **[MASTER LEVEL]** of the surround sound, rotate the **Level ON/OFF** knob in the **AUX** section, while the **[SURROUND]** window appears on the **LCD**.
>
> See page 16-3, **[SURROUND MONITOR]** area for more details.

[LR:C] Field

This field sets the ratio of the left or right output level versus the center output level. Select the **[LR:C]** field with the cursor, and use the **JogDial** to change the values from 0:10 to 10:0.

The value of 0:10 will create a “center emphasis” pan, whereas a value of 10:0 will have no “centering” effect.

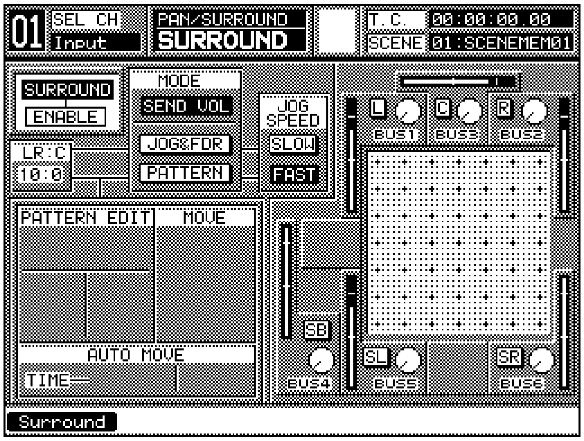
Surround Sound [MODES] Area

The ***DA7*** has three modes for setting surround sound mixing: a live interaction mix using the ***DA7*** surround sound knobs, a graphical mode using the **JogDial** and **MASTER L/R** fader, and a set of vector-based drawing tools to create a sound path. Only one mode per channel can be selected at a time.

Send Volume Mode

The SEND VOL button selects the surround operation send volume mode. Cursor to this button, and press the **ENTER** button.

In this mode you can operate the surround sound feature in the window and directly control each of the six output levels using the ***DA7*** Top Panel surround sound knobs.


01
SEL CH
Input
PAN/SURROUND
SURROUND
T. C.
00:00:00.00
SCENE
01:SCENEMEM01
SURROUND
ENABLE
MODE
SEND VOL
JOG&FDR
PATTERN
JOG SPEED
SLOW
FAST
LR:C
10:0
L
BUS1
C
BUS3
R
BUS2
PATTERN EDIT
MOVE
AUTO MOVE
TIME
SB
BUS4
SL
BUS5
SR
BUS6
Surround

Surround Window (Send Vol Mode)

Operations in the SEND VOL (Send Volume) Mode

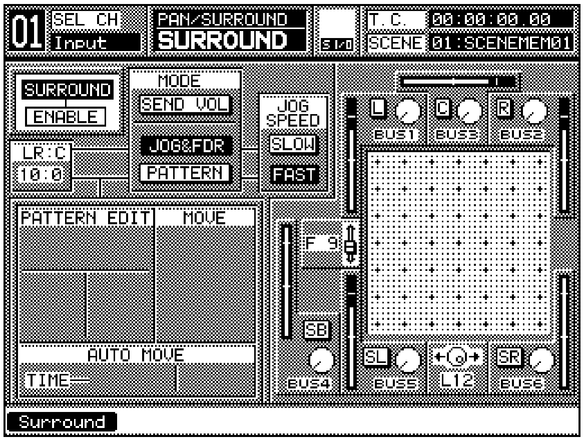
To operate the **[SEND VOL]**, press the C knob to display the **[SURROUND]** window. Select the SURROUND button to set each source to **BUSES 1-6** to ON status (visible from the Top Panel). Adjust the image movement by operating each knob, either with the window soft knobs or the Top Panel knobs L , SL , SUB, C , R, and SR .

If you have enabled automation to **[REC],** the knob adjustment data set in the **[SURROUND]** window will be recorded in automation memory.

JogDial and Master L/R Fader Mode

Press the JOG&FDR button to select **JogDial** & **Master L/R** fader operation mode. Operating the **JogDial** (left, center, right) and the **MASTER L/R** fader (front to rear), enables them to work together to move the sound point on a graph anywhere in the surround sound spectrum.

Adjust the **[L/R:C]** parameter in the window to set desired output balance.


01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
SURROUND
ENABLE
MODE
SEND VOL
JOG&FDR
PATTERN
JOG SPEED
SLOW
FAST
LR:C
10:0
PATTERN EDIT
MOVE
AUTO MOVE
TIME
F 9
SB
BUS4
L
BUS1
C
BUS3
R
BUS2
SL
BUS5
L12
SR
BUS6
Surround

Surround Window (JOG&FDR Mode)

Operations in the JogDial and Master L/R Fader Mode

Select the JOG&FDR button in the **[SURROUND]** window. A dot showing the sound point will appear in the graph in the front center position, and the **MASTER L/R** fader will automatically move to the top position. The front or rear direction is adjusted by the **MASTER L/R** fader, with the fader up as front and fader down as rear. The left or right direction is adjusted with the **JogDial**. Turning clockwise is left and counter-clockwise is right.

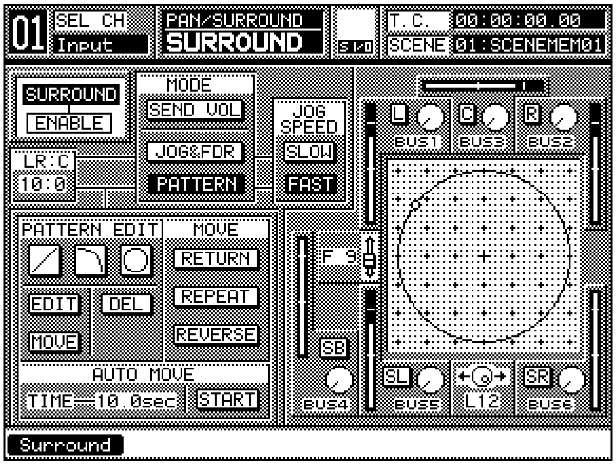
In the **MMC** mode, press the **ENTER** button to switch the **JogDial** to the **PARAMETER** mode so you can adjust the left or right direction. Press a second time to return to the **MMC**.

Pattern Mode

Press the **PATTERN** button to select the pattern mode for surround sound placement. Three new areas – **[PATTERN EDIT]**, **[MOVE]**, and **[AUTO MOVE]** – become available.

This mode lets you draw vector paths that move over time. You can combine up to five shape elements when designing the sound path. You can make moves occur automatically by setting the **[TIME]** value in the **[AUTO MOVE]** area.

Adjust the **[LR:C]** parameter in the window, and set the desired output balance adjustable from 0:10 - 10:0.


01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
SURROUND
ENABLE
MODE
SEND VOL
JOG&FDR
PATTERN
JOG SPEED
SLOW
FAST
LR:C
10:0
L
BUS1
C
BUS3
R
BUS2
PATTERN EDIT
MOVE
RETURN
REPEAT
REVERSE
EDIT
DEL
MOVE
F 9
SB
BUS4
AUTO MOVE
TIME
10.0sec
START
SL
BUS5
L12
SR
BUS6
Surround

Surround Window (Pattern Mode)

[PATTERN EDIT] Area

⧄ Straight Line Mode Button

With this button you can draw a straight line. Once selected, use the **MASTER L/R** fader and the **JogDial** to define a placement, and press **ENTER**. This control point marks the beginning of the path. Select the place for the next control point, and press the **ENTER** button to connect the points. Alternate pressings on the **ENTER** button lets you set the second control point or reselects the mode button.

◝ Curved Line Mode Button

With this button you can draw a curved line. The curved line can be selected in 1/4 arc shapes. Up and down specifications can be changed by pressing the **ENTER** button and the **CURSOR MODE** button simultaneously. Again, alternate pressings on the **ENTER** button lets you set the second control point or reselects the mode button.

◯ Circle Mode Button

This tool lets you draw a circle or an oval.

The default direction is clockwise. To draw counter-clockwise, press the REVERSE button in the **[MOVE]** area. This pattern cannot be combined with others. A dot flashes to indicate the surround screen graph starting point.

Adjust the starting point of the location by using the **JogDial** for left and right direction and the **MASTER L/R** fader for front and rear direction. Slowly pull down the **MASTER L/R** fader, while rotating the **JogDial** clockwise and holding down the **ENTER** button.

Once you are happy with the circle drawn on the graph, release and press the **ENTER** button to lock the pattern into memory. Confirm the beginning and end points of the pattern by rotating the **JogDial**, and watch it move around the shape.

MOVE Button

Once a pattern has been made, the MOVE function selects an entire pattern and moves it. It is not possible to move beyond the graph range.

The location source center position can be adjusted by using the **JogDial** for left or right direction and the **MASTER L/R** fader for front or rear direction. The pattern will show a dotted box around it when MOVE is selected. When the pattern has been moved to a preferred place on the graph, press the **ENTER** button again to set the new location.

To change a move, press the **ENTER** button again, and the pattern will once again move to a highlighted point on the graph. Repeat the preceding process for moving the pattern to a new location.

To delete the pattern, cursor to the DEL button, and press the **ENTER** button.

EDIT Button

This button lets you edit the currently selected control point.

Press the EDIT button. Select a control point by moving the cursor along the path with the **JogDial**. Stop at the point you want to adjust, and press the **ENTER** button. The selected control point blinks indicating that it is being edited. Adjust the control point by using the **JogDial** and the **MASTER L/R** fader, and press the **ENTER** button again. When complete, the blinking control point stops and returns to the dot indication. While in this mode, you can keep adjusting points by repeating this process. The graph will show the moving operation during the adjustment.

DEL Button

Use this button to delete the most recent control point created in PATTERN mode, which will delete the whole line.

JogDial

Adjust sound location by turning or rotating the **JogDial**.

[MOVE] Area

RETURN Button

When Return is on, appearing as inverse video, the cursor movement repeats from the starting point —>to the end point —>to the starting point —>. When Return is off, it simply moves the cursor from the starting point —>to the end point.

REPEAT Button

This button moves the source location cursor from the starting point —> to the end point and the end point —>to the starting point when off. When on, it will repeat the movement continuously.

REVERSE Button

When on, reverse will move the source location cursor in the opposite direction, from the end point —>to the starting point. When Reverse is off, the cursor moves in a normal or clockwise direction.

[AUTO MOVE] Area

Here you can program the duration of an automatic move of the source/ location. Use the **JogDial** to select a duration for the move from 0.0 sec to 30.0 sec. The function will begin when the START button is pressed. This mode follows the same conditions as in the **[MOVE]** area. The cursor will move, in the time set, from the starting point to the end point (or, the end point to the starting point when in reverse).

Pressing START a second time stops the movement. The knob-adjusted data will be recorded automatically when adjusting during automation **[REC MODE]**. This action can be reset repeatedly by going back into **[REC MODE]** and redoing the automation mix for the effect.

[TIME] Field

In the **[AUTO MOVE]** area you can set the automated move time. Cursor to the field, and rotate the **JogDial** to set a time value. The **[TIME]** field has a duration range of 0.0 sec to 30.0 sec.

[START]

This button starts and stops the automated move time. Press **ENTER** to toggle the setting.
In **AUTO MOVE** you can start up to 8 channels. A warning message appears on the **LCD** if you try to start the 9th channel.

BUS Outputs

Buses 1 through 6 can be toggled on and off by moving the cursor to a soft knob and pressing the **ENTER** button. The following chart shows the ***DA7*** surround knobs and their correlating soft knobs.

Left front	**[L/BUS 1]**	**Q** L	**EQUALIZER** section
Right front	**[R/BUS 2]**	R	**DYNAMICS/DELAY** section
Center	**[C/BUS 3]**	**PAN** C	**PAN/ASSIGN** section
Sub	**[SB/BUS 4]**	**GAIN** SUB	**EQUALIZER** section
Left rear	**[SL/BUS 5]**	**FREQ** SL	**EQUALIZER** section
Right rear	**[SR/BUS 6]**	SR	**DYNAMICS/DELAY** section

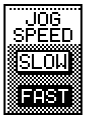
The bus assignment for any selected channel can be seen in the **[ASSIGN]** area of the **[CHANNEL]** window.

To monitor surround sound, turn ON and assign the buses as surround sound in the **[SURROUND MONITOR]** area of the **[SOLO/MONITOR]** window.

See **Chapter 16, Utility and Solo Monitor** for more details.

Please refere to **Chapter 16**, **Utility and Solo Monitor,** page **16-3** for the phisycal surround monitor connections.

[JOG SPEED] Area



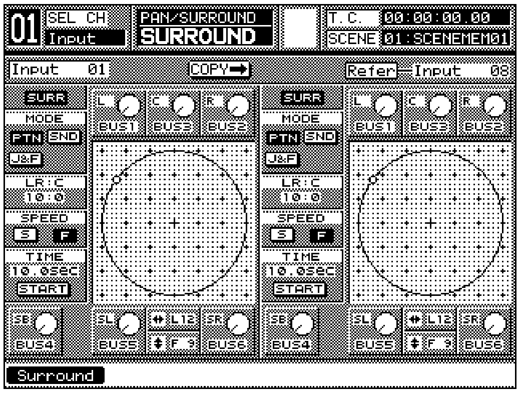
These settings determine the speed range of the **JogDial** when moving a sound point on the graph, or during setup mode. Set the SLOW and FAST before, after, or during any movement. The speed actions are slow (.5X normal speed) and fast (2X normal speed). These are only operational when either JOG&FDR or PATTERN modes are selected.

Output Level Meter

To view all of the bus output levels, display the **[METER>BUS/AUX]** window. The meter point reflects the bus output. The **[RESPONSE]** area selections in the **[METER>BUS/AUX]** window permit a response assignment of either VU or PPM, which is interlocked with the setup in the [**METER]** window.

8-3 **SURROUND** *Window, Multi-Channel View*

In this view, you can display the current channel on the left of the window and another channel on the right. Parameters can only be adjusted on the currently selected channel. Also, the surround sound parameters can be copied only from the currently selected channel to the reference channel.


01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Input 01
COPY
Refer
Input 08
SURR
MODE
PTN
SND
J&F
LR:C
10:0
SPEED
S
F
TIME
10.0sec
START
L
C
R
BUS1
BUS3
BUS2
SB
BUS4
SL
BUS5
L12
F 9
SR
BUS6
Surround

SURROUND Window, Multi-Channel View

The **[SURROUND]** multi-channel view window has all the functionality of any multi-channel view window.

For more details, refer to ***Section 5-5, CHANNEL Window, Multi-channel View.***

The **[SURROUND]** window multi-channel view has almost all of the functionality of the regular **[SURROUND]** window, with the following button names modified to save window space:

[SURROUND] . . . .**[SURR]**

[SEND VOL] . . . .**[SND]**

[JOG&FDR] . . . .**[J&F]**

[PATTERN] . . . .**[PTN]**

[JOG SPEED] . . . .**[SPEED]**

[SLOW] . . . .**[S]**

[HIGH] . . . .**[F]**

The following functions are not available when the **[SURROUND]** multi-channel view window is displayed:

[RETURN]

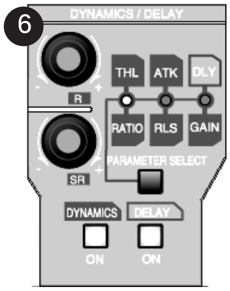
[REPEAT]

[REVERSE]

Selection of Reference Channel

The **[REFER]** (reference) field displays the name of the channel being auditioned (inputs 1 through 32 and aux returns 1 through 6).

Chapter 9
Dynamics/Delay

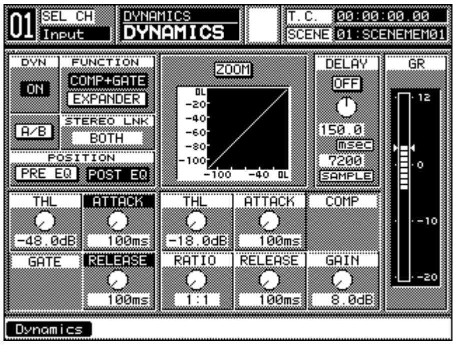

DYNAMICS / DELAY
6
R
SR
THL
ATK
DLY
RATIO
RLS
GAIN
PARAMETER SELECT
DYNAMICS
DELAY
ON
ON

Dynamics/Delay Section

9-1 Overview

The ***DA7*** provides a built-in dynamics processor. Channels 1 through 32, buses 1 through 8, and **MASTER L/R** can all have either Compression + Gating, or Expansion. Delay attributes can also be added to Channels 1 through 32.

An internal fifty memory **[DYNAMICS]** library has been added so that you can create and archive custom presets and instantly recall them. You can also store and recall an unlimited number of them from a computer using MIDI library software.



01 SEL CH Input

DYNAMICS DYNAMICS

T.C. 00:00:00.00

SCENE 01:SCENEMEM01

DYN ON

FUNCTION COMP+GATE

STEREO LNK BOTH

POSITION POST EQ

DELAY OFF 150.0 msec 7200 SAMPLE

GATE: THL -48.0dB, ATTACK 100ms, RELEASE 100ms

COMP: THL -18.0dB, ATTACK 100ms, RATIO 1:1, RELEASE 100ms, GAIN 8.0dB

EXPANDER
A/B
PRE EQ
ZOOM
0L
-20
-40
-60
-80
-100
-100
-40
0L
GR
12
0
-10
-20
Dynamics

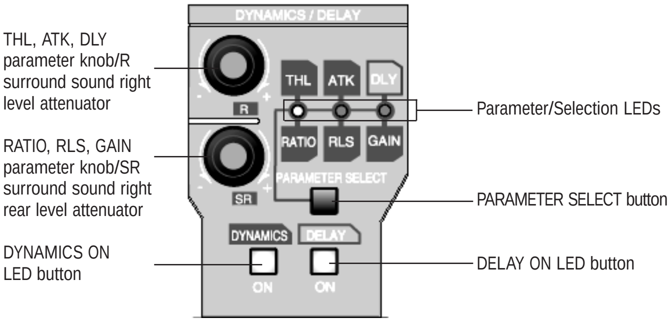
DYNAMICS Window

Section 9-2 DYNAMICS/DELAY Section Controls explains how to use the ***DA7*** Top Panel controls to edit parameters.

Section 9-3 DYNAMICS Window and ***Section 9-4 DYNAMICS Window, Multi-Channel View*** describe the software funtions.

Section 9-5 DYNAMICS Library Window explains how to save and recall presets from the dynamics library.

9-2 DYNAMICS/DELAY Section Controls


THL, ATK, DLY parameter knob/R surround sound right level attenuator
RATIO, RLS, GAIN parameter knob/SR surround sound right rear level attenuator
DYNAMICS ON LED button
DYNAMICS / DELAY
THL
ATK
DLY
R
RATIO
RLS
GAIN
PARAMETER SELECT
SR
DYNAMICS
DELAY
ON
ON
Parameter/Selection LEDs
PARAMETER SELECT button
DELAY ON LED button

DYNAMICS/DELAY Section Controls

You can discretely provide dynamics processing to a selected channel. The two knobs in the **DYNAMICS/DELAY** section of the Top Panel are labeled R and SR, which correspond to surround sound parameters, but are also used to adjust the various dynamics attributes as indicated.

R Knob

The R knob adjusts the **[GATE] THL** (threshold) and **ATK** (attack), as well as the **[COMPRESSOR] THL** (threshold), **ATK** (attack), and **DLY** (Delay) parameters. When the SEND VOL mode is selected in the **[SURROUND]** window, the knob adjusts the send level from a selected channel for the R (right) output to BUS 2.

SR Knob

The SR knob adjusts the **[GATE] RLS** (release), as well as the **[COMPRESSOR] RATIO**, **RLS** (release), and **GAIN** parameters. When the SEND VOL mode is selected in the **[SURROUND]** window, the knob adjusts the send level from a selected channel for the SR (surround right rear) output to BUS 6.

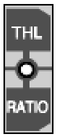
PARAMETER SELECT Button

PARAMETER SELECT

Pressing the **PARAMETER SELECT** button changes the parameters to be adjusted by the R and SR knobs. Repeated pressing of this button cycles the four choices: threshold or ratio—>attack or release—>delay or gain–> threshold or release. The appropriate LED will light *(orange)* showing which set of parameters are in use: **THL** and **RATIO**, **ATK** and **RLS**, **DLY** and **GAIN**. No LED will light when the **THL** and the **RLS** are in **GATE** mode.

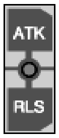
Additionally, when in **GATE** mode, the top knob toggles between **THL** (threshold) and **ATK** (attack).

THL and RATIO LED



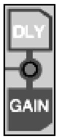
When this LED is illuminated *(orange)*, **THL** (threshold) and **RATIO** attributes for the **COMPRESSOR** can be adjusted. The R knob adjusts the threshold level, and the SR knob adjusts the ratio level. These parameters can also be adjusted in the **[DYNAMICS]** window by highlighting the selection soft knob, and turning the **JogDial** to change the level.

ATK and RLS LED



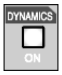
When this LED is illuminated *(orange)*, **ATK** (attack) and **RLS** (release) attributes for the **COMPRESSOR** can be adjusted. The R knob adjusts the attack level, and the SR knob adjusts the release level. These parameters can also be adjusted in the **[DYNAMICS]** window by highlighting the selection soft knob, and turning the **JogDial** to change the level.

DLY and GAIN LED



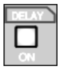
When this LED is illuminated *(orange)*, **DLY** for the channel and **GAIN** attributes for the **COMPRESSOR** can be adjusted. The R knob adjusts the delay time of the channel, and the SR knob adjusts the gain. You can adjust the Delay in either msec or samples. Simply select the field you wish to adjust on the **[CHANNEL]** window on the LCD. These parameters can also be adjusted in the **[DYNAMICS]** window by highlighting the selection soft knob, and turning the **JogDial** to change the level.

DYNAMICS ON LED Button



This LED button switches the dynamics for a selected channel on *(green)* or off. Press the **DYNAMICS ON** LED button to toggle between on and off.

DELAY ON LED Button



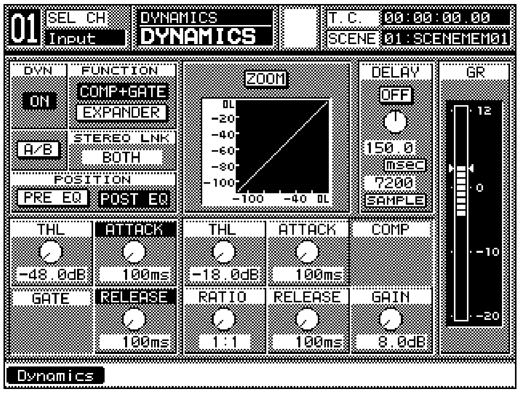
This LED button switches the delay for a selected channel on *(green)* or off. Press the **DELAY ON** LED button to toggle between on and off.

9-3 DYNAMICS Window

Press the SR knob in the **DYNAMICS/DELAY** section to display the **[DYNAMICS]** window. Or, cursor to the **[DYN]** area graph in the **[CHANNEL]** window, and press the **ENTER** button to display the **[DYNAMICS]** window. Or, when the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON, pressing an LED button or adjusting a knob in the **DYNAMICS** section will automatically display the **[DYNAMICS]** window.

The **[DYNAMICS]** window reflects the current dynamics settings for the selected channel and contains the controls for adjusting the dynamics and delay attributes for the channel.

Dynamics has two modes, compressor + noise gate, or expander. You can also set the channel delay time from this window.


01
SEL CH
Input
DYNAMICS
DYNAMICS
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
DYN
ON
FUNCTION
COMP+GATE
EXPANDER
A/B
STEREO LNK
BOTH
POSITION
PRE EQ
POST EQ
ZOOM
0L
-20
-40
-60
-80
-100
-100
-40
0L
DELAY
OFF
150.0
msec
7200
SAMPLE
GR
12
0
-10
-20
THL
-48.0dB
ATTACK
100ms
GATE
RELEASE
100ms
THL
-18.0dB
ATTACK
100ms
COMP
RATIO
1:1
RELEASE
100ms
GAIN
8.0dB
Dynamics

DYNAMICS Window

[DYN] OFF Button

Toggle this button to switch the dynamics ON or OFF for the currently selected channel.

A/B Button

This button permits you to compare two different dynamics settings. Toggle the A/B button, and the two settings can be compared.

[FUNCTION] Area FUNCTION COMP+GATE EXPANDER

This area is where you choose either compressor + gate mode, or expander mode. Activate the COMP+GATE button to control the parameters for the compressor + gate. Activate the EXPANDER button to control the parameters for the expander.

[STEREO LINK] Area STEREO LNK BOTH

The stereo link setting defines the relationship between channels in a stereo pair when making gain adjustments to the channels. Cursor to this area, and use the **JogDial** to scroll the stereo link selections in the data field. The stereo link options are:

- OFF

  When OFF is the stereo link selection, gain adjustments made to either channel in the stereo pair will be independently applied to the channels. This will cause the stereo imaging to shift in favor of the channel with the higher level.

- LEFT

  When LEFT is the stereo link selection, gain adjustments made to the left channel in the stereo pair will automatically be applied to the right channel. The stereo imaging will remain centered, regardless of the level.

- RIGHT

  When RIGHT is the stereo link selection, gain adjustments made to the right channel in the stereo pair will automatically be applied to the left channel. The stereo imaging will remain centered, regardless of the level.

- BOTH

  This is the default setting for the stereo link function. When BOTH is the stereo link selection, gain adjustments made to either channel in the stereo pair will automatically be applied to the second channel. The stereo imaging will remain centered, regardless of the level.

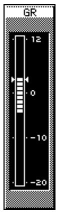
[POSITION] Area POSITION PRE EQ POST EQ

The dynamics circuit can be patched in either before or after the EQ. Select the PRE EQ button, and press the **ENTER** button to put the dynamics ahead of the EQ. Select the POST EQ button, and press the **ENTER** button to put the dynamics after the EQ. Let experimentation be your friend here. Boosting EQ in front of dynamics can lead to some outrageous dynamic effects.

ZOOM Button

When the ZOOM button is on, it will appear as inverse video, and change the scale of the dynamics graph from OL to -100, to OL to -50. Any changes to the dynamics settings will appear in the graph area beneath the ZOOM button.

[GAIN REDUCTION] Area

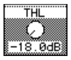


GAIN REDUCTION Area

When a selected signal is input in the **[COMP+GATE]** mode, gain reduction for that input signal is graphically displayed on the **[GR]** Meter. The amount of gain is referenced by twin arrows on either side of the gain bar scale, which slide up and down in relation to the amount of gain reduction. The reference is connected to the **[GAIN]** knob. Adjust the gain level with the **[GAIN]** knob. The scale will show gain reduction from +12dB to 0dB, the same as the range of the **[GAIN]** knob.

[GATE] mode

[THL] Area



Threshold sets the level at which the gate opens and closes. Signals below the threshold point will close the gate and prevent the signal from passing. Signals above the threshold point will pass through the gate. Values for the threshold are -80dB to -15dB.

[ATTACK] Area

ATTACK
100ms

The attack time is how long it takes for the gate to kick in after the signal has triggered it. A short attack of around 10 ms is a good starting point. Values for attack time are from 0 ms to 250 ms.

[RELEASE] Area

RELEASE
100ms

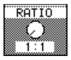
The release time is how long it takes for the gate to return to its default level after the signal falls below the threshold point. Too short of a release time causes the signal to return to the default gain too quickly and can cut off the decay of the signal. A long release time could cause the gate to let too much of the unwanted portion of the signal to pass. Values for release time are from 5 msec to 2 000 msec.

[COMPRESSOR] mode

[THL] Area

Threshold sets the level at which the compressor begins to reduce the signal by the pre-determined ratio. Signals below the threshold point will not be affected by the compressor. Signals above the threshold point will be reduced in volume by the ratio set. Values for the threshold are -40 dB to 0 dB.

[RATIO] Area



The ratio parameter sets the amount of compression (amount of output signal change compared to the amount of input signal change). A typically used 2:1 ratio would take a 10 dB change in input and cause a 5 dB change in output. Values for ratio are from 1:1 to ∞:1.

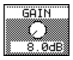
[ATTACK] Area

The attack time is how long it takes for the compressor to kick in after the signal has triggered it. A short attack of around 5 ms is a good starting point. Values for attack time are from 0 ms to 250 ms.

[RELEASE] Area

The release time is how long it takes for the compressor to return to its default level after the signal falls below the threshold point. Too short of a release time causes the signal to return to the default gain too quickly and can create audio spikes. A long release time could cause the compressor to work too hard and over-compress signals. Values for release time are from 5 msec to 2 000 msec.

[GAIN] Area



This option sets the output level gain for the compressor and is only available in compressor+gate mode. Values for gain are from 0 dB to 12 dB.

[EXPANDER] mode

[THL] Area

Threshold sets the level at which the expander begins to make the signal louder by the pre-determined ratio. Signals below the threshold point will not be affected by the expander. Signals above the threshold point will be raised in volume by the ratio set. Values for the threshold are -80 dB to -15 dB.

[RATIO] Area

The ratio parameter sets the amount of expansion (amount of output signal change compared to the amount of input signal change). Values for ratio are from 1:1 to ∞:1.

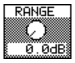
[ATTACK] Area

The attack time is how long it takes for the expander to kick in after the signal has triggered it. Values for attack time are from 0 ms to 250 ms.

[RELEASE] Area

Values for release time are from 5 ms to 2 000 ms.

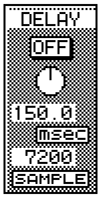
[RANGE] Area



This parameter is only available in the expander mode. The gate parameter is usually on or off. However, you can set a range so the gate does not completely close and dynamically adjust the signal level coming through the gate. Values for range are from 0 dB to 40 dB.

DELAY OFF Button

This button switches the delay ON or OFF.



[DELAY] Area Controls

The channel delay is inserted after the EQ and dynamics and before the fader in the audio path, thus delaying a signal. This function could be useful for fixing timing differences on different sources or intentionally off-setting the time of a track to create an effect.

Adjust the delay value from 0 msec / 0 sample to 300 msec / 14400 sample. **DLY** value [msec] = sample value divided by the number left by removing kHz from a sampling frequency. Example: When the sample value is 7200 and the sampling frequency is 48 kHz, the **DLY** value = 7200 divided by 48 = 150 msec.

Compressor Operations

1. Display the **[DYNAMICS]** window by pressing the SR knob in the **DYNAMICS/DELAY** section. Or, cursor to the **[DYN]** area graph in the **[CHANNEL]** window, and press the **ENTER** button to display the **[DYNAMICS]** window. Or, when the **[AUTO DISP CHANGE]** selection in the **[UTILITY>CONFIG]** window is ON, pressing an LED button or adjusting a knob in the **DYNAMICS** section will automatically display the **[DYNAMICS]** window.

2. Press the **SELECT** button for the channel you want to edit. The **[DYNAMICS]** window updates to the selected channel.

3. Turn the dynamics on *(green)* by pressing the **DYNAMICS ON** LED button on the Top Panel, or the **[ON]** button in the **[DYNAMICS]** window.

4. Cursor to the COMP+GATE button in the **[FUNCTION]** area, and press the **ENTER** button to engage the compressor. When the COMP+GATE button is pressed, EXPANDER is disabled.

5. Cursor to the **[STEREO LINK],** and select a mode by using the **JogDial** when the channel is in stereo pair.

6. Select a parameter you want to adjust by moving the cursor through the window, or by using the **PARAMETER SELECT** button on the Top Panel.

7. Adjust the parameter by rotating the **JogDial**, or use the R knob for threshold, attack, and delay, and the SR knob for ratio, release, and gain. The parameter title will then be indicated in reverse video. Use the **JogDial** and knobs to select the parameter independently. The adjusted parameter is graphically displayed on the screen.

8. When a signal is input, gain reduction for the input signal is indicated in the **[GR]** meter, and the reference point of the **[GR]** meter is highlighted. The reference is connected to the **[GAIN]** parameter. After adjusting the compressor, adjust the level so that the peak of the reduction is close to 0 dB on the **[GR]** meter in the **[DYNAMICS]** window.

Gate Operations

1. Set the status the same way you selected COMP+GATE mode in the **[DYNAMICS]** window.

2. Cursor to **[ATK]**, **[THL]** or **[RELEASE]** in the **[GATE]** area, and adjust the parameter using the **JogDial**. The adjusted parameter is graphically displayed on the screen. When a signal is input, gain reduction for the input signal is indicated in the **[GR]** meter.

Expander Operations

1. Cursor to the EXPANDER button in the **[FUNCTION]** area, and press the **ENTER** button to engage the expander.

2. When the EXPANDER button is pressed, the COMP+GATE is disabled.

3. Select a parameter you want to adjust by operating the cursor on the screen or the **PARAMETER SELECT** button on the Top Panel.

4. Adjust the parameter by rotating the **JogDial**, or use the R knob for threshold, attack, and delay, and the SR knob for ratio, release, and range. The parameter title will be indicated in reverse video.

5. The adjusted parameter is graphically displayed on the screen. When a signal is input, gain reduction for the input signal is indicated in the **[GR]** meter, and the reference point of the **[GR]** meter is highlighted.

Delay Operations

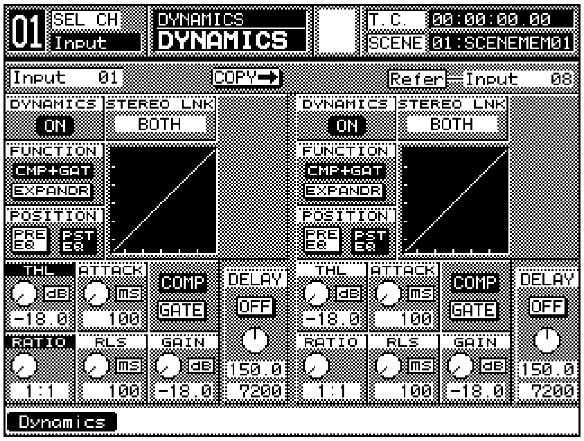
1. Press the **DELAY ON** LED button *(green)* on the Top Panel or the **DELAY ON** button in the **[DYNAMICS]** window to activate the delay function.

2. Move the cursor on the screen, or press the **PARAMETER SELECT** button to select the **[DLY]** parameter.

3. Adjust the parameter by using the **JogDial** or the R knob. The parameter title will then be indicated in reverse video.

9-4 DYNAMICS Window, Multi-Channel View

This window shows the selected channel on the left side of the LCD and a reference channel on the right. Only the currently selected channel can be modified. However, you can copy entire settings to the reference channel.


01
SEL CH
Input
DYNAMICS
DYNAMICS
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
Input 01
COPY
Refer
Input 08
DYNAMICS
STEREO LNK
ON
BOTH
FUNCTION
CMP+GAT
EXPANDR
POSITION
PRE EQ
PST EQ
THL
dB
-18.0
ATTACK
ms
100
COMP
GATE
DELAY
OFF
150.0
7200
RATIO
1:1
RLS
ms
100
GAIN
dB
-18.0
Dynamics

DYNAMICS Window, Multi-Channel View

This window is the same as the **[DYNAMICS]** window, except for the following items:

COMP Button

Pressing the COMP button updates this area to give you controls for compression settings only.

GATE Button

Pressing the GATE button updates this area to give you controls for gate settings only.

Settings in both windows update synchronously. Repeated pressings of the **ENTER** button on either one of these buttons will toggle the settings.

Several functions have abbreviated names in the multi-channel view to save window space:

[COMP&GATE] · · · [CMP+GAT]

[EXPANDER] · · · [EXPANDR]

[MSEC] · · · [MS]

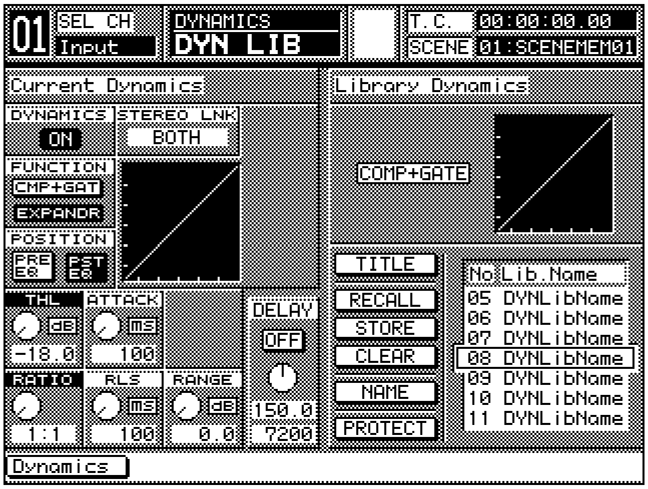
Refer Field

The Refer (reference) field displays the name of the channel being auditioned (**INPUTS 1-32, AUX RTN 1-6, BUSES 1-8,** and **MASTER**). When this field is active, use the **JogDial** to scroll through all of the input channels to select your dynamics settings.

9-5 DYNAMICS Library Window

Press the STORE/RECALL button in the **LIBRARY** area on the Top Panel to display the **[DYN LIB]** window. You may have to toggle through the other libraries to get to the correct window.

This window shows the **[DYN LIB]** (dynamics library) functions and the status of a selected channel which is still editable. You can also store and recall dynamics settings from the dynamics library.


01
SEL CH
Input
DYNAMICS
DYN LIB
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
Current Dynamics
DYNAMICS
ON
STEREO LNK
BOTH
FUNCTION
CMP+GAT
EXPANDR
POSITION
PRE EQ
PST EQ
THL
dB
-18.0
ATTACK
ms
100
RATIO
1:1
RLS
ms
100
RANGE
dB
0.0
DELAY
OFF
150.0
7200
Library Dynamics
COMP+GATE
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 DYNLibName
06 DYNLibName
07 DYNLibName
08 DYNLibName
09 DYNLibName
10 DYNLibName
11 DYNLibName
Dynamics

DYNAMICS Library Window

This window has all of the controls that the **[DYNAMICS]** window has, with a few additions. They are:

TITLE Button

Use this button to store library settings without the Name Editor. When TITLE is on, a setting is stored with the name **[NoTitle##A]**. This setting can later be recalled, and renamed by using the NAME button.

RECALL Button

Select this button, and press the **ENTER** button to recall one of the fifty library memories containing dynamics settings. The **MEMORY** numeric readout will flash for two seconds, indicating that a new library memory is being loaded.

STORE **Button**

Activating this button stores the current dynamics settings into one of the fifty library memories. The **[NAME EDITOR]** window pops up, prompting you to name the memory. After naming it, cursor to the Ok button in the **[NAME EDITOR]** window, and press the **ENTER** button. The **MEMORY** numeric readout will flash for two seconds, indicating that you have written to the library memory. The library comes with all memories named **INITIAL***.

CLEAR **Button**

Activating this button clears the current library memory and resets it to the factory settings. When accessing this button, you should be thinking "back-up."

NAME **Button**

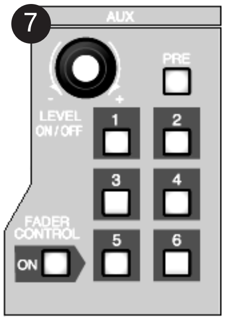
Activating this button opens the **[NAME EDITOR]** window, prompting you to name the memory. After naming it, cursor to the Ok button in the **[NAME EDITOR]** window, and press the **ENTER** button. The **MEMORY** numeric readout will flash for two seconds, indicating that you have written to the library memory.

PROTECT **Button**

Cursor to this button, and press the **ENTER** button to protect the current dynamics library memory from being cleared or overwritten.

Library memory selections can be made, when the cursor is within the **[Library Data]** area, by rotating the **JogDial**. Rotating it clockwise moves the cursor through the library numbers from low to high (1 through 50), while rotating the **JogDial** counter-clockwise moves the cursor through the library from high to low (50 through 1).

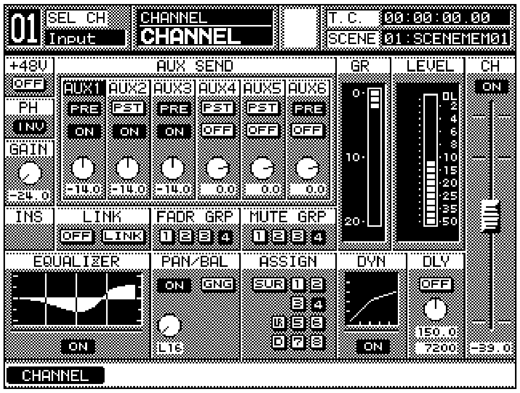
Chapter 10
AUX


7
AUX
PRE
LEVEL
ON / OFF
1
2
3
4
5
6
FADER
CONTROL
ON

AUX Section

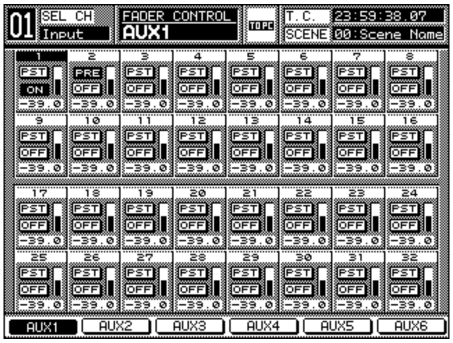
10-1 Overview

The **AUX** section and **[FADER CONTROL]** windows give you access to the auxillary functions on the ***DA7***. Many adjustments can also be made from the **[CHANNEL]** window, where auxes can be assigned on or off, and be designated as pre-fader or as post-fader. The level of the selected aux can also be adjusted in the **[CHANNEL]** window.


01
SEL CH
Input
CHANNEL
CHANNEL
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
+48V
OFF
PH
INV
GAIN
-24.0
AUX SEND
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6
PRE
PST
PRE
PST
PST
PRE
ON
ON
ON
OFF
OFF
OFF
-14.0
-14.0
-14.0
0.0
0.0
0.0
GR
LEVEL
CH
ON
INS
LINK
OFF
LINK
FADR GRP
1 2 3 4
MUTE GRP
1 2 3 4
EQUALIZER
ON
PAN/BAL
ON
GNG
L16
ASSIGN
SUR
1 2 3 4 5 6 7 8
DYN
ON
DLY
OFF
150.0
7200
-39.0
CHANNEL

CHANNEL Window

When the **FADER CONTROL** LED button on the Top Panel is pressed *(red)*, the selected aux channel **[FADER CONTROL]** windows will be displayed. These windows show the status and level of the selected aux send assignments to input channels 1 through 32. The faders will display the appropriate levels for the selected aux send for each channel.



01 SEL CH Input

FADER CONTROL AUX1

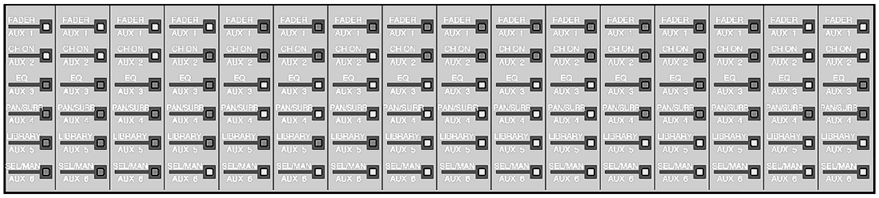
T.C. 23:59:38.07

SCENE 00:Scene Name

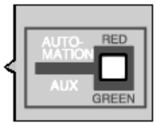
1 PST ON -39.0	2 PRE OFF -39.0	3 PST OFF -39.0	4 PST OFF -39.0	5 PST OFF -39.0	6 PST OFF -39.0	7 PST OFF -39.0	8 PST OFF -39.0
9 PST OFF -39.0	10 PST OFF -39.0	11 PST OFF -39.0	12 PST OFF -39.0	13 PST OFF -39.0	14 PST OFF -39.0	15 PST OFF -39.0	16 PST OFF -39.0
17 PST OFF -39.0	18 PST OFF -39.0	19 PST OFF -39.0	20 PST OFF -39.0	21 PST OFF -39.0	22 PST OFF -39.0	23 PST OFF -39.0	24 PST OFF -39.0
25 PST OFF -39.0	26 PST OFF -39.0	27 PST OFF -39.0	28 PST OFF -39.0	29 PST OFF -39.0	30 PST OFF -39.0	31 PST OFF -39.0	32 PST OFF -39.0

FADER CONTROL Window

There are LED field status indicators for **AUX 1-6** on each **Channel Strip**. When on *(green)*, the channel is routed to the aux send indicated, and there can be multiple assignments for the channel, displayed on the LED field above the faders.



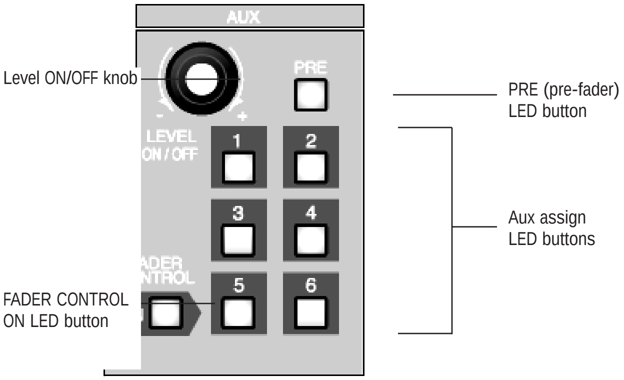
Channel Strip LED Field



Automation/AUX Button

The **AUTOMATION/AUX** button on the Top Panel controls the LED field status indicators of the **Channel Strips**. When **AUTOMATION** is selected for this button *(red)*, the LED field indicators reflect the automation parameter assignments for the channels. When **AUX** is selected for this button *(green)*, the LED field indicators reflect the auxillary (**AUX**) routing assingments for the channels. Pressing the **AUTOMATION/AUX** button toggles the status indicators.

10-2 AUX Section Controls


AUX
Level ON/OFF knob
PRE
- +
LEVEL ON / OFF
1
2
3
4
5
6
ADER NTROL
FADER CONTROL ON LED button
PRE (pre-fader) LED button
Aux assign LED buttons

AUX Section

The **AUX** section contains a **LEVEL ON/OFF** knob and LED buttons for **AUXs 1-6**, **PRE** (pre-fader), and **FADER CONTROL**.

[LEVEL] ON/OFF Knob

- +
LEVEL
ON / OFF

To assign an aux to a selected channel, press one of the **AUX 1-6** LED buttons to select it *(green)*, and then press the **LEVEL ON/OFF** knob to activate the aux assignment. OFF or ON status is shown in the **[CHANNEL]** window and in the respective **[FADER CONTROL>AUX]** window. The **AUX** LED field of the respective **Channel Strip** also reflects the aux assignment.

Turn the **LEVEL ON/OFF** knob to adjust the aux send level for the selected channel to the specified aux. The level is expressed in a numeric value in the associated window data field.

PRE LED Button

Press the **PRE** (pre-fader) LED button *(red)* to enable the pre-fader condition for the selected channel. This operation uses the signal before the fader and sends it to the selected aux output. When the **PRE** LED button is off, the ***DA7*** defaults to PST (post fader) condition for the selected channel and uses the signal after the fader as the send to the selected aux output.

FADER CONTROL LED Button

FADER
CONTROL
ON

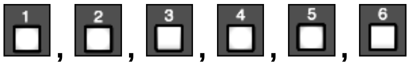
When active *(red)*, a window from the **[FADER CONTROL]** window group is displayed in the LCD. When the **FADER CONTROL** LED button is activated, the **[AUX]** window last used is displayed on the LCD.

When the **FADER CONTROL** LED button is off, parameter adjustments can be seen in the **[CHANNEL]** window.

When a **[FADER CONTROL]** window is displayed, press an **AUX 1-6** LED button to display the respective **[AUX]** window in the LCD. Faders will react to display the selected aux send for each channel.

Level adjustments for the selected channel can be made with the **Channel Fader** when the **FADER CONTROL** LED button is on *(red),* or with the **LEVEL ON/OFF** knob in the **AUX** section.

AUX 1-6 LED Buttons



Press one of the **AUX 1-6** LED buttons to select it *(green)*. Once selected, assign the **AUX** to the current channel by pressing the **LEVEL ON/OFF** knob.

AUX/BUS Fader Layer

The **AUX/BUS Fader Layer** gives you fader control for aux sends 1 through 6 and aux returns 1 through 6. The **AUX/BUS Channel Strip** designations are labeled at the bottom of the strip. The first six faders are the output controls for the aux send mix from the ***DA7***. You can adjust the following parameters for aux sends:

[STEREO] [ON], **[OFF]**, and **[MONO]**.

[MUTE GRP] [1], **[2]**, **[3]**, and **[4]**

Faders 7 through 12 are for aux returns 1 through 6. The parameters you can adjust for aux returns are the same as in aux sends, with the addition of:

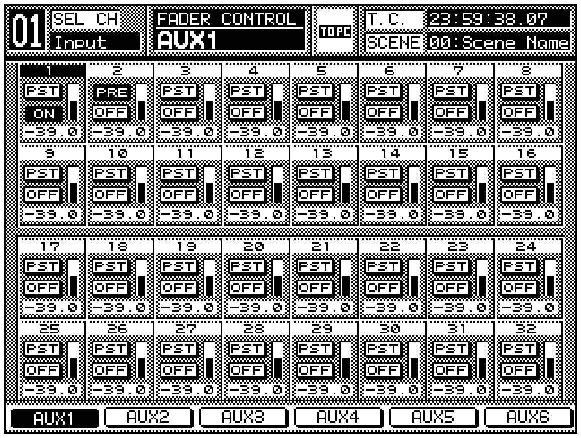
[GAIN]

[FADR GRP] (fader group)

[EQUALIZER]

[ASSIGN]

10-3 FADER CONTROL Window


01
SEL CH
Input
FADER CONTROL
AUX1
TO PC
T.C.
23:59:38.07
SCENE
00:Scene Name
PST
PRE
ON
OFF
-39.0
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6

FADER CONTROL Window

This window displays the aux send status of all the input channels. You can set pre-fader or post-fader selections and the aux send on or off status of each channel from this window. This window is displayed when the **[FADER CONTROL]** LED button is activated *(red)*. The **[FADER CONTROL>AUX]** window displayed will change when you press any of the **AUX 1-6** LED buttons, and the faders will follow.

[FADER CONTROL] Window, Elements

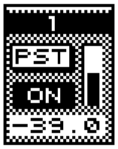
PST and PRE Buttons

The post-fader and pre-fader selection buttons toggle for the selected aux send. Cursor to the button in the window, and press the **ENTER** button to toggle the selections. They can also be seen (and activated) from the **[CHANNEL]** window.

ON and OFF Buttons

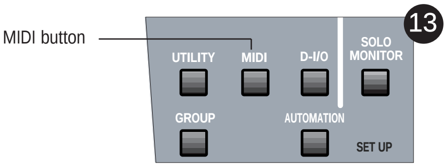
When the channel is selected, cursor to the current button in the window, and press the **ENTER** button. You can also press the **LEVEL ON/OFF** knob to toggle the aux send status.

[Level Meter] Display



Aux send level meters on the right of the individual channel areas display the aux send level for the selected channel. All 1 through 32 send levels can be monitored from the **[FADER CONTROL]** windows. Moving the fader for the selected channel will control the send output level of the respective aux send. Rotating the **LEVEL ON/OFF** knob will also adjust the selected level. If the **[UTILITY>CONFIG]** window **[AUTO DISP CHANGE]** item is set to ON, the LCD display will change to the **[CHANNEL]** window when the **LEVEL ON/OFF** knob is rotated.

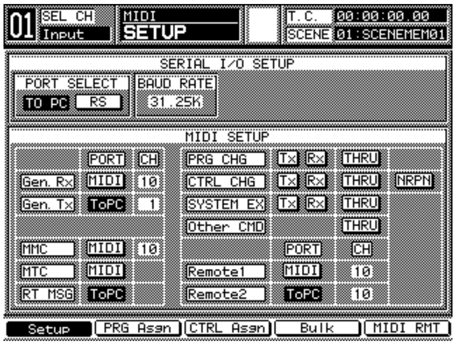
Chapter 11
MIDI


MIDI button
13
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP

SETUP Section

Press the **MIDI** button in the **SETUP** section of the Top Panel. A window from the **[MIDI]** window group will appear in the LCD. Each time you press the **MIDI** button, the **[SETUP]**, **[PRG ASGN]**, **[CTRL ASGN]**, **[BULK]**, and **[MIDI RMT]** windows are shown in sequence in the LCD.
Appendix G details the technical information on MIDI communications.

11-1 MIDI, SETUP Window


01
SEL CH
Input
MIDI
SETUP
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
SERIAL I/O SETUP
PORT SELECT
TO PC
RS
BAUD RATE
31.25K
MIDI SETUP
PORT
CH
Gen. Rx
MIDI
10
Gen. Tx
ToPC
1
MMC
MIDI
10
MTC
MIDI
RT MSG
ToPC
PRG CHG
Tx
Rx
THRU
CTRL CHG
Tx
Rx
THRU
NRPN
SYSTEM EX
Tx
Rx
THRU
Other CMD
THRU
PORT
CH
Remote1
MIDI
10
Remote2
ToPC
10
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

SETUP Window

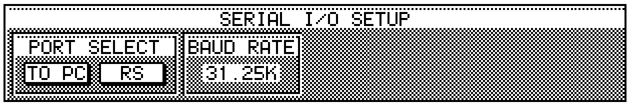
The **[MIDI>SETUP]** window shows the configuration settings for MIDI operations.

The ***DA7*** has ports for **MIDI IN** and **MIDI OUT** and serial ports for connection to a personal computer. Use the **TO PC** serial port or RS-422/485 connector to connect to a Mac or a Windows computer or RS422/485 device.

Receive Indicator TO PC

The window has receive indicators in the **[taskbar]**. A MIDI indicator blinks when data is received at the **MIDI IN** connection, an RS indicator blinks when data is received at the RS 422/485 terminal, and a TO PC indicator blinks when data is received at the **TO PC** terminal.

[SERIAL I/O SETUP] Area



SERIAL I/O SETUP Area

[PORT SELECT] Area PORT SELECT TO PC RS

The ***DA7*** has a **TO PC** connector port and an **RS422/485** serial port on the Rear Panel. These ports are used for attaching a Mac O/S or Windows O/S computer platform to the ***DA7***. Only one port can be used at a time. You must select either TO PC or RS in the **[PORT SELECT]** area of the window. The default setting is TO PC. The **[MIDI SETUP]** area reflects back to this selection(See **[MIDI SETUP]** on page 11-3). When using one of the serial ports you need to assign the TO PC to at least one column of the port settings in the **[MIDI SETUP]** area.

TO PC Button

This button selects **TO PC** on the Rear Panel for the serial I/O port. Cursor to the button, and press the **ENTER** button. The Mac HSKO 1Mhz clock is active for this selection.

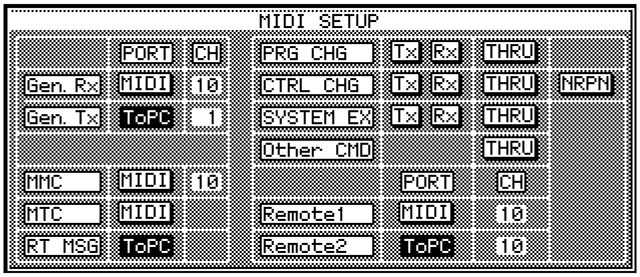
RS Button

This button selects RS485 for the serial I/O port. Cursor to the button, and press **ENTER**.

[BAUD RATE] Area BAUD RATE 31.25K

This area offers baud rates for the serial **I/O** port. To set a baud rate, cursor to the **[BAUD RATE]** area, select either 31.25K , **[9.6k]**, **[19.2k]**, **[38.4k]**, **[62.5k]** or **[125k]** using the **JogDial,** and press the **ENTER** button. The initial setting is **[31.25k]**. When **[31.25k]**, **[62.5k]** or **[125k]** is selected, a clock is transmitted. Transmission of the 2Mhz clock turns the serial port off or on. For RS485, **[31.25k]** cannot be set; the initial setting for RS485 is **[38.4k]**.

[MIDI SETUP] Area


MIDI SETUP
PORT
CH
Gen. Rx
MIDI
10
Gen. Tx
ToPC
1
MMC
MIDI
10
MTC
MIDI
RT MSG
ToPC
PRG CHG
Tx
Rx
THRU
CTRL CHG
Tx
Rx
THRU
NRPN
SYSTEM EX
Tx
Rx
THRU
Other CMD
THRU
PORT
CH
Remote1
MIDI
10
Remote2
ToPC
10

MIDI SETUP Area

Here, the direction of messages (serial data) coming from and going to **MIDI IN**, **MIDI OUT**, and **TO PC** is set. Select one of these four combinations to set the direction of data:

❶ Status 1: When Gen. Rx is set to MIDI and Gen. Tx is set to MIDI, the ***DA7*** cannot communicate with the personal computer. Data can be transmitted and received between the ***DA7*** and a MIDI device. A message is input from the MIDI device to the **MIDI IN** terminal, while the ***DA7*** outputs a message to the MIDI device from its **MIDI OUT** terminal.

❷ Status 2: When Gen. Rx is set to MIDI and Gen. Tx is set to TO PC , the ***DA7*** can receive messages from the MIDI device and transmit messages to the personal computer. The personal computer and the MIDI device can communicate with each other via the ***DA7***.

❸ Status 3: When Gen. Rx is set to TO PC and Gen. Tx is set to MIDI, the ***DA7*** can receive messages from the personal computer and transmit messages to **MIDI OUT**.

❹ Status 4: When Gen. Rx is set to TO PC and Gen. Tx is set to TO PC , the ***DA7*** can communicate only with the personal computer.

Gen. Rx **Button**

Set the **MIDI** input port by pressing the **ENTER** button. Rotate the **JogDial** to set MIDI CH. Cursor to PORT on the Gen. Rx line, and press the **ENTER** button to display either MIDI or TO PC.

Cursor to CH on the Gen. Rx line, and rotate the **JogDial** to display one of the channels, 1 through 16 and omni [OM] for the ***DA7***. The ***DA7*** is controlled by a message from the selected port, either **[MIDI]** or **[ToPC].**

Gen. Tx Button

Set the **MIDI** output port by pressing the **ENTER** button. Use the same MIDI CH with the Gen. Rx. Cursor to PORT on the Gen. Tx line, and perform the same step described in Gen. Rx setting.

Cursor to CH on the Gen. Tx line, and perform the same step described in Gen. Rx setting. The ***DA7*** sends a message to the selected port, either **[MIDI]** or **[toPC].**

> To use the omni **[OM]** channel, set the **[RAMSA NET]** ON in the **[UTILITY>CONFIG]** window, and select a serial port in the **[MIDI SETUP]** window.

PRG CHG Button

Activate the program change command by pressing the **ENTER** button to set pass-through of receiving, transmitting, and inputting signals on or off.

CTRL CHG Button

Activate the control change command by pressing the **ENTER** button to set pass-through of receiving, transmitting, and inputting signals on or off.

NRPN Button

Activate this button by pressing the **ENTER** button to establish a non-registered parameter number (NRPN) type command.

SYSTEM EX Button

This button sets the system exclusive command. Press the **ENTER** button to set pass-through of receiving, transmitting, and inputting signals on or off.

Other CMD Button

This button sets the commands, other than the program change, control change, parameter change, MTC, or real-time message commands. Press the **ENTER** button to set a pass-through on or off.

MTC Button

This button sets the **MTC** (MIDI timecode) input port. Activate a port to receive the MTC message that is used to synchronize the ***DA7*** with other devices. Cursor to the **[PORT]** column, and press the **ENTER** button.

RT MSG Button

Set the real-time message input and output port by pressing the **ENTER** button. Activate a port to send and receive MIDI clock and other real-time messages.

Cursor to the RT MSG line, and press the **ENTER** button to display either MIDI or TO PC.

MMC Button

This button sets the **MMC** (MIDI machine control) output destination, either MIDI or TO PC. Cursor to the **[PORT]** column, and press the **ENTER** button to toggle the selections. Cursor to the **[CH]** column, and rotate the **JogDial** to select a MIDI channel to match the external MIDI device.

Remote1 Button

Set the transmitting port of the MIDI Remote 1 by pressing the **ENTER** button. Rotate the **JogDial** to select the same MIDI channel that matches the external MIDI device.

Remote2 Button

Set the transmitting port of the MIDI Remote 2 by pressing the **ENTER** button. Rotate the **JogDial** to select the same MIDI channel that matches the external MIDI device.

Rx Button

Switch the settings of the ***DA7*** on or off when receiving a command.

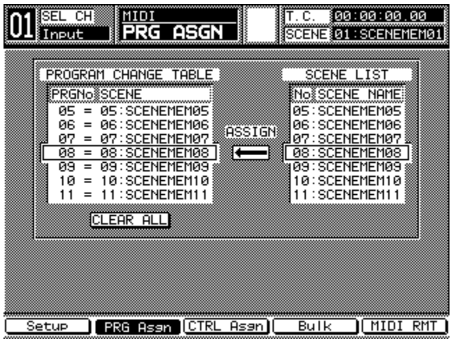
Tx Button

Switch command transmission on or off when operating the ***DA7***.

THRU Button

Switch pass-through of a MIDI input signal to an output on or off.

11-2 MIDI, PRG ASGN (Program Assign) Window


01
SEL CH
Input
MIDI
PRG ASGN
T.C.
SCENE
ASSIGN
CLEAR ALL
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

T.C. 00:00:00.00
SCENE 01:SCENEMEM01

PROGRAM CHANGE TABLE

PRGNo	SCENE
05 =	05:SCENEMEM05
06 =	06:SCENEMEM06
07 =	07:SCENEMEM07
08 =	08:SCENEMEM08
09 =	09:SCENEMEM09
10 =	10:SCENEMEM10
11 =	11:SCENEMEM11

SCENE LIST

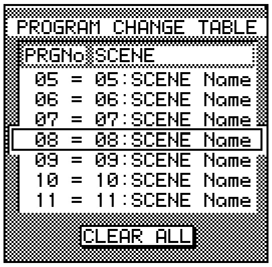
No	SCENE NAME
05	SCENEMEM05
06	SCENEMEM06
07	SCENEMEM07
08	SCENEMEM08
09	SCENEMEM09
10	SCENEMEM10
11	SCENEMEM11

PRG ASGN (Program Assign) Window

Assign scene memory numbers to the change table to be used by the ***DA7*** in the **[PROGRAM CHANGE TABLE]** area. This is useful when you are exchanging existing scene memories for new ones.

To execute PRG CHG , as in calling up a mixed scene, check the PRG CHG settings on the **[MIDI>SETUP]** window again.

[PROGRAM CHANGE TABLE] Area

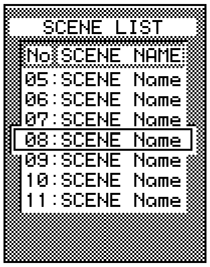

PROGRAM CHANGE TABLE
CLEAR ALL

PRGNo	SCENE
05 =	05:SCENE Name
06 =	06:SCENE Name
07 =	07:SCENE Name
08 =	08:SCENE Name
09 =	09:SCENE Name
10 =	10:SCENE Name
11 =	11:SCENE Name

Program Change Table

Select a program change table. Rotate the **JogDial** to select a program change number from 1 through 128. The initial setting is 1 through 50. **[NO ASSIGN]** is set to the scene memories of 51 through 128.

[SCENE LIST TABLE] Area



SCENE LIST

No SCENE NAME

05:SCENE Name

06:SCENE Name

07:SCENE Name

08:SCENE Name

09:SCENE Name

10:SCENE Name

11:SCENE Name

Scene List Table

Rotate the **JogDial** to select a scene memory number.

[ASSIGN] Indicator

ASSIGN ⟵ An arrow indicates a status. The scene memory is registered to the selected table by pressing the **ENTER** button. At that time, the arrow symbol is highlighted and shows the selection.

CLEAR ALL Button

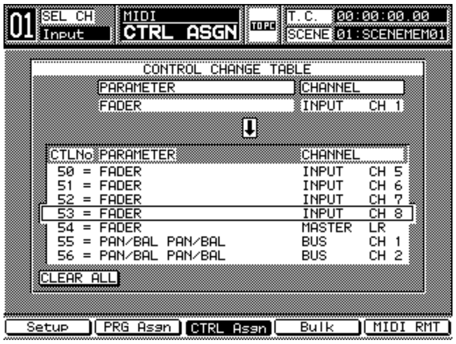
Initialize the table. Cursor to the CLEAR ALL button, and press the **ENTER** button. This function returns all the data in the change table to the state of default.

Setting of Registration

1. Press the **MIDI** button in the **SETUP** section of the Top Panel to display the **[MIDI>PRG ASGN]** window on the LCD.
2. Cursor to the **[PROGRAM CHANGE TABLE]** area. Rotate the **JogDial** to move the cursor to the destination line.
3. Press the right **ARROW** button, to cursor to the **[SCENE LIST]** area.
4. Rotate the **JogDial** to cursor to the source line.
5. Press the **ENTER** button. The **[ASSIGN]** indicator located between the two tables is shown inversely for a moment. The selected line in the **[PROGRAM CHANGE TABLE]** changes, for example, from 51=NO ASSIGN to 51=0.8:SCENE NAME.

Refer to **Appendix G, MIDI Implementation Chart** for the control change table and the control change parameter list.

11-3 MIDI, CTRL ASGN (Control Assignment) Window



```
CONTROL CHANGE TABLE
PARAMETER               CHANNEL
FADER                   INPUT   CH 1

CTLNo PARAMETER         CHANNEL
 50 = FADER             INPUT   CH 5
 51 = FADER             INPUT   CH 6
 52 = FADER             INPUT   CH 7
 53 = FADER             INPUT   CH 8
 54 = FADER             MASTER  LR
 55 = PAN/BAL PAN/BAL   BUS     CH 1
 56 = PAN/BAL PAN/BAL   BUS     CH 2
```

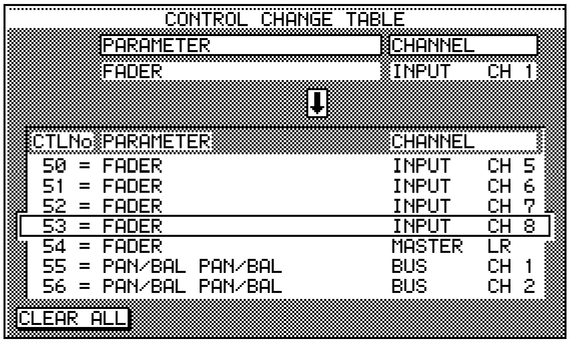
CTRL ASGN (Control Assignment) Window

Change the ***DA7's*** input and output channel assignments, fader position, etc. with this window.

The **[CONTROL CHANGE TABLE]** consists of three columns: for item numbers, for parameters, and for channels. The control change table has item numbers 0 through 119, of which 6, 38, and 96 through 101 cannot be used. The data of the control change table can be stored in an external device as backup data by the MIDI bulk dump function.

To execute CTRL CHG in calling up a mixed scene, for example, check the CTRL CHG settings again on the **[MIDI>SETUP]** window.

[CONTROL CHANGE TABLE] Area



```
CONTROL CHANGE TABLE
PARAMETER               CHANNEL
FADER                   INPUT   CH 1

CTLNo PARAMETER         CHANNEL
 50 = FADER             INPUT   CH 5
 51 = FADER             INPUT   CH 6
 52 = FADER             INPUT   CH 7
 53 = FADER             INPUT   CH 8
 54 = FADER             MASTER  LR
 55 = PAN/BAL PAN/BAL   BUS     CH 1
 56 = PAN/BAL PAN/BAL   BUS     CH 2
```

Control Change Table Area

Select a control change table (in the current indication area). Rotate the **JogDial** to select a control change number from 0 through 5, 7 through 37, 39 through 95, or 102 through 119.

`PARAMETER` Button

Select a parameter to be registered in the **[CONTROL CHANGE TABLE]** by rotating the **JogDial**.

`CHANNEL` Button

Select a channel to be registered in the **[CONTROL CHANGE TABLE]** by rotating the **JogDial**.

[Assign ⇩] Element

This area indicates status. The parameter and channel are registered to the selected table by pressing the **ENTER** button. At that time, the **[Assign ⇩]** is highlighted and shows the selection. If a combination of the selected parameter and channel is not acceptable, the arrow is distorted, showing that the parameter and channel cannot be registered.

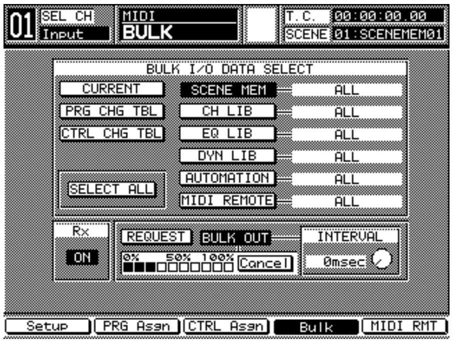
`CLEAR ALL` Button

Initialize the table. Cursor to the `CLEAR ALL` button, and press the **ENTER** button.

Setting of Registration

1. Press the **MIDI** button on the Top Panel to display the **[MIDI>CTRL ASGN]** window on the LCD.
2. Cursor to the **[CONTROL CHANGE TABLE]** area. Turn the **JogDial** to move the cursor to the line to be rewritten.
3. Press the up **ARROW** button to move the cursor to **[PARAMETER]** in the top part of the window. Rotate the **JogDial** to display the desired parameter.
4. Press the right **ARROW** button to move the cursor to the field below **[CHANNEL]** near the top of the window, and rotate the **JogDial** to display the desired channel.
5. Press the **ENTER** button. The **[Assign ⇩]** element is shown inversely for a moment. The selected item is written on the specified line.

11-4 MIDI, BULK (Bulk Out) Window


01
SEL CH
Input
MIDI
BULK
T.C.
00:00:00 00
SCENE
01:SCENEMEM01
BULK I/O DATA SELECT
CURRENT
PRG CHG TBL
CTRL CHG TBL
SELECT ALL
SCENE MEM
CH LIB
EQ LIB
DYN LIB
AUTOMATION
MIDI REMOTE
ALL
ALL
ALL
ALL
ALL
ALL
Rx
ON
REQUEST
BULK OUT
0%
50%
100%
Cancel
INTERVAL
0msec
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

BULK Window

Data can be sent and received between two ***DA7***s, or between the ***DA7*** and a MIDI datafiler, or a personal computer. **[MIDI>BULK]** may be used to save and read ***DA7*** settings and library data from/to other devices as backup data, or to exchange data between two ***DA7***s to create common settings and library data. It takes about 7 minutes to transmit all 720 kB of data through the **TO PC** port at a rate of 125 kbps.

[BULK I/O DATA SELECT] Area

CURRENT Button

Select setup data of the current device by pressing the **ENTER** button.

SCENE MEM Button

Select a scene memory by pressing the **ENTER** button.

[Scene memory number 01:SCENE NAME]

Select a scene memory number by rotating the **JogDial**. Choose ALL or 1-50. The initial setting is ALL.

CH LIB Button

Select a channel library by pressing the **ENTER** button.

[Channel library number/title 21:CHLIB NAME]

Select a channel library number by rotating the **JogDial**. Choose ALL or 1-50. The initial setting is ALL.

`EQ LIB` Button

Select an EQ library by pressing the **ENTER** button.

[EQ library number/title `25:EQLIB NAME`]

Select an EQ library number by rotating the **JogDial**. Choose ALL or 1-50. The initial setting is ALL.

`DYN LIB` Button

Select a dynamics library by pressing the **ENTER** button.

[Dynamics library number/title `11:DYLIB NAME`]

Select a dynamics library number by rotating the **JogDial**. Choose ALL or 1-50. The initial setting is ALL.

`AUTOMATION` Button

Select automation event data by pressing the **ENTER** button.

[Automation event number/title `02:AUTOMATION`]

Select an automation event number by rotating the **JogDial**. Choose ALL, 00 (name of current mix, factory preset new mix), or 1-4. The initial setting is ALL.

`MIDI REMOTE` Button

Select MIDI remote setup data by pressing the **ENTER** button.

[Remote number/title `02:MIDI REM`]

Select a MIDI remote number by rotating the **JogDial**. Choose ALL or 1-5. The initial setting is ALL.

`PRG CHG TBL` Button

Select a program change table by pressing the **ENTER** button.

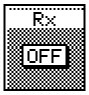
`CTRL CHG TBL` Button

Select a control change table by pressing the **ENTER** button.

`SELECT ALL` Button

Select all data by pressing the **ENTER** button.

[Rx]



Switch bulk command reception ON or OFF by pressing the **ENTER** button.When this is OFF, the ***DA7*** ignores any of commands or data sent by external devices.

REQUEST Button

Begin bulk data reception from another ***DA7*** by pressing the **ENTER** button. If a MIDI device other than ***DA7*** is connected, you need to have the device start sending data.

BULK OUT Button

Begin bulk data transmission to an outside device by pressing the **ENTER** button.

Data being received or sent is shown every 10% during **[REQUEST]** or **[BULK OUT]** communication. To cancel communication cursor to the Cancel button and press the **ENTER** button.

[INTERVAL] Area

INTERVAL
100msec

Set a data transmission interval to match the processing speed of the receiving device. Cursor to the soft knob, and rotate the **JogDial** to set the internal time within 0-300 ms (by 50 ms steps).

If the device has a small capacity receive memory buffer, set a short interval (for example, 100 ms). Intermittent transmission prevents the receive memory buffer from overflowing. Intervals can be set at 50-ms increments. A 0-ms interval is acceptable when two ***DA7***s are connected together.

Cancel Button

To stop bulk data transmission or reception cursor to the Cancel button and press the **ENTER** button.

Data selection

Cursor to the button(s) to select the desired bulk data in the **[BULK I/O DATA SELECT]** area, and press the **ENTER** button. Multiple buttons can be selected. Selected button(s) are highlighted.

Pressing the SELECT ALL button selects all the buttons that appear in the area.

Setting of Bulk Command Reception

Switch the setting ON or OFF to receive a bulk data or bulk out transmission request from outside by pressing the **ENTER** button.

You can choose whether or not to ignore a request made by other devices. Cursor to **[Rx]**, and press the **ENTER** button. Each time the button is pressed, ON and OFF toggles.

Data Transmission Request and Transmission

Press the REQUEST button to request transmission of selected data from another ***DA7***, and load the data. To cancel the operation, cursor to the Cancel button and press the **ENTER** button. When the operation is completed, the indication of "during execution" disappears and the REQUEST button appears as inverse video.

Press the BULK OUT button to transmit selected data to a device.

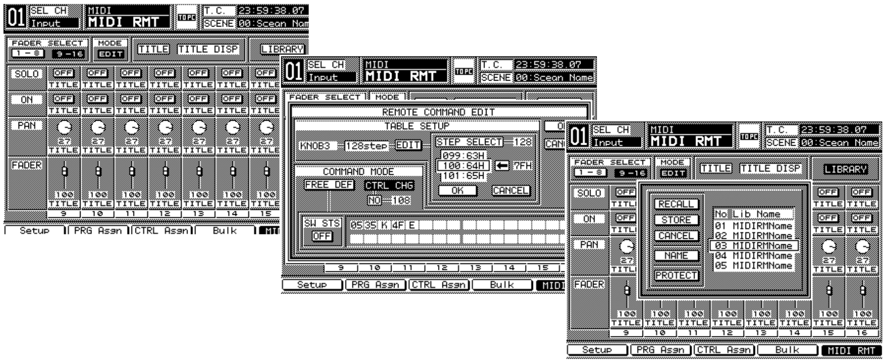
To cancel the transmission, cursor to the Cancel button and press the **ENTER** button. When the transmission is completed, the indication of "during execution" disappears and the BULK OUT button appears as inverse video.

Receiving/Sending Data

Display the **[MIDI>BULK]** window.

1. Press the **MIDI** button to display the **[BULK]** window.
2. Cursor to the desired data type using the **ARROW** buttons, and press the **ENTER** button. The selected button is shown as inverse video.
3. Press the **ARROW** button to move the cursor to the right. Rotate the **JogDial** to display the desired data name, and press the **ENTER** button.
4. To receive or send data collectively, cursor to the SELECT ALL button, and press the **ENTER** button. This setting permits simultaneous sending or receiving of the nine kinds of data shown on the window.
5. To receive data from another ***DA7***, cursor to the REQUEST button. To send data from the ***DA7***, cursor to the BULK OUT button.
6. Press the **ENTER** button to receive or send data.
7. If the REQUEST button is pressed, the ***DA7*** sends a request message for MIDI bulk dump to the device, which sends the requested data to the ***DA7***. Then operate the device to send data, if any device other than another ***DA7*** is connected.
   Or,
8. If the BULK OUT button is pressed, the ***DA7*** sends the data specified by the above operation to the device.

11-5 MIDI, REMOTE Windows

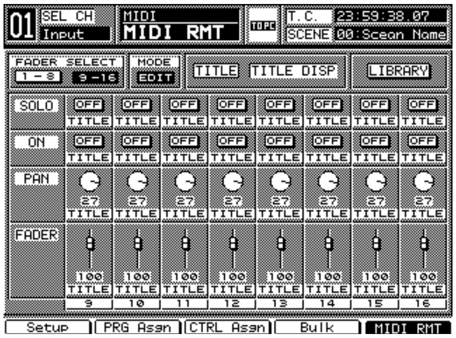

01
SEL CH
Input
MIDI
MIDI RMT
T.C.
23:59:38.07
SCENE
00:Scean Name
FADER SELECT
1 – 8
9 –16
MODE
EDIT
TITLE
TITLE DISP
LIBRARY
SOLO
ON
PAN
FADER
REMOTE COMMAND EDIT
TABLE SETUP
KNOB3
128step
EDIT
STEP SELECT
128
099:63H
100:64H
101:65H
7FH
OK
CANCEL
COMMAND MODE
FREE DEF
CTRL CHG
NO 108
SW STS
OFF
05 35 K 4F E
RECALL
STORE
CANCEL
NAME
PROTECT
No Lib Name
01 MIDIRMName
02 MIDIRMName
03 MIDIRMName
04 MIDIRMName
05 MIDIRMName
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

REMOTE Windows

These windows display and set MIDI remote operations for the external MIDI devices, and edit MIDI remote libraries. Set registration of the MIDI remote to the fader layers on the User Customize Window. Execute the MIDI remote by using the MIDI control change command.

For more information, see ***Section 16-4, Utility, User Custom (USER CSTM) Window***.

[REMOTE] Window


01
SEL CH
Input
MIDI
MIDI RMT
T.C.
23:59:38.07
SCENE
00:Scean Name
FADER SELECT
1 – 8
9 –16
MODE
EDIT
TITLE
TITLE DISP
LIBRARY
SOLO
ON
PAN
FADER
OFF
TITLE
27
100
9
10
11
12
13
14
15
16
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

REMOTE Window

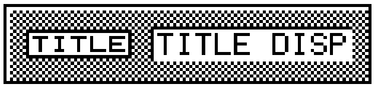
[FADER SELECT] Area FADER SELECT 1 – 8 9 –16

Choose a page for remote by selecting either the 1 – 8 or 9 –16 button, and pressing the **ENTER** button.

[EDIT]

This button sets the edit mode.

[TITLE]

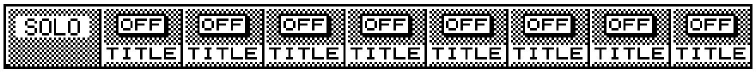


This area displays a remote library title.

LIBRARY Button

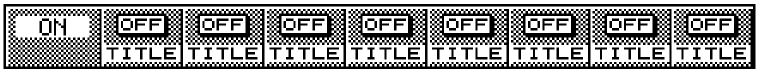
This button calls up the MIDI Remote Library window.

[SOLO]



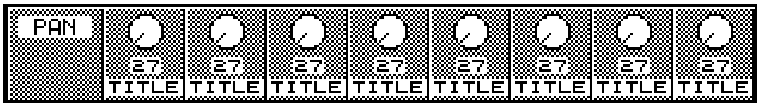
Use the **[SOLO]** switch to assign a control change message that is predetermined in an external MIDI device. Cursor to the operator button, and press the **ENTER** button to open the **[REMOTE CONTROL EDIT]** window for the edit of the message. You can enter the name for each operator in the **[TITLE]** field right under the operator button.

[ON]



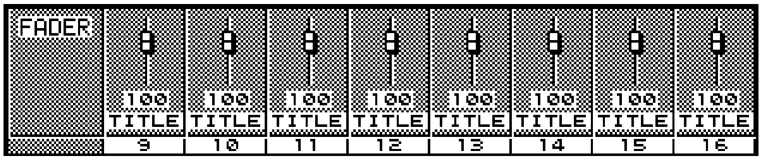
Use the **[ON]** switch to assign a control change message. Functions and operations are the same as the **[SOLO]** switch.

[PAN]



Use the **[PAN]** knob to assign a control change message. Functions and operations are the same as the **[SOLO]** switch.

[FADER]

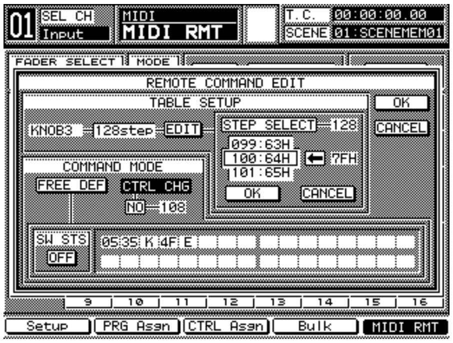

FADER
100
TITLE
9
10
11
12
13
14
15
16

Use the **[FADER]** to assign a control change message. Functions and operations are the same as the **[SOLO]** switch.

The following operators reflect the MIDI messages sent from the external devices, if the **[MIDI REMOTE]** is active and the channels are assigned in the **[UTILITY>USER CSTM]** window(See page 16-12) and the CTRL CHG is selected in the **[MIDI REMOTE] [Edit]** window(See below).

: **SOLO LED** keys, **ON LED** keys and **FADER**s on the **Top Panel**
: **SOLO**, **ON**, **PAN** and **FADER** Areas on the **LCD** screen

[Edit] Window


01
SEL CH
Input
MIDI
MIDI RMT
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
FADER SELECT
MODE
REMOTE COMMAND EDIT
TABLE SETUP
OK
CANCEL
KNOB3
128step
EDIT
STEP SELECT
128
099:63H
100:64H
101:65H
7FH
OK
CANCEL
COMMAND MODE
FREE DEF
CTRL CHG
NO
108
SW STS
OFF
05 35 K 4F E
9
10
11
12
13
14
15
16
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

Edit Window

[REMOTE COMMAND EDIT] Area

OK Button

Cursor to this button, and press the **ENTER** button to fix data and end the edit. The **[REMOTE COMMAND EDIT]** window will disappear and the **[MIDI>RMT]** window will return to the screen.

Cancel Button

Cursor to this button, and press the **ENTER** button to cancel the edited data. The screen will return to the **[MIDI>RMT]** window.

[TABLE SETUP] Area

Selecting a Table

After turning on the EDIT button in the **[MIDI>RMT]** window, cursor to a channel. Select the **[SOLO]** or **[ON]** button, a **[PAN]** soft knob, or a **[FADER]**. Press the **ENTER** button, and the pop up window **[REMOTE COMMAND EDIT] [TABLE SETUP]** will appear.

With the cursor highlighting **[SW1]**, rotating the **JogDial** will scroll through the selections **[SW1]**, **[SW2]**, **[SW3]**, **[KNOB1]**, **[KNOB2]**, **[KNOB3]**, **[FADER1]**, **[FADER2]**, and **[FADER3]**. The Step number of the table, which is located in the field immediately to the right, is displayed automatically.

Edit of Data Table

1. Cursor to the **[EDIT]** button, and press the **ENTER** button. The **[STEP SELECT]** portion will appear.
2. Cursor to the step number portion, and select the number with the **JogDial**. When the data table is for a Switch, the step number is fixed to 2. When the data table is Pan Knob or Fader, select a step number from 2, 32, 64, or 128. Even division is set for divided data tables. (With the number of 2, the center position of the Pan Knob or Fader divides the data area into two.) The initial value is 32 for the Knob and 128 for the Fader.
3. Cursor to the data table portion, and select a step to be edited with the **JogDial**.
4. Cursor to the Letter Box on the right side. Select data with the **JogDial,** and press the **ENTER** button. Switches have two steps, On and Off, and are indicated by 00H for On and 7FH for Off. The Pan knob has 32 steps from 00H to 1FH, and Fader has 128 steps from 00H to 7FH.

OK Button

Cursor to this button, and press the **ENTER** button to fix data and end the edit. The **[STEP SELECT]** portion will disappear.

Cancel Button

Cursor to this button, and press the **ENTER** button to cancel the edited data and end the edit. The **[STEP SELECT]** portion will disappear.

Operator Title Input

Cursor to the EDIT button, and press the **ENTER** button to set the edit mode. (Remote operation is not allowed in the edit mode.) Cursor to the **[TITLE]** of the relevant operator, and press the **ENTER** button. The Name Edit Window appears. Input the title.

See ***Section 5-3 Library Windows***, for more information on the **[Name Edit Window]** for title input operations.

[COMMAND MODE] Area

From this area you can switch the modes between control change and free definition. Press the CTRL CHG button to select the control change mode. Press the FREE DEF button to select the user definition mode.

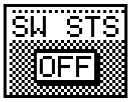
CTRL CHG Button

Indicate and set a control change number.

FREE DEF Button

Edit transmission data for the buttons, switches, knobs, and faders in the user definition mode.

[SW STS] Area



Switch the status of the buttons which are applied to the selected user definition mode.

When the selection is **[SOLO]** or **[ON]**, two messages for each status, on and off, must be edited. When this is done, select ON or OFF in the **[SW STS]** area.

Data Row Input Part

Here you can input MIDI exclusive messages to transmit.

This row appears if **[FREE DEF]** is selected.

Selecting [COMMAND MODE]

Cursor to the **[COMMAND MODE]** area. Select either FREE DEF or **[CONTROL CHANGE]**. Select the control change number with the **JogDial**. In FREE DEF the message can be edited.

Edit the Control Change

1. Cursor to the CTRL CHG button, and press the **ENTER** button. The **[CTRL CHG NO]** area appears.
2. Cursor to the **[CTRL CHG NO]** area, and rotate the **JogDial** to select the control change number from 000 – 119.

Edit of User Definition Data

The **[SW STS]** area works when using the **JogDial**. Switching the button OFF or ON sets transmission data rows separately with the objective operator OFF and ON.

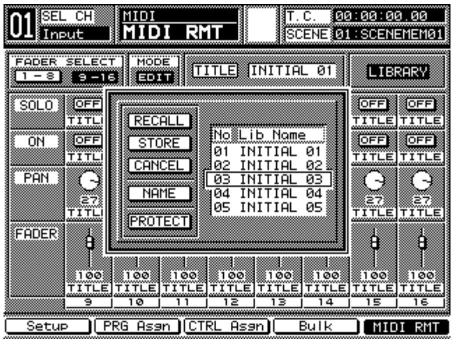
For data row input parts, cursor to the data by one byte and select a value using the **JogDial**. At that time, the cursor can move to both the sector where the data exists and the next sector of the last data.

Selectable data is **00H – F8H**, **FAH – FFH**, **K**, **F**, or **E**.

The **K** transmits the value the Knob indicates. The **F** transmits the value the Fader indicates, while **E** means End of message.

When you have finished editing the **MIDI REMOTE** information, cursor to the OK button, and press the **ENTER** button. If you decide not to keep your changes, cursor to the Cancel button, and press the **ENTER** button.

[Library Selection] Window


01
SEL CH
Input
MIDI
MIDI RMT
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
FADER SELECT
1 – 8
9 – 16
MODE
EDIT
LIBRARY
SOLO
ON
PAN
FADER
OFF
TITLE
27
100
RECALL
STORE
CANCEL
NAME
PROTECT
9
10
11
12
13
14
15
16
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

TITLE INITIAL 01

No	Lib Name
01	INITIAL 01
02	INITIAL 02
03	INITIAL 03
04	INITIAL 04
05	INITIAL 05

Library Selection Window

Set Registration of the MIDI remote to the panel in the **[MIDI>SETUP]** window.

Select a channel set for the MIDI remote, and press the **SELECT** LED button. The **[MIDI>REMOTE]** window will appear. **[SOLO]**, **[ON]**, and **[FADER]** directly operate each channel. For **[PAN]**, select each channel by pressing the **SELECT** LED button, and rotate the **[PAN]** knob.

The **[MIDI>REMOTE]** window is displayed every eight channels. If you operate a channel which is not shown while the **[MIDI>REMOTE]** window is displayed, another window for the channel operations appears. The **[FADER SELECT]** area on the **[MIDI>REMOTE]** window can switch the window.

LIBRARY Button

Select a MIDI remote library.

NAME Button

Display the **[NAME EDITOR]** window.

STORE Button

Store a library.

RECALL Button

Call a library.

PROTECT Button

Indicate and set the protection status of a selected library.

Calling of [MIDI>RMT] Library

1. Press the LIBRARY button on the window, and the library window will appear.
2. Cursor to the scroll part, and rotate the **JogDial** to select a library.
3. Cursor to the RECALL button, and press the **ENTER** button.
4. Recalling is performed . The library window closes, and the title of the called library appears on the TITLE DISP part on the **[MIDI>REMOTE]** window. Select a library from 1 through 5.

Registration of [MIDI>REMOTE] Library

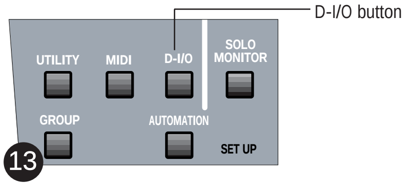
1. Cursor to the scroll selection field, and select a library for registration by using the **JogDial**.
2. Cursor to the STORE button, and press the **ENTER** button.
3. The name edit window appears. Input the title of the selected library.
4. Registration is performed. The title of the stored library appears in the TITLE DISP field. The library window closes, and the **[MIDI>RMT]** window appears.

See ***Section 5-2 Library Windows***, for more information on the **[Name Edit Window]** for title input operations.

Edit of [MIDI>RMT] Library

1. Cursor to the EDIT button, and press the **ENTER** button. (Remote operations are not allowed in the edit mode.)
2. Cursor to an operator you want to set, and press the **ENTER** button. The Edit Window appears.
3. Select the **[COMMAND MODE].** Then select either of the CTRL CHG and FREE DEF buttons in the **[COMMAND MODE]** field. (The initial setting is CTRL CHG .) The edit area in the unselected mode is indicated in dither, and you can't operate the area.

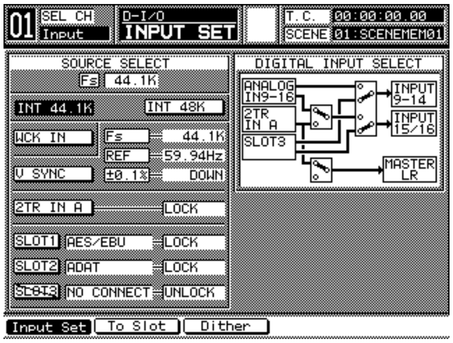
Chapter 12
D-I/O


D-I/O button
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
13

SETUP Section

Pressing the **D-I/O** (Digital Input/Output) button on the Top Panel displays the most recently accessed **[D-I/O]** window group selection. These windows give you control over the digital input and output features of the ***DA7***. Pressing the **D-I/O** button cycles the windows in this group: **[INPUT SET]**, **[TO SLOT]**, and **[DITHER]**.

12-1 D-I/O, INPUT SET Window

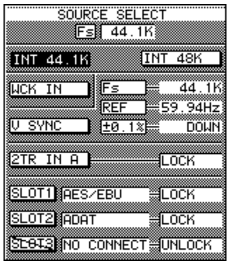

01
SEL CH
Input
D-I/O
INPUT SET
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
SOURCE SELECT
Fs 44.1K
INT 44.1K
INT 48K
WCK IN
Fs 44.1K
REF 59.94Hz
V SYNC
±0.1% DOWN
2TR IN A
LOCK
SLOT1 AES/EBU LOCK
SLOT2 ADAT LOCK
SLOT3 NO CONNECT UNLOCK
DIGITAL INPUT SELECT
ANALOG IN9-16
2TR IN A
SLOT3
INPUT 9-14
INPUT 15/16
MASTER LR
Input Set
To Slot
Dither

INPUT SET Window

This is where you set the sample rate frequency that the ***DA7*** will operate at, as well as select the wordclock master source. You can also route the various digital input sources to the faders, and get a visual confirmation of which option cards are in which slots.

⊗ When a source field or button is “crosshatched” and/or cannot be selected, that means the source or slot is either improperly connected, or the attached external device is not presently turned on.

[SOURCE SELECT] Area


SOURCE SELECT
Fs 44.1K
INT 44.1K
INT 48K
WCK IN
Fs 44.1K
REF 59.94Hz
V SYNC
±0.1% DOWN
2TR IN A
LOCK
SLOT1 AES/EBU LOCK
SLOT2 ADAT LOCK
SLOT3 NO CONNECT UNLOCK

SOURCE SELECT Area

The settings selected in the **[SOURCE SELECT]** area adjust the sampling rate frequency, wordclock reference, and reference source for the mixer. Cursor to the selection button, and press the **ENTER** button to activate your selection.

It is imperative that the sampling frequency settings for the ***DA7*** and all digital peripheral devices connected to the ***DA7*** be set to the same sampling frequency. The devices cannot perform properly if the frequency settings do not match. The ***DA7*** does not convert from one sample frequency to the other.

[Fs] Field

The **[Fs]** (frequency sample) data field shows the current frequency selected, 44.1k or 48k or external wordclock.

INT 44.1K Button

When you select the internal sample frequency of 44.1k, this button will appear as inverse video in the window. The ***DA7*** becomes the master wordclock source, and generates the sample frequency reference of 44.1kHz.

INT 48K Button

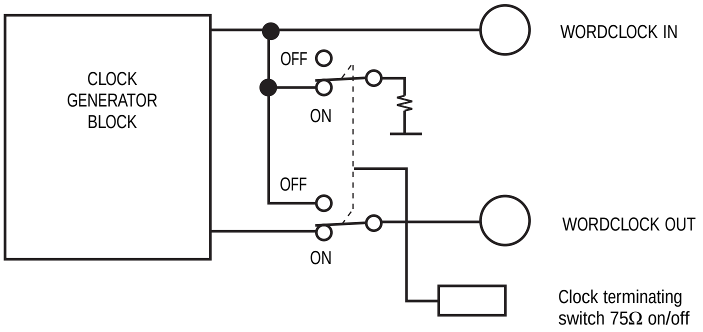
When you select the sample frequency of internal 48k, this button will appear as inverse video in the window. The ***DA7*** becomes the master wordclock source, and generates the sample frequency reference of 48kHz.

Wordclock operations

The wordclock feature of the ***DA7*** is an internal generator that provides a reference for the ***DA7*** and a reference for the external devices connected to the ***DA7***. You can set the internal wordclock to synchronize to either 44.1 or 48K, selectable from the **[D-I/O>INPUT SET]** window.

The ***DA7*** has wordclock IN and OUT ports on the Rear Panel. Please note that wordclock is not Timecode. It is a timing reference for the digital audio signal. When the WCK IN button is selected in the **[D-I/O>INPUT SET]** window, the ***DA7*** works as a slave unit to an external clock device.

The wordclock IN port on the ***DA7*** has a 75Ω termination on/off switch located on the Rear Panel next to the wordclock IN BNC connector. With this switch you can create a termination point for the wordclock input signal. Refer to the graphic diagram for the switch routing. Remember, the last device in the wordclock chain must be terminated.


CLOCK GENERATOR BLOCK
OFF
ON
OFF
ON
WORDCLOCK IN
WORDCLOCK OUT
Clock terminating switch 75Ω on/off

WORD CLOCK GENERATOR BLOCK GRAPHIC

When the ***DA7*** is the last device in a wordclock chain, the termination switch must be on. In the **[D-I/O>INPUT SET]** window, cursor to the WCK IN, and press the **ENTER** button.

When the ***DA7*** is connected between devices, the wordclock termination switch must be off. A wordclock signal will pass through the mixer, relaying the signal to the next device in the chain. The WCK IN button must be selected when the ***DA7*** is relaying the wordclock reference.

The input and output wordclock signal specifications are provided in the **Appendix F, Technical Specifications**.

WCK IN Button

Select this button when an external clock reference will be used to slave the ***DA7***. Cursor to the button, and press the **ENTER** button. The button will appear as inverse video when engaged.

Video Sync Operations

When the ***DA7*** is using the optional SMPTE/V SYNC card, it can receive a video input signal from an external device and use it to drive the internal wordclock. The video sync input port has a built-in 75Ω resistor for termination.

V SYNC **Button**

A video sync signal into the SMPTE option card can be used as an incoming clock source to the ***DA7***. The ***DA7*** can then be slaved to a video controller for video production applications. When the V SYNC button is selected, you can choose:

- **[Fs]** (sampling frequency) of 44.1KHz or 48KHz
- **[REF]** (reference)- 50Hz, 60Hz, or 59.94Hz
- **[+-0.1%] - 0/UP/DOWN**

> When producing material for use with a video production, reference the ***DA7*** to an incoming video signal. Do this during all stages of the production. You will need to know the video reference characteristics for the production, so that you can reference the ***DA7*** correctly.

The **V SYNC** reference signal input specifications are:

- signal format: composite (NTSC or PAL)
- input level: 1Vp-p ±8mv (no load resistor)
- source impedance: 75Ω

As you are probably aware, video frame rates do not match up exactly with digital audio sample rates. In a video production environment, if these video frame rates and digital audio sample rates are not able to be locked together, this will introduce many problems when it comes time to edit the audio and video together.

To solve this problem, you may find that you need to "pull up" or "pull down" the wordclock of the ***DA7*** to match the frame rate of a video signal. This subject is too involved to go into in great detail here. The ***DA7*** has the ability to slave to external wordclock, as well as generate fixed pull ups or pull downs, so you will find that you will be able to resolve most situations that are common to the film, television and post-production industry.

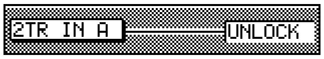
In most situations, you will "pull down" the sample rate frequency from 44.1kHz to 44.056 kHz or 48 kHz to 47.952. However, in some situations, you may need to "pull up" the sample rate. This would result in a sample frequency rate change from 44.1 kHz to 44.144kHz or from 48kHz to 48.048kHz. These two solutions are the most common for film, television and post-production.

If you are not familiar with the terms and situations discussed in the previous paragraphs, it might be wise to do some further research. An excellent reference guide for this and other timecode issues is available from SPARS (the Society of Professional Audio Recording Studios). You can contact them at their web site at www.spars.com/spars.

The ability to adjust the wordclock of the ***DA7*** audio is determined by the value entered in the **[±0.1%]** field of the **[V SYNC]** area of the **[D-I/O>INPUT SET]** window.

Fs	UP/DOWN	Adjustment	Frequency
44.1kHz	UP	+0.1%	44.144kHz
44.1kHz	DOWN	- 0.1%	44.056kHz
48kHz	UP	+0.1%	48.084kHz
48kHz	DOWN	- 0.1%	47.952kHz

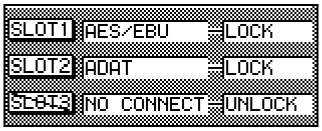
[2 TR A] Areas



2 TR A Status Area

A status field shows whether or not there is a source connected to the **2 TR A** input (UNLOCK when there isn't; LOCK when there is). When in the LOCK mode, the **2TR A** input signal can be selected as the master wordclock. Cursor to the **2TR IN A** button, and press the **ENTER** button.

[SLOT] Area



SLOT Status Area

[SLOT1] Fields

The left status field shows which option card is presently in the slot. The UNLOCK status field will change to LOCK when the input signal comes into the slot. When the status field shows LOCK**,** the signal into the slot can be selected as the master wordclock. Cursor to the desired slot button, and press the **ENTER** button**.**

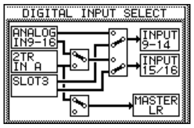
[SLOT2] Fields

These fields operate the same as the **[SLOT1]** fields.

[SLOT3] Fields

These fields operate the same as the **[SLOT1]** fields.

[DIGITAL INPUT SELECT] Area



DIGITAL INPUT SELECT Area

This area depicts the routing system for digital sources in the ***DA7***. There are three boxes inside the **[DIGITAL INPUT SELECT]** area that are used for routing the audio signal.

[ANALOG IN 9-16]

This permits assignment of analog inputs 9 through 16 to the inputs 9 through 14 and 15/16. This is the default setting. To select these inputs to be digital, insert a card in Slot 3, and see instructions under **[SLOT3]** in this section.

For **ANALOG IN 9-16**, cursor to the square box to the right of the **ANALOG IN 9-16** and **2TR IN A** areas, and press the **ENTER** button to toggle the switch into either the up or down position. The up position allows the **ANALOG IN 9-16** audio signals to travel through to **INPUTS 9-16**. Cursor to the next box on the right, and again press the **ENTER** button to toggle the switches up or down. In the up position, it completes the routing of **Analog 9-16** to **INPUTS 9-14**, **15/16**.

[2TR IN A]

The **[2 TR A]** inputs can be channeled to **INPUTS 15/16, MASTER L/R,** or routed directly to **MONITOR A**.

To route the **2TR IN A** audio signals to **INPUT 15/16**, cursor to the square outlined box to the right of the **2TR IN A** area, and press the **ENTER** button until the switch toggles into the down position. Cursor to the right, and toggle the next square outlined box to the up position. The audio signal from the **2TR A IN** will appear on **INPUT 15/16**.

The square box near the bottom of the **[DIGITAL INPUT SELECT]** area, when toggled up, will route the **2TR A IN** audio signal directly to the **MASTER L/R** output. When toggled to the down position, it disconnects the send to **MASTER L/R**.

[SLOT3]

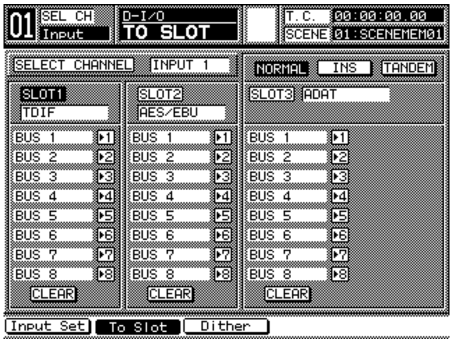
Digital **SLOT 3** can have its inputs routed directly to inputs 9 through 16, replacing the analog inputs. On the Top Panel of the ***DA7***, inside the label strip for inputs 9 through 16, it also says **SLOT 3**. When there is an option card in **SLOT 3**, and you have selected the option on the **DIGITAL INPUT SELECT** area, these faders become inputs for that option card.

You can switch between the analog and digital inputs at any time, and as often as you wish without changing any connections to the ***DA7***. This allows you to connect up to three digital multi-track machines for 24 digital inputs, and 16 analog sources at the same time. You would simply have to choose which set of inputs would be operational at any given time.

To send the **SLOT 3** input to **INPUTS 9-14** and **15/16**, cursor to the box on the far right, and press the **ENTER** button to set the switches in the down position. This will route the **SLOT 3** audio signals to **INPUTS 9-14**, **15/16**. In order to make it easier for you to tell which set of inputs is selected, the **FLIP** LED buttons for the associated **Channel Strips** will turn *(orange)* when digital **SLOT3** inputs are selected, and *(green)* when analog inputs are chosen.

There is a shortcut to toggle inputs for **INPUT 9 - 14** and **INPUT 15 - 16** between **SLOT3** (digital) and **ANALOG IN 1-16**. While holding down the **MMC/CURSOR** button in the **CURSOR CONTROL** section, press the **D-I/O** button in the **SETUP** section.

12-2 D-I/O, TO SLOT Window



SEL CH Input

T.C. 00:00:00.00

SCENE 01:SCENEMEM01

SELECT CHANNEL INPUT 1

SLOT1 TDIF

SLOT2 AES/EBU

SLOT3 ADAT

TO SLOT Window

The **[TO SLOT]** window functions as a built in “patch bay” for the ***DA7***. From the **[TO SLOT]** window, direct output assignments can be made to option cards. Eight discrete sources can be sent to each option card. The eight source choices can be from **INPUT 1-32**, **AUX SND 1-6**, **BUS 1-8**, **MASTER L**, or **MASTER R**. Buses 1-8 are the default settings.

Each **SLOT** name appears above the column for the respective slot. When a column is being addressed, the **SLOT #** appears as inverse video in the window, with the name of the option card underneath it.

> The **DIRECT** LED button in the **PAN/ASSIGN/** SURROUND section of the Top Panel is a shortcut to the **[TO SLOT]** window.

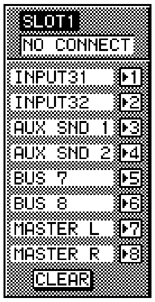
SELECT CHANNEL **Status Indicator**

This status indicator shows what **Channel Strip** is currently selected. The name of the channel appears in the data field to the right of the SELECT CHANNEL status indicator.

CLEAR **Button**

Select this to clear assignments and set to the default settings.

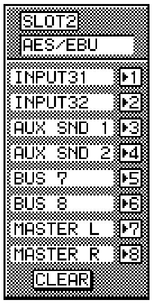
[SLOT1]


SLOT1
NO CONNECT
INPUT31 ▸1
INPUT32 ▸2
AUX SND 1 ▸3
AUX SND 2 ▸4
BUS 7 ▸5
BUS 8 ▸6
MASTER L ▸7
MASTER R ▸8
CLEAR

SLOT 1

Cursor to the top of this area ▸1 , and use the **JogDial** to scroll through the available inputs. The data field will change as the choices are scrolled. Repeat the process of assigning sources to the eight digital outs as needed. Or, you can cursor to one of the eight selection fields, and press the **ENTER** button, which will automatically assign the currently selected channel to that output.

[SLOT 2]

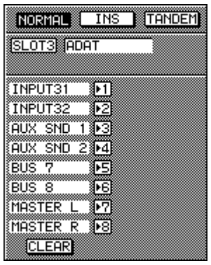

SLOT2
AES/EBU
INPUT31 ▸1
INPUT32 ▸2
AUX SND 1 ▸3
AUX SND 2 ▸4
BUS 7 ▸5
BUS 8 ▸6
MASTER L ▸7
MASTER R ▸8
CLEAR

SLOT 2

Cursor to the top of this area ▸1 , and use the **JogDial** to scroll through the available inputs. The data field will change as the choices are scrolled. Repeat the process of assigning sources to the eight digital outs as needed. Or, you can cursor to one of the eight selection fields, and press the **ENTER** button, which will automatically assign the currently selected channel to that output.

[SLOT3]

NORMAL Mode



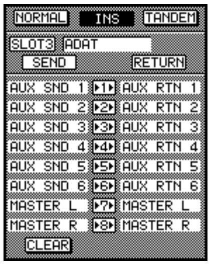
SLOT3 ADAT

INPUT31 ▸1
INPUT32 ▸2
AUX SND 1 ▸3
AUX SND 2 ▸4
BUS 7 ▸5
BUS 8 ▸6
MASTER L ▸7
MASTER R ▸8

SLOT 3 in NORMAL Mode

In NORMAL mode, **[SLOT 3]** is similar to **[SLOT 1]** and **[SLOT 2]**.

INS Mode



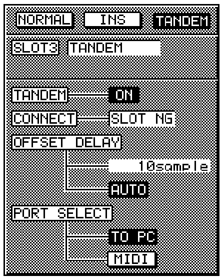
SLOT3 ADAT

AUX SND 1 ▸1▸ AUX RTN 1
AUX SND 2 ▸2▸ AUX RTN 2
AUX SND 3 ▸3▸ AUX RTN 3
AUX SND 4 ▸4▸ AUX RTN 4
AUX SND 5 ▸5▸ AUX RTN 5
AUX SND 6 ▸6▸ AUX RTN 6
MASTER L ▸7▸ MASTER L
MASTER R ▸8▸ MASTER R

SLOT 3 in INS Mode

The insertion mode allows you to send a signal to an external device (using either the **ADAT, TDIF, AES** or **AD/DA** cards). You would then route this signal to any outboard device, and return it to the ***DA7*** via **SLOT 3** (using either the **ADAT, TDIF, AES** or **AD/DA** cards). You can return to aux returns 1 through 6, buses 1 through 8, or **MASTER L/R**.

See **Chapter 17, Options** for more details.



SLOT3 TANDEM
TANDEM ON
CONNECT SLOT NG
OFFSET DELAY 10sample
AUTO
TO PC
MIDI

SLOT 3 in TANDEM Mode

TANDEM Mode

The ***DA7*** can slave another ***DA7*** through the TANDEM option card.

OFF and ON Buttons

Enable the **[TANDEM]** connection by moving the cursor to the OFF button, and pressing the **ENTER** button. The OFF button will toggle to ON .

CONNECT Data Field

CONNECT indicates whether or not the **[TANDEM]** mode can be activated. This information appears inside the data field **[OK]**, **[DATA NG]**, or **[SLOT NG]**.

OFFSET DELAY Data Field

The **[OFFSET DELAY]** between the ***DA7*** and the slave mixer can be set from this data field. When the field is highlighted, you can set the value for the delay with the **JogDial**. Set this field to “2 sample” for the Master DA7, if another DA7 is connected as the slave mixer.

AUTO Button

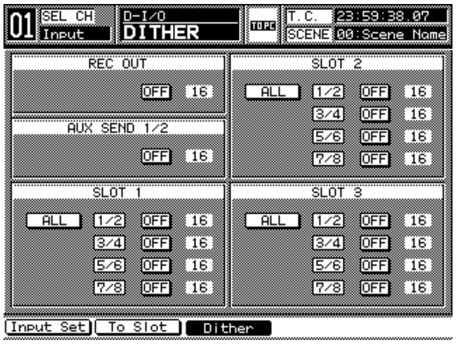
When the AUTO button is selected, the ***DA7*** sets the delay value automatically.

TO PC and MIDI Button

The communication port between the ***DA7s*** can be set to **[TO PC]** or to **[MIDI]**.

See **Chapter 17, Options** for more details.

12-3 D-I/O, DITHER Window


01
SEL CH
Input
D-I/O
DITHER
TO PC
T.C.
23:59:38.07
SCENE
00:Scene Name
REC OUT
OFF 16
AUX SEND 1/2
OFF 16
SLOT 2
ALL
1/2 OFF 16
3/4 OFF 16
5/6 OFF 16
7/8 OFF 16
SLOT 1
ALL
1/2 OFF 16
3/4 OFF 16
5/6 OFF 16
7/8 OFF 16
SLOT 3
ALL
1/2 OFF 16
3/4 OFF 16
5/6 OFF 16
7/8 OFF 16
Input Set
To Slot
Dither

DITHER Window

This window shows and sets the status of Dither to the digital output signal. In normal operation, the digital audio signals output from the ***DA7*** and are 24 bit word lengths. If the device connected to the ***DA7*** operates at fewer than 24 bits, the bit in the least significant digits will be dropped by the device on the receiving side, possibly resulting in unnatural sounds.

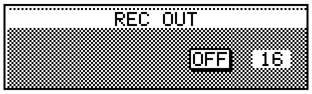
Simply put, Dither permits you to connect two devices together that do not have matching bit rates (but have matching sample rates) by using a complex algorithm that reduces the word length. For example, you may wish to record to a DAT machine which only records 16 bit words. This problem can be solved by adjusting the word length output from the ***DA7*** by Dither. The bit number output by the mixer should be set to match the device connected to the ***DA7***.

If the correct dither adjustment is not applied to the signals output from the ***DA7***, the integrity of the audio will be diminished. The dither adjustment required is determined by the bit rate of the receiving device. Set the dither characteristic to match.

Cursor to the bit field, and change the value by rotating the **JogDial,** setting the bit rate to the same as the receiving device. The setting is adjustable in one bit increments from 23 to 16. If OFF, the ***DA7*** will output 24 bits. Then cursor to the OFF button, and press the **ENTER** button to activate the setting. The OFF button will toggle to ON.

> When the OFF button is displayed for an area in the **[DITHER]** window, the bit rate output is 24 bit. Failure to toggle the OFF button to ON will cause the default bit rate of 24 bit to be output for the signal, regardless of the bit rate setting for the area.

[REC OUT] Area



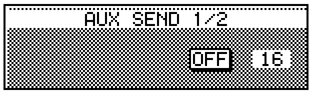
REC OUT Area

This sets dither for the digital **REC OUT** terminal.

OFF and ON Buttons

Determines the OFF and ON status of **[REC OUT]**. A dither setting of 16 thru 23 can be selected by rotating the **JogDial**, once that field is highlighted, until the desired dither value appears.

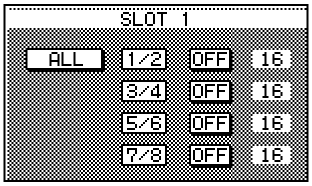
[AUX SEND 1/2] Area



AUX SEND 1/2 Area

This sets the dither value for **AUX SND 1/2**. A dither setting of 16 thru 23 can be selected by rotating the **JogDial**, once that field is highlighted, until the desired dither value appears.

[SLOT 1] Area



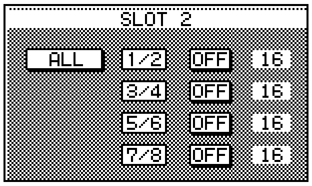
SLOT 1 Area

This sets the dither value for the eight channels of the **SLOT 1** terminal.

ALL Button

Pressing the ALL button sets eight channels to the parameter set to channels **1/2**. At the moment the ALL button is selected, the parameters set to channels 3 through 8 are replaced with the parameter set to channel **1/2**. When ALL is selected, turning **1/2** on will turn on **3/4**, **5/6** and **7/8** simultaneously.

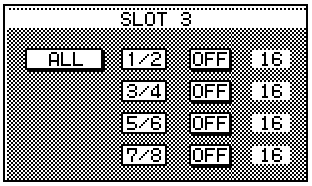
[SLOT 2] Area


SLOT 2
ALL
1/2
3/4
5/6
7/8
OFF
OFF
OFF
OFF
16
16
16
16

SLOT 2 Area

This sets the dither value for the eight channels of the **SLOT 2** terminal. The functions are the same as **SLOT 1**.

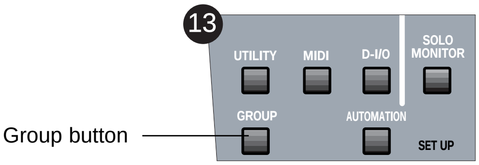
[SLOT 3] Area


SLOT 3
ALL
1/2
3/4
5/6
7/8
OFF
OFF
OFF
OFF
16
16
16
16

SLOT 3 Area

This sets the dither value for the eight channels of the **SLOT 3** terminal. The functions are the same as **SLOT 1**.

Chapter 13
Group


13
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Group button

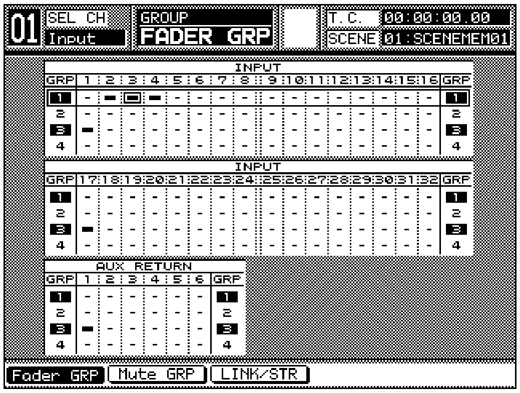
Setup Section

13-1 Overview

The **GROUP** button is one of the display control buttons in the **SETUP** section of the Top Panel. Press the **GROUP** button to display the most recently selected window for the window group.

The **[GROUP]** window selections are **[FADER GRP]**, **[MUTE GRP]**, and **[LINK/STR]**. The **[MUTE GRP]** functions are split between two windows. One shows input selections and the other shows output selections.

Section 13-2 FADER GRP (Fader Group) Window details the elements and operations of the **[FADER GRP]** window.


01
SEL CH
Input
GROUP
FADER GRP
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
INPUT
AUX RETURN
Fader GRP
Mute GRP
LINK/STR

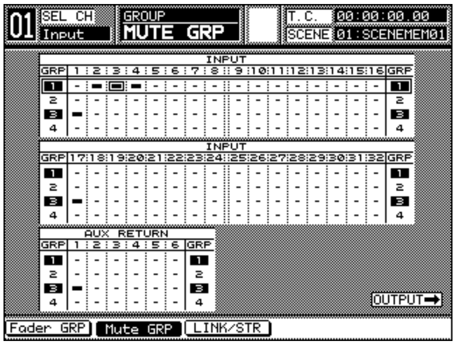
GRP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	GRP
1	-	▬	▭	▬	-	-	-	-	-	-	-	-	-	-	-	-	1
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
3	▬	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

GRP	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	GRP
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
3	▬	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

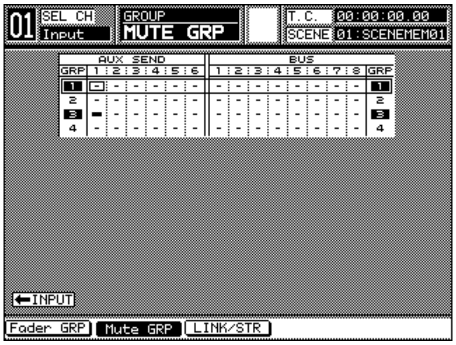
GRP	1	2	3	4	5	6	GRP
1	-	-	-	-	-	-	1
2	-	-	-	-	-	-	2
3	▬	-	-	-	-	-	3
4	-	-	-	-	-	-	4

FADER GROUP Window

Section 13-3 MUTE GRP (Mute Group) Windows details the elements and operations of the **[MUTE GRP]** windows.

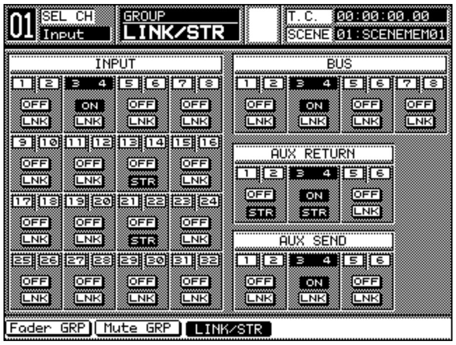

01
SEL CH
Input
GROUP
MUTE GRP
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
INPUT
AUX RETURN
GRP
OUTPUT
Fader GRP
Mute GRP
LINK/STR

MUTE GROUP Output Window


01
SEL CH
Input
GROUP
MUTE GRP
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
AUX SEND
BUS
GRP
INPUT
Fader GRP
Mute GRP
LINK/STR

MUTE GROUP Input Window

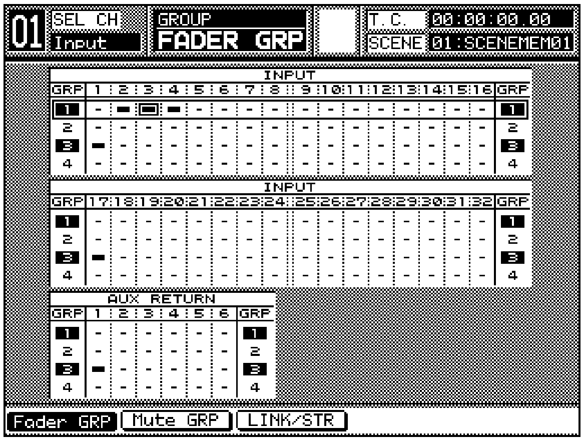
Section 13-4 LINK/STR Window details the elements and operations of the **[LINK/STR]** window.


01
SEL CH
Input
GROUP
LINK/STR
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
INPUT
BUS
AUX RETURN
AUX SEND
OFF
ON
LNK
STR
Fader GRP
Mute GRP
LINK/STR

LINK/STR Window

13-2 FADER GRP (Fader Group) Window

Use the **[FADER GRP]** window to select channels to a group so that multiple faders can be controlled by operating one of the faders in that group. Up to four groups can be defined.



01 SEL CH Input

GROUP FADER GRP

T.C. 00:00:00.00

SCENE 01:SCENEMEM01

INPUT

GRP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	GRP
1	-	▬	▣	▬	-	-	-	-	-	-	-	-	-	-	-	-	1
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
3	▬	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

INPUT

GRP	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	GRP
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
3	▬	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4

AUX RETURN

GRP	1	2	3	4	5	6	GRP
1	-	-	-	-	-	-	1
2	-	-	-	-	-	-	2
3	▬	-	-	-	-	-	3
4	-	-	-	-	-	-	4

FADER GROUP Window

Window Elements

Group Selection Marker

The group selection marker is a frame which spans the columns in the tables displayed in the window. The marker is positioned on **[GRP 1]** at the top of the **[INPUT 1-16]** table whenever the **[FADER GRP]** window is initially displayed. The marker delineates the current group selection.

Rotate the **JogDial** to shift the marker from group to group and from table to table. Rotate clockwise to shift the marker up, and rotate counterclockwise to shift the marker down. Continue to rotate clockwise when the marker reaches the bottom of the third table to jump the marker to the top of the first table in the window. Continue to rotate counterclockwise when the marker reaches the top of the first table to jump the marker to the bottom of the third table in the window.

Press the **ENTER** button to enable or disable the currently selected group. The group number of an enabled group is highlighted in reverse video.

Selection Cursor

Pressing the **CURSOR MODE** button displays the `CURSOR` in the lower right corner of the LCD screen. In this cursor mode, the **JogDial** performs as group selection that moves the cursor from group to group. The `CURSOR` disappears by pressing the **CURSOR MODE** button again. Rotating the **JogDial** moves the cursor from mark to mark in a selected group.

For grouping operations, switch the **JogDial** to the cursor mode and scroll to select the group. Then switch the **JogDial** to the none-cursor mode and scroll to select the marker in a group, and press the **ENTER** button.

Registration Marks

The status of a channel is indicated in the columns of the tables in the window: ▣ shows a registered channel, and ⊟ shows an unregistered channel.

A channel cannot be registered to multiple groups. When a channel is assigned to a group, any previous assignment for it is cancelled automatically.

Creating a Fader Group

There are two methods for assigning a channel to a fader group while the **[FADER GRP]** window is displayed.

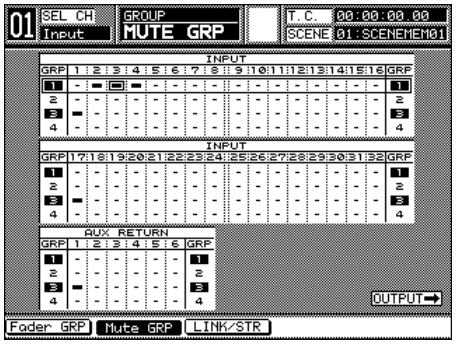
- Pressing a channel **SELECT** LED button on the Top Panel to select the channel *(orange)* will add the channel to the current fader group. If the group selection marker is not positioned within the table which includes the selected channel, the marker shifts to the relevant table automatically. A registration mark will be displayed in the **[FADER GRP]** window table, denoting the channel selection for the respective group.
- Pressing the **ENTER** button in the cursor mode while the cursor is positioned on the desired channel number will register the channel to the current fader group. A registration mark will be displayed denoting the channel selection for the current group.

Once the groups have been activated in the **[FADER GRP]** window, the window does not have to be displayed when you want to register a group. Use the fader group selection buttons in the **[CHANNEL]** window to register the channel to a group.

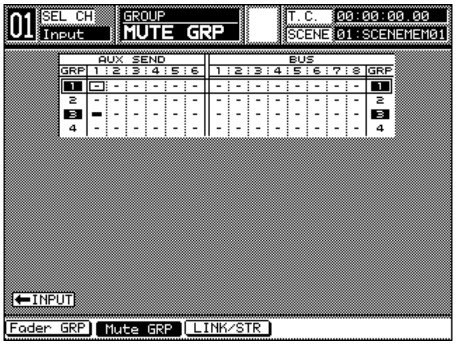
To cancel all the channels assigned to a group, press one of the **SELECT** buttons in the group for 2 seconds or more.

13-3 MUTE GRP (Mute Group) Windows

The **[MUTE GRP]** functions are split between two windows. One window depicts the input selections for the function, and the other depicts the output selections. There are "go to" buttons in each of the **[MUTE GRP]** windows, indicating the appropriate **ARROW** button that can be pressed to change the current **[MUTE GRP]** window displayed.


01
SEL CH
Input
GROUP
MUTE GRP
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
INPUT
GRP
AUX RETURN
OUTPUT➡
Fader GRP
Mute GRP
LINK/STR

MUTE GROUP Window, Inputs 1-32 and Aux Returns


01
SEL CH
Input
GROUP
MUTE GRP
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
AUX SEND
BUS
GRP
⬅INPUT
Fader GRP
Mute GRP
LINK/STR

MUTE GROUP Window, Aux Sends and Buses

Use the **[MUTE GRP]** windows to register channels to a group in which multiple channel **ON** LED buttons can be controlled by operating just one of the buttons in the group. Up to four groups can be defined.

The group selection marker, the cursor, and the registration mark functions in the **[MUTE GRP]** windows operate as described in ***Section 13-2 FADER GRP (Fader Group) Window***.

Creating a Mute Group

There are two methods for assigning a channel to a mute group while the **[MUTE GRP]** windows are displayed.

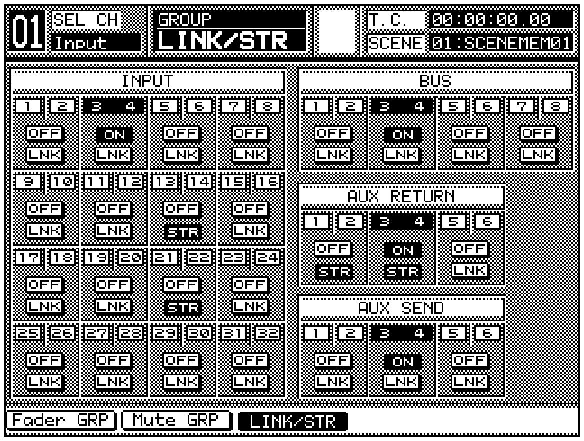
- Pressing a channel **SELECT** LED button on the Top Panel to select the channel *(orange)* will add the channel to the current mute group. If the group selection marker is not positioned within the table which includes the selected channel, the marker shifts to the relevant table automatically. A registration mark will be displayed in the appropriate **[MUTE GRP]** window table, denoting the channel selection for the respective group.
- Pressing the **ENTER** button in the cursor mode while the cursor is positioned on the desired channel number will register the channel to the current mute group. A registration mark will be displayed denoting the channel selection for the current group.

Once the groups have been activated in the **[MUTE GRP]** windows, the window does not have to be displayed when you want to register a group. Use the mute group selection buttons in the **[CHANNEL]** window to register the channel to a group.

To cancel all the channels assigned to a group, press one of the **SELECT** buttons in the group for two seconds or more.

13-4 LINK/STR Window

Use this window to designate the adjacent channel pairs that are to operate as a fader linked pair or stereo pair. Pairs can be set for inputs, aux returns, aux sends, and buses.


01
SEL CH
Input
GROUP
LINK/STR
T.C.
00:00:00 00
SCENE
01:SCENEMEM01
INPUT
BUS
AUX RETURN
AUX SEND
ON
OFF
LNK
STR
Fader GRP
Mute GRP
LINK/STR

LINK/STR Window

The channel pairs are established from left to right for the channel strips of the ***DA7***, beginning with the lower-number, odd-numbered channel. You cannot establish a pair with channels 6 and 7, for example. Channel 6 can only be paired with channel 5.

The ON and OFF buttons toggle in the **[LINK/STR]** window. When an existing OFF button in the window is selected with the cursor, pressing the **ENTER** button activates the associated channel pair, and the OFF button will be replaced by an ON button in the window.

When a channel pair has been activated in the **[LINK/STR]** window, the settings of the odd-numbered channel are copied to the even-numbered channel, and the balance value is set to the center.

You can also create a channel pair by simultaneously pressing the appropriate channel **SELECT** LED buttons, when the **[CHANNEL]** window **[LINK]** area is OFF. To cancel, simultaneously press the buttons a second time.

LINK button

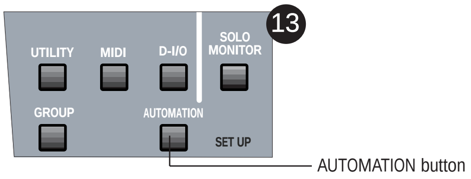
The link function joins adjacent channels to create a pair while respecting the current individual settings, including fader position and value.

STR button

The stereo function joins adjacent channels to create a stereo pair, and overwrites the even-numbered channel settings with the current odd-numbered channel settings for phantom power, phase, gain, aux send, fader group, mute group, equalizer, dynamics, delay, channel on-off and fader.

> In the fader link, you can change the fader position that is linked , while pressing the **SELECT** LED button of that channel.

Chapter 14
Automation



SETUP Section

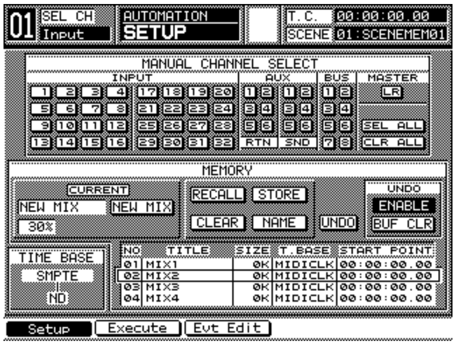
The automation function synchronizes the ***DA7*** to a timing signal, and records and plays back mixes. You can set it to synchronize to a Timecode input from outside the ***DA7***, such as MIDI Timecode, MIDI clock, and SMPTE.

The parameters for automation that can be controlled by the system are EQ parameters, dynamics can be turned on or off, channel on and off, fader changes, panning, surround sound, aux send, balance, scene memories can be recalled, as well as CH, EQ, and Dynamics Libraries.

The **AUTOMATION** button is one of the display control buttons in the **SETUP** section of the Top Panel. Press the **AUTOMATION** button to display the most recently selected window for the window group.

The **[AUTOMATION]** window group selections are **[SETUP], [EXECUTE]**, and **[EVT EDIT]** (event edit).

14-1 AUTOMATION, SETUP Window


01
AUTOMATION
SETUP
MANUAL CHANNEL SELECT
INPUT
AUX
BUS
MASTER
LR
SEL ALL
CLR ALL
RTN
SND
MEMORY
RECALL
STORE
CLEAR
NAME
UNDO
ENABLE
BUF CLR
Setup
Execute
Evt Edit

SEL CH Input

T.C. 00:00:00.00

SCENE 01:SCENEMEM01

CURRENT
NEW MIX
NEW MIX
30%

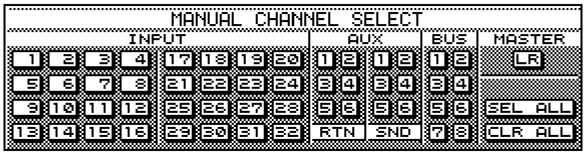
TIME BASE
SMPTE
ND

NO	TITLE	SIZE	T.BASE	START POINT
01	MIX1	0K	MIDICLK	00:00:00.00
02	MIX2	0K	MIDICLK	00:00:00.00
03	MIX3	0K	MIDICLK	00:00:00.00
04	MIX4	0K	MIDICLK	00:00:00.00

SETUP Window

Use the **[SETUP]** window to set up the automation and to store or recall library automation events.

[MANUAL CHANNEL SELECT] Area


MANUAL CHANNEL SELECT
INPUT
AUX
BUS
MASTER
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
RTN
SND
LR
SEL ALL
CLR ALL

MANUAL CHANNEL SELECT Area

This area permits you to select **[INPUT 1-32]**, **[AUX RTN1-6]**, **[AUX SND 1-6]**, **[BUS 1-8]**, or **[MASTER L/R]** as manual channels. When selected as a manual channel, the selected fader is not recorded. These buttons can only be selected by highlighting them with the **JogDial,** and pressing the **ENTER** button.

Once you have selected a channel here, remember that it is no longer part of the recorded automation information for the current mix and will not record or playback any automation function.

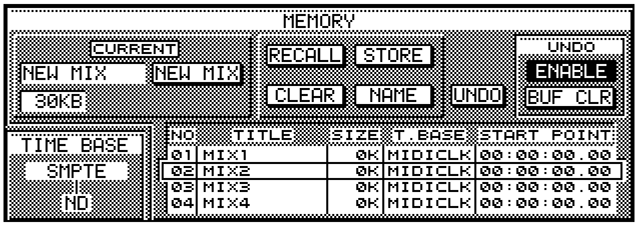
SEL ALL **Button**

Choosing SEL ALL assigns all the channels to the safety of manual control.

CLR ALL **Button**

When CLR ALL is selected, all channels transmit and receive automation data.

[MEMORY] Area


MEMORY
CURRENT
NEW MIX
NEW MIX
30KB
RECALL
STORE
CLEAR
NAME
UNDO
UNDO
ENABLE
BUF CLR
TIME BASE
SMPTE
ND

NO	TITLE	SIZE	T.BASE	START POINT
01	MIX1	0K	MIDICLK	00:00:00.00
02	MIX2	0K	MIDICLK	00:00:00.00
03	MIX3	0K	MIDICLK	00:00:00.00
04	MIX4	0K	MIDICLK	00:00:00.00

MEMORY Area

The **[MEMORY]** area is a library for the event list in the window. The ***DA7*** allows you to select from four automation mixes that can be stored into the library.

RECALL **Button**

Recall the automation library.

STORE **Button**

Store the automation library.

CLEAR **Button**

Initialize the automation library.

NAME **Button**

Display the **[NAME EDITOR]** window for the automation library.

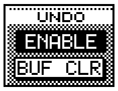
UNDO **Button**

Cancel the immediately preceding operation that changed the memory.

NEW MIX **Button**

Clear current automation mix.

[UNDO] Area


UNDO
ENABLE
BUF CLR

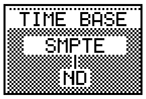
UNDO Area

Turn the **[UNDO]** function on ENABLE or off DISABLE.

BUF CLR **Button**

Clear the UNDO buffer of any existing mix.

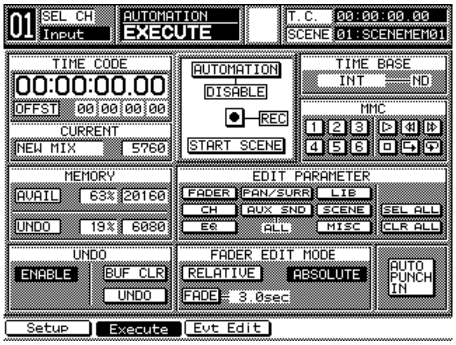
[TIME BASE] Area



TIME BASE Area

The time base for Automation can be selected here, as well as in the **[AUTOMATION>EXECUTE]** window. See page 14-8.

14-2 AUTOMATION, EXECUTE Window

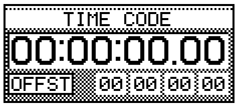

01
SEL CH
Input
AUTOMATION
EXECUTE
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
TIME CODE
00:00:00.00
OFFST
00 00 00 00
CURRENT
NEW MIX
5760
AUTOMATION
DISABLE
REC
START SCENE
TIME BASE
INT
ND
MMC
1 2 3 4 5 6
MEMORY
AVAIL
63%
20160
UNDO
19%
6080
EDIT PARAMETER
FADER
PAN/SURR
LIB
CH
AUX SND
SCENE
SEL ALL
EQ
ALL
MISC
CLR ALL
UNDO
ENABLE
BUF CLR
UNDO
FADER EDIT MODE
RELATIVE
ABSOLUTE
FADE
3.0sec
AUTO PUNCH IN
Setup
Execute
Evt Edit

EXECUTE Window

Automation is principally controlled from the **[AUTOMATION>EXECUTE]** window. Recording and playback of automation are not possible unless the AUTOMATION button is set to ENABLE. Automation recording is "enabled" when the REC button is pressed, and recording begins when Timecode starts running. You can also "enable" the automation by pressing the **AUX / AUTOMATION** LED button on the front panel, located just below the **MASTER DISPLAY** area. Cursor to the **[MMC]** area **[Play ▷]** button, and press the **ENTER** button to start Timecode.

While in record mode, the **[taskbar]** flashes the words Automation and Recording.

[TIME CODE] Area

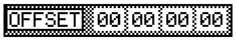

TIME CODE
00:00:00.00
OFFST
00 00 00 00

TIME CODE Area

The current timecode information appears in this area. Hours, minutes, seconds and frames are displayed in 8 digits when [Internal], [MTC], or [SMPTE] is selected for time base. When the [MIDI CLK] is selected, the [TIME CODE] area displays measures, beats, and clocks while the far right of the [OFF SET] Area indicates the time signature. The initial time signature is 4/4. See setting **[TIME BASE]** on page 14-8 for additional information.

The **[START SCENE]** timecode appears and turns to inversed video for a half second when START SCENE is overwritten. In the same manner the locate point appears in the **[TIME CODE] Area** when one of the locator buttons is selected.

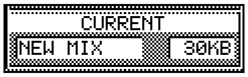
[OFFSET] Area


OFFSET 00 00 00 00

OFFSET Area

To offset the timecode, cursor to the **[OFFSET]** area, and use the **JogDial** to change the values in hours, minutes, seconds, and frames. This feature allows you to synchronize an automation mix with its own timecode to an external source (such as a video tape) that has a different timecode. Remember that these two timecodes should always be the same frame rate.

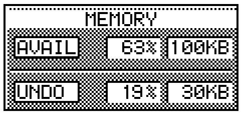
[CURRENT] Area


CURRENT
NEW MIX 30KB

CURRENT Area

This area shows the number of events used in the current automation mix. The ***DA7*** has a 32,000 event capacity which is shared between the current memories, the undo buffer, and the four event memories, as seen in the **[AUTOMATION>SETUP]** window.

[MEMORY] Area

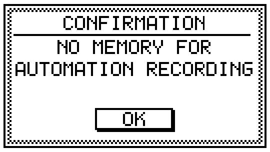

MEMORY
AVAIL 63% 100KB
UNDO 19% 30KB

MEMORY Area

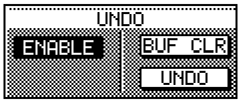
This area displays the available percentage of memory and number of events available for use in a mix.

There is also a field that shows the **[UNDO]** buffer size as a percentage and as the number of events that have been used.

When running out of memory for **AUTOMATION** recording, a warning message appears. Press the **[ENTER]** button to stop recording.


CONFIRMATION
NO MEMORY FOR
AUTOMATION RECORDING

[UNDO] Area

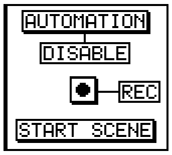


UNDO Area

There is an **[ENABLE]** button, a **[BUF CLR]** button and an **[UNDO]** button. The **[ENABLE]** button allows you to set aside some of the automation memory to create an **UNDO** buffer. This will take away space from your mix memories. However, if you need more memory during your mix, you can increase the memory by disabling the **UNDO** function.

BUF CLR	This button clears the information that is in the **UNDO** buffer. Use this button if you wish to clear the buffer without performing **UNDO**. This can be useful if you need more memory during a mix.
UNDO	This button performs the actual **UNDO** function.

[AUTOMATION] Area



AUTOMATION Area

AUTOMATION Button

Press this button to DISABLE or ENABLE Automation for the system. You can also "enable" the automation system by pressing the **AUX / AUTOMATION** LED button on the front panel, located just below the **MASTER DISPLAY** area.

REC Button

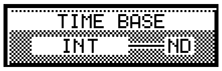
When the REC button is enabled, it will flash on and off to indicate recording. You can also enter RECORD when in MMC mode by directly pressing REC on the front panel.

When automation is enabled, the remote switch automatically becomes active as a "punch-in" or "punch-out" control (remote Talk back is disabled). This is useful if you wish to use a footswitch to do "hands-free" automation control.

START SCENE Button

When selected, the START SCENE button will execute recording from the START SCENE which is stored as SCENE 00. If you do not store the START SCENE, the ***DA7*** will begin recording of Automation from the first event. It is recommended that you begin all automated mixes by storing the beginning of the mix in the START SCENE memory.

[TIME BASE] Area



TIME BASE Area

You can choose between **[INT]**, **[MTC]**, **[MIDI CLK]**, and **[SMPTE]** Timecode to drive the system. The timecode area will display the input timecode as soon as it recognizes the time base status.

You can select:

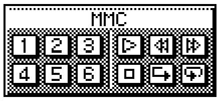
- **[MTC]** MIDI Timecode
- **[SMPTE]** SMPTE timecode (valid only when the SMPTE option card is installed)
- **[MIDI CLK]** MIDI clock
- **[INT]** Internal timecode

Next to the **[TIME BASE]** selection field, there is a field for the display of the time code type. When using SMPTE or MTC, the ***DA7*** will automatically sense the type of timecode and set the mixer accordingly. You cannot adjust this field.

It will display the frame rate of the timecode being used. The frame rates of timecode the ***DA7*** can accept from SMPTE or MTC are:

- **[ND]**, 30 frames per second using non-drop frame timecode
- **[DF]**, 30 frames per second using drop frame timecode (this equals, 29.97 frames per second)
- **[25]**, 25 frames per second
- **[24]**, 24 frames per second

[MMC] Area



MMC Area

The **[MMC]** area provides controls for the automation system and for sending control commands to externally connected machines (via the MIDI port on the rear panel) that accept **MMC** (MIDI Machine Control) commands.
To operate this area it is practical to use the **KeyPad** in the **MMC** mode. Set the **Keypad** to **MMC** mode by selecting the **MMC/CURSOR** button before operating.

[1] - [6] Buttons

Select these buttons to quickly access the desired locate points in an automated mix. See page **14-10, Create Locate Points** and **Recall Locate Points** for more information.

[Play ▷] Button

Select this button to Play the current automated mix (once the Internal Clock is selected and Automation and Record are enabled). The **[Play ▷]** button also can be used to independently control any connected device that accepts **MMC** commands. When the **MMC/CURSOR** is in **MMC** mode, the up **ARROW** PLAY▶ button on the Top Panel provides the same control.

[Rewind ◁◁] Button

Select this button to Rewind the current automated mix (once the Internal Clock is selected and Automation and Record are enabled). The **[Rewind ◁◁]** button also can be used to independently control any connected device that accepts **MMC** commands. When the **MMC/CURSOR** is in **MMC** mode, the left **ARROW** ◀◀REW button on the Top Panel provides the same control.

[Fast Forward ▷▷] Button

Select this button to Fast Forward the current automated mix (once the Internal Clock is selected and Automation and Record are enabled). The **[Fast Forward ▷▷]** button also can be used to independently control any connected device that accepts **MMC** commands. When the **MMC/CURSOR** is in **MMC** mode, the right **ARROW** FF▶▶ button on the Top Panel provides the same control.

[Stop ▣] Button

Select this button to Stop the current automated mix (once the Internal Clock is selected and Automation and Record are enabled). The **[Stop ▣]** button also can be used to independently control any connected device that accepts **MMC** commands. When the **MMC/CURSOR** is in **MMC** mode, the down **ARROW** STOP button on the Top Panel provides the same control.

[Replay ⇥] Button

Select this button to return the ***DA7*** automation (and any **MMC** slaved devices) to the position where the **[Play ▷]** button was last pressed. It will immediately go into Play. When the **MMC/CURSOR** is in **MMC** mode, the **#8** button on the **Keypad** provides the same control.

[Loop ↻] Button

Select this button to create a Loop that will play continuously until stop is executed. The Start point of the Loop is set by the location of Locate **#1** and the End point of the Loop is set by the location of Locate **#2**. When the **MMC/CURSOR** is in **MMC** mode, the **#9** button on the **Keypad** activates the Loop function.

Operation of MMC

Transport Functions

Pressing each of the buttons, **[Play ▷]**, **[Rewind ⏪]**, **[Fast Forward ⏩]**, **[Stop ▣]**, **[Replay ⇥]**, and **[Loop ↻]** transmits **MMC** commands for these functions, or controls the Internal Timecode.

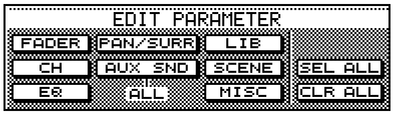
Create Locate Points

To create a locate point, first move the timecode to where you need it by pressing **[Play ▷]**, **[Rewind ⏪]**, **[Fast Forward ⏩]**, and **[Stop ▣]** buttons. Second, press the **#7 (SET)** button, the locator buttons on the LCD will flash to prompt you. Finally select one of locator buttons while the LCD is flashing. The timecode will be stored in the locator button selected.
The **[TIME CODE]** area will flash in inverse video for two seconds to confirm your selection.

Recall Locate Points

To recall locate points, press one of the locator buttons, **[1] - [6]**, that have a stored location point. When one of the locator buttons is pressed, **[TIME CODE] Area** displays the locate point and turns to inverse video for a half second. This **MMC** command will then locate the ***DA7's*** automation and any connected **MMC** slave devices to the selected point.

[EDIT PARAMETER] Area



EDIT PARAMETER Area

Parameters that can be recorded by the automation are FADER, CH, EQ, PAN/SURR, AUX SND, LIB, SCENE, and MISC. The SEL ALL button chooses all the parameters, while the CLR ALL button removes the parameters from the recording sequence. When selected, the parameter will appear as inverse video.

There is a short cut to the selection of these parameters. When in **MMC** mode, press the **SHIFT (#0)** key and one of the **#1 – #9** buttons simultaneously for the shortcuts below:

1	FADER
2	PAN/SURR
3	LIBrary
4	CH ON
5	AUX SND
6	SCENE
7	EQ
8	NO FUNCTION
9	MISC

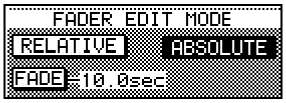
Under the MISC parameter area you can edit:

Dynamics on/off

Protect Channel

Beat Change

[FADER EDIT MODE] Area



FADE=10.0sec

FADER EDIT MODE Area

In this area, you can select two different modes of operation. There is also a selection for the fade time of the offset of the fader position. This fade time is how long it will take the fader to "dissolve" or "smooth -out" the difference in level from where you have finished the fader move to where it was before the edit.

ABSOLUTE Mode

When this mode is selected, the fader will reflect exactly how you have corrected the level, without regard to the fader position before the edit. It could cause a level to jump at the edit points, if there is a vast difference of position of the fader.

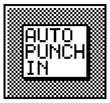
RELATIVE Mode

This mode selects the fader to move in a relative manner verses the previous automation moves. In other words, the fader will move to 0dB, and will make changes in the levels you have automated in a + or - method. This plus or minus is based on the previous setting you made during the automation mix.

FADE Time

If you make a drastic change in level at the “punch-in” or “punch-out”, you can set the faders to move over a specific period of time, back to the level where the fader was set. This will help smooth out the mix. The fade time can be programmed into the automation sequence. A fade time from 0.0 sec to 30 sec can be set in 0.2 sec increments.

[AUTO PUNCH IN]



When engaged, **[AUTO PUNCH IN]** appears as inverse video.

Once you select the channel and parameter you wish to adjust (if **[AUTO PUNCH IN]** is engaged and the automation is record ready), moving the fader or knob of a selected channel, while playing back a mix, will cause the ***DA7's*** automation to go into record for that channel or channels.

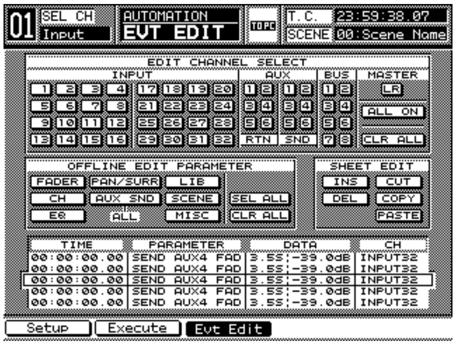
To stop the ***DA7*** from recording, or to “punch-out”, press the **ARROW** **STOP** button on the **MMC** control. You can also “punch-out” by turning **SELECT** off for the channel you wish to stop updating.

Pressing the **SHIFT (#0)** button and the **SELECT** LED button of the channel simultaneously lets you select the channel for **[EQUALIZER]** or **[DYNAMICS/DELAY]**.

If you want to view the **AUX SEND** status on the LED field while **AUTOMATION** is **[ENABLE]** and **[MMC]** is active, simultaneously press the **SHIFT** key of the **Keypad** and the **AUTOMATION/AUX** LED button. This will only change the LED display, and will not interrupt the **AUTOMATION** operation. See page 14-5, **AUTOMATION, EXECUTE** Window, for more information.

Pressing the **AUTOMATION/AUX** button on the top panel of the ***DA7*** to select automation acts as a shortcut to the **RECORD** button in the **AUTOMATION EXECUTE** screen. See page 14-5**, Automation, Execute Window,** for more information.

14-3 AUTOMATION, EVT EDIT (Event Edit) Window


01
AUTOMATION
EVT EDIT
TO PC
EDIT CHANNEL SELECT
INPUT
AUX
BUS
MASTER
LR
ALL ON
CLR ALL
RTN
SND
OFFLINE EDIT PARAMETER
FADER
PAN/SURR
LIB
CH
AUX SND
SCENE
SEL ALL
EQ
ALL
MISC
CLR ALL
SHEET EDIT
INS
CUT
DEL
COPY
PASTE
Setup
Execute
Evt Edit

SEL CH: Input

T.C. 23:59:38.07

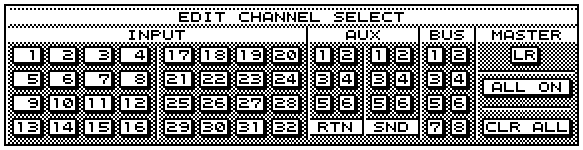
SCENE 00:Scene Name

TIME	PARAMETER	DATA	CH
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32

EVT EDIT Window

Use the **[EVT EDIT]** window to change parameters of events in the automation by changing them in an "off-line" method. In other words, you can make a simple change to an event (single or multiple channels) by entering in new data instead of doing another mix. A good example would be if you wish to change a fade. Simply select the fader or faders, and enter a new time in the data area. It will automatically update the mix.

[EDIT CHANNEL SELECT] Area

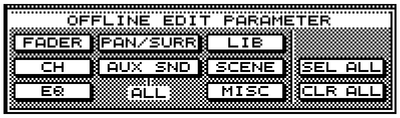

EDIT CHANNEL SELECT
INPUT
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
AUX
1 2 1 2
3 4 3 4
5 6 5 6
RTN
SND
BUS
1 2
3 4
5 6
7 8
MASTER
LR
ALL ON
CLR ALL

EDIT CHANNEL SELECT Area

Channels can be edited individually for **[INPUT 1-32]**, **[AUX RTN 1-6]**, **[AUX SND 1-6]**, **[BUS 1-8]**, and **[MASTER L/R]**. To edit the channels collectively, cursor to SEL ALL, and press the **ENTER** button. All of the edit parameters will then appear as inverse video. To disable all the parameters, cursor to the CLR ALL button, and press the **ENTER** button.

If you wish to edit individual channels, cursor to the channel (or channels) you wish to select, and press the **ENTER** button to select them.

[OFFLINE EDIT PARAMETER] Area



OFFLINE EDIT PARAMETER Area

Select the parameters to be edited in this area of the window. The parameters are FADER, CH, EQ, PAN/SURR, AUX SND, LIB, SCENE, and MISC. Using the MISC button, you can edit parameters for Dynamics on/off, Protect Channel and Beat Change.

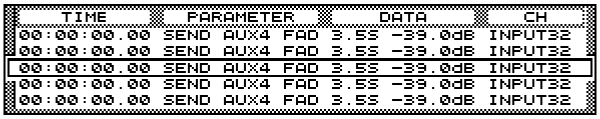
To edit all parameters, cursor to the SEL ALL button, and press the **ENTER** button. To remove all the parameters as a group, cursor to the CLR ALL button, and press the **ENTER** button. To edit individual parameters, cursor to the parameter (or parameters) you wish to edit, and press the **SELECT** LED button.

There is a unique way to search the event list. Since the event list has an entry for EVERY individual event, it can be very long for a particularly complicated mix. Every item is listed by the time of the event. However, if you decided to look through and change the EQ on for a particular channel, it would be tedious to have to go through all of the events to find what you were looking for.

So, we have provided a way to narrow down the search for the type of event you are looking for. While displaying the **[EVT EDIT]** window, turn off the parameters that you wish to ignore, and the list will only show the event types you want to see. It will not delete them from the list, and you can turn them back on at any time.

You can also select which **CHANNELS** are listed. This can be a helpful if you are only looking for the events listed for one particular channel. Cursor to the **[EDIT CHANNEL SELECT]** area, and select the channels you wish to view.

[TIME/PARAMETER/DATA/CH] Area



TIME	PARAMETER	DATA	CH
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32
00:00:00.00	SEND AUX4 FAD	3.5S -39.0dB	INPUT32

TIME/PARAMETER/DATA/CH Area

In order to select an event, you must first place the cursor in this area. You can then select an event to be edited from here. Rotate the **JogDial** through the events and select an entire event or a single event item.

To edit an individual event item from the list, use the left and right arrow keys to select the item you wish to edit. You can select from **[TIME]**, **[PARAMETER]**, **[DATA]**, or **[CH]**. Once you have selected the item you wish to change, use the **JogDial** to enter the new data, and press the **ENTER** button to change the parameter. The entire Event list will immediately change to reflect the new data. You may now continue to edit events, or exit the window.

If the new data change is related to time, you may be momentarily confused by the new order of the list. You may have to scroll through the list again to re-orient yourself.

When you have finished editing the entire event list and wish to exit, press the **AUTOMATION** button again.

[TIME]

Edit timecode from this area in hours, minutes, seconds, and frames. Measures, beats and clocks are displayed in the **[TIME]** column when MIDI clock is selected. To edit the beat, set both clocks and beats to “01”. The **[BEAT CHG 1-12]** will appear in the **[PARAMETER]** column at the bottom of the event list (when scrolled to the end) and press the **ENTER** button. Select the beat you wish to change in the **[DATA]** column.

[PARAMETER]

The event parameters that can be edited appear here.

Rotating the **JogDial** displays these 41 parameters sequentially.

EQ	ON	
EQ	LOW	F
EQ	LOW	Q
EQ	LOW	G
EQ	LM	F
EQ	LM	Q
EQ	LM	G
EQ	HM	F
EQ	HM	Q
EQ	HM	G
EQ	HIGH	F
EQ	HIGH	Q
EQ	HIGH	G
CH	ON	
FADER	FADER	
FADER	FADE	
DYN	ON	
DLY	ON	
PAN/BAL	ON	
PAN/BAL		
SEND	AUX	1
SEND	AUX	2
SEND	AUX	3
SEND	AUX	4
SEND	AUX	5
SEND	AUX	6
SURROUND	L	
SURROUND	R	
SURROUND	C	
SURROUND	SB	
SURROUND	SL	
SURROUND	SR	
CH	LIB	STR
EQ	LIB	STR
DYN	LIB	STR
CH	LIB	RCL
EQ	LIB	RCL
DYN	LIB	RCL
SCENE	WRITE	
SCENE	READ	
RECALL	SAFE	

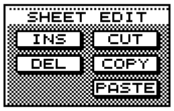
[DATA]

Data for parameters can be set in numerical values with the **JogDial** and the **ENTER** button.

[CH]

Here the user can select the channels where editing is desired. Scroll to a channel number with the **JogDial**, and press the **ENTER** button.

[SHEET EDIT] Area



SHEET EDIT Area

These edit functions give you the ability to insert, delete, and copy event data into the **[TIME]**, **[PARAMETER]**, **[DATA]**, and **[CH]** number columns. Much like the cut and paste functions in word processing, a little scrolling and jogging will give you the ability to do some amazing changes to your mix.

INS Button

Insert data in the currently selected data field into the event list, and press the **ENTER** button.

DEL Button

Delete any data highlighted by the cursor, and press the **ENTER** button.

CUT Button

Remove any data by selecting CUT and pressing the **ENTER** button. Data is stored in the buffer memory until another event is cut or copied, and can be pasted to another field.

COPY Button

Copy any data to buffer memory by selecting COPY and pressing the **ENTER** button. The data will be copied into the buffer memory for subsequent pasting.

PASTE Button

With a parameter selected in the event field, press the **ENTER** button with this function selected to paste data into the event field.

14-4 AUTOMATION Operation

Preparations

Before starting Automation you need to prepare by connecting any external input signals for timecode reference, such as SMPTE, MTC, or MIDI CLK. Or, you select INT as the time reference. You also need to make sure that all of your audio sources are connected and operational.

1. Connect the master timecode device to the ***DA7*** such as MTC, SMPTE or MIDI CLK.
2. Route the signals as necessary from inputs, equalizer and dynamics, and to outputs.

AUTOMATION SETUP

1. Press the **AUTOMATION** button in the **SETUP** section of the Top Panel to display the **[AUTOMATION SETUP]** window. Depending on which screen you were on the last time you accessed this area, you may have to press the **AUTOMATION** button to cycle through the windows.
2. If you wish specific channels to stay non-automated, cursor to the channels that you wish to operate manually during the play-back of Automation in the **[MANUAL CHANNEL SELECT]** area of the **[AUTOMATION SETUP]** window. Press the **ENTER** button to select them. The selected channels will appear as inverse video.
3. To begin to store a new mix, cursor to the **[NEW MIX]** button in the **[MEMORY]** area, and press the **ENTER** button. This will save all of the current settings of the ***DA7*** as SCENE MEMORY 00. This setting is where the ***DA7*** will begin recording of the automation data.

⊗ **[NEW MIX]** operation will erase the data that is stored in the current memory, if any. This data is from your previous mix. If you do not want to erase this information, take the following steps prior to beginning the **[NEW MIX]** operation:

Cursor to one of the memories **[No. 01 to 04]** in the Automation **SETUP [MEMORY],** and select where you will store the data.

Cursor to the **[STORE]** button, and press the **ENTER** button. **[NAME EDITOR]** will appear.

Enter a new name, then cursor to the **[OK]** button in the **[NAME EDITOR]**, and press the **ENTER** button.

The contents of the previous START SCENE and a mix located in the current memory will now be saved into the **[No. 01 to 04]** in the Automation **SETUP [MEMORY]** with a new name. Now you can proceed to the **[NEW MIX]** operation to store a new mix.

4 Cursor to the **[TIME BASE]** area, and select the timecode master device by rotating the **JogDial**, and pressing the **ENTER** button.

5 Play back the master timecode device. Confirm that the **[TC]** area on the top right of the LCD window indicates identical numbers to that of the master device.

6 When SMPTE or MTC format is used, confirm the **[TIME BASE]** area displaying ND, DF, 25 or 24.

⊗ If for some reason you receive an error message on the LCD screen (in the lower right hand corner) of the **[AUTOMATION EXECUTE]** window, check the connection and/or timecode settings of the master device. You should also confirm that your master timecode source is not in a “Free-run” mode, or that the time base of the master code source is not corrupted.

You can not go further with the operation of Automation while these errors exist.

AUTOMATION EXECUTE

1. Press the **AUTOMATION** button in the **SETUP** section of the Top Panel to display the **[AUTOMATION EXECUTE]** window. You may have to press it again to cycle through the windows.
2. Cursor to the **[START SCENE],** and press the **ENTER** button.

   You will see this area blinking if nothing has been registered for the start scene. Current status of fader positions, routings, Equalizer and Dynamics is stored for the start scene.

> You can change the start scene during the recording of a MIX sequence. This can save you valuable mix memory space. Repeat above steps to register a new start scene if necessary.

3. Cursor to the desired parameter button in the **[EDIT PARAMETER]** area, **[FADER]** button for instance, and press the **ENTER** button. Repeat to select each parameter you wish to record in Automation. When selected, the parameter button will appear as inverse video.
4. You can operate another way on the Top Panel if **MMC /CURSOR** is switched to **MMC**. Select desired parameters by pressing **#1** to **#7** and **#9** of the **Keypad** corresponding directly to items in the **[AUTOMATION EXECUTE]** window while pressing the **SHIFT** button.

   Cursor to the **[SEL ALL]** button, and press the **ENTER** button to select all parameters at once. This is convenient for starting a new mix.

   Cursor to the **[CLR ALL]** button, and press the **ENTER** button to cancel all parameters at once.
5. Cursor to the **[ABSOLUTE]** button in the **[FADER EDIT MODE]** area, and press the **ENTER** button.
6. Cursor to the **[AUTO PUNCH IN]** button, and press the **ENTER** button to cancel the **[AUTO PUNCH]**.

> **[AutoPunch In]** should be considered as an "Advanced User" feature, so we recommend that you not attempt to use the **[AutoPunch In]** function until after you have experimented with it. If you operate it before you truly understand its function, you could accidentally do something that might result in serious consequences to your mix.

7. Cursor to the **[ENABLE]** button in the **[AUTOMATION]** area, and press the **ENTER** button.

> Don't forget about the **AUTOMATION/AUX** button shortcut on the Top Panel to enable Automation. You may find it is a faster way to perform this function.

8. Cursor to the **[REC]** button in the **[AUTOMATION]** area, and press the **ENTER** button to start or stop recording.

> If the **MMC** mode on the **CURSOR/MMC** button is active, don't forget about the **[CURSOR MODE/REC]** shortcut on the Top Panel to start or stop recording.
>
> The remote switch on the Rear Panel of the DA7 can be used to “punch-in” or “punch-out” of a mix.

9. Press the **SELECT** LED buttons of the **Channel Strips** to be engaged into a MIX sequence. The engaged **SELECT** LED buttons *(orange)* and **SEL/MAN** *(red)* will light. Press it again to cancel. These buttons are operable during playing back or recording of a MIX sequence.

   Now, you are ready to start automation recording of your mix.

10. Start the play-back of the audio master device, such as MTR or Hard Disk Recorder in your system, from the beginning where you will start recording a MIX. Make sure that the ***DA7*** is receiving the timecode properly from this device.

    You can now make any changes to the parameters you have chosen for any selected channel or channels and they will be recorded by the Automation system.

> Pressing the **SHIFT (#0)** button and **SELECT** LED button of the desired channel simultaneously enables you to change the channel for **[EQUALIZER]** or **[DYNAMICS/DELAY]**.

Editing of AUTOMATION EXECUTION

You can edit a MIX if there is something that you wish to change.

1. Stop the audio master device and switch off the **SELECT** LED buttons for channels you do NOT wish to update. Press the **SELECT** LED buttons to turn on the channels you wish to update.
2. Cursor to the **[REC]** button in the **[AUTOMATION]** area, and press the **ENTER** button to start recording again
3. Start the audio master device from a point slightly in front of where you will begin the edit of your mix. This will give the master device time to stabilize, and the ***DA7*** to reset the automation based on the new timecode location.
4. If you have not already done so, press the **SELECT** LED buttons and make changes to the selected parameters.

Editing several channels at a time

You can operate in a more efficient way if you have several channels to edit. The following steps will allow you to concentrate on the operation of the selected relevant parameters.

1. Stop the audio master device.
2. Stop recording by using a remote switch plugged in to the Rear Panel, or press the **[CURSOR MODE REC]** button on the Top Panel while **MMC** is active.
3. Press the **SELECT** LED buttons so that they are turned on for only the channel strips that you will edit.

   Start the audio master device before the point where you will begin the edit.

   Use the remote switch to "punch-in" and start recording when it has reached the edit point, or press the **SELECT** LED button to turn it on for the channel you want to edit, and then change the parameters of the selected channel.

   Pressing the **[CURSOR MODE REC]** button on the Top Panel will trigger recording as well, if **MMC** is active and the selected channel(s) is armed by the **SELECT** LED button.

Editing with use of the [RELATIVE] button

After editing there may be a situation where you want to change something in your MIX, such as the level of vocal in a chorus, while saving the other fader moves you have made for that channel. This is where you would use the **[RELATIVE]** button in the **[FADER EDIT]** area.

1. Cursor to the **[RELATIVE]** button in the **[FADER EDIT]** area, and press the **ENTER** button.
2. Press only the **SELECT** LED button of the channel where you want to change the level from **[ABSOLUTE]** to **[RELATIVE]**.
3. Cursor to the **[REC]** button in the **[AUTOMATION]** area, and press the **ENTER** button to start recording.
4. Start playing back the audio master device from a position slightly before the area you wish to update. The fader knob will move to the position of 0 dB.
5. Move the **FADER** up or down as much as you would like to boost or reduce the level. If you move the fader knob by 3 dB upward, it will be recorded and reproduced as a value that equals 3 dBs plus the original level recorded.
6. When you have finished updating the channel, cursor to the **[REC]** button, and press the **ENTER** button to stop recording.

> You do not have to continue to record until the end of the MIX. The relative value of the fader level that was in place when the automation recording stops will be applied through the end of that MIX.

END of a MIX

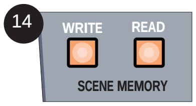
1. From your mixdown, store the audio portion of the final MIX data to an audio recording device such as DAT, CDR, etc.
2. Store the data into the memory (No 01 to 04 of the ***DA7***). This may be the easiest method, but since only four files are available the space is very limited.
3. Save the MIX data to a computer or MIDI datafiler for future use or editing.

Following are other ways to save the automation MIX.

- Send the bulk data via the **TO PC** terminal and store on HDD, FDD, or other media via a computer.
- Use the **[MIDI<BULK OUT]** window to send the bulk data via the **MIDI OUT** terminal to a MIDI datafiler.

- Here is a real-time data recording method that is different from the other methods described above. Cursor to the **[Tx]** button of the **[CTRL CHG]** in the **[MIDI<SETUP]** window, and press the **ENTER** button. Set the MIDI filer to REC mode, and start the automation mix which you would like to save. Now, your mix will be saved as a real-time recording.

Chapter 15
Scene Memory

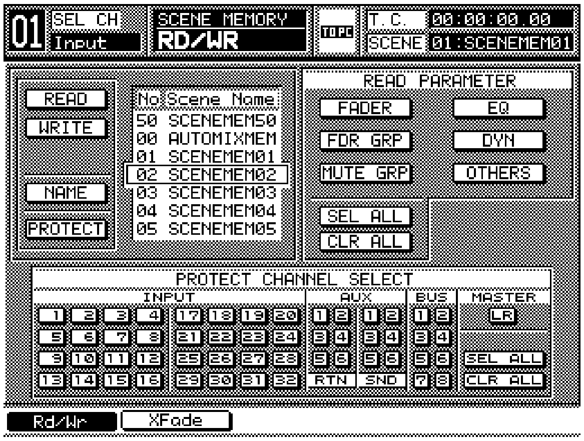

14
WRITE
READ
SCENE MEMORY

SCENE MEMORY Section

15-1 RD/WR (Read/Write) Window

The **SCENE MEMORY** section of the ***DA7*** is accessed from the Top Panel by pressing either the **READ** or **WRITE** LED buttons. When either function is on, its button will illuminate *(orange)*. Press either button to display the **[SCENE MEMORY>RD/WR]** window. Press either of these buttons again to display the **[SCENE MEMORY>XFADE TIME]** window.

Scene Memory records all parameters globally for the ***DA7***. When a scene is recalled, the fader, fader group, mute group, EQ, and dynamics settings that were recorded to a specific Scene Memory file, will be recalled.


01
SEL CH
Input
SCENE MEMORY
RD/WR
TO PC
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
READ
WRITE
NAME
PROTECT
No
Scene Name
50 SCENEMEM50
00 AUTOMIXMEM
01 SCENEMEM01
02 SCENEMEM02
03 SCENEMEM03
04 SCENEMEM04
05 SCENEMEM05
READ PARAMETER
FADER
EQ
FDR GRP
DYN
MUTE GRP
OTHERS
SEL ALL
CLR ALL
PROTECT CHANNEL SELECT
INPUT
AUX
BUS
MASTER
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
1 2 1 2
3 4 3 4
5 6 5 6
RTN
SND
1 2 3 4 5 6 7 8
LR
SEL ALL
CLR ALL
Rd/Wr
XFade

SCENE MEMORY Window

This window allows you to record to the Scene Memory. Scene Memory can be recorded globally for all 32 input channels, aux send and return, buses, and master.

READ Button

Once you are in the **[RD/WR]** window, scroll the **[No. Scene Name]** field with the **JogDial** to select the desired file. With the cursor on the READ button, press the **ENTER** button to recall a memory.

WRITE Button

To record a Scene Memory, select a Scene Name number. With the cursor on the WRITE button, press the **ENTER** button.

NAME Button

In the **[RD/WR]** window, cursor to the NAME button, and press the **ENTER** button. The **[NAME EDITOR]** window will display over the **[RD WR]** window. Input a Scene Memory name in the **[NAME EDITOR]** window, and press the OK button in the window.

PROTECT Button

The protect function sets a specified Scene Memory into a status where nothing can be recorded to it. This function can be used to protect all data already in a specific Scene Memory.

FADER Button

When this parameter is selected, access to fader information is turned on.

EQ Button

When this parameter is selected, access to EQ information is turned on.

DYN Button

When this parameter is selected, access to dynamics information is turned on.

FDR GRP Button

When this parameter is selected, access to fader group information is turned on.

MUTE GRP Button

When this parameter is selected, access to mute group information is turned on.

OTHERS Button

When this parameter is selected, access to other global information is turned on.

SEL ALL Button

All of the parameters in the **[READ PARAMETER]** area are selected on or off. Selected parameters appear as inverse video.

CLR ALL Button

All parameter selections in the **[READ PARAMETER]** area are deactivated.

[PROTECT CHANNEL SELECT] Area

Here you can identify which, if any, **Channel Strips** will be protected: **INPUT 1-32**, **AUX RTN 1-6**, **AUX SND 1-6**, **BUS 1-8**, or **MASTER L/R**.

To protect a channel, move the cursor to a selected channel, and press the **ENTER** button. The selected channel will appear in inverse video when protected. Once you protect a channel, it will remain with all its settings even after you recall a Scene Memory.

Recalling a Scene Memory

When the **[10 KEY SCENE RECALL]** is on in the **[UTILITY>CONFIG]** window, Scene Memories 1-10 can be recalled using the **Keypad**. Input the number of the Scene Memory location to be recalled. The ***DA7*** will automatically recall that configuration, setting channel on or off, fader levels, pan, balance, EQ, dynamics, fader group, and mute group assignments.

When the **[10 KEY SCENE RECALL]** is off, and the READ button is on, Scene Memory can not be selected using the **Keypad**. To select a memory for recall, scroll through the display and find the memory you want. By pressing the **ENTER** button, the numeric readout will flash the selected Scene Memory that you have recalled in the **[MEMORY]** display. The selected Scene Memory is recalled.

Dots on the display indicate that the parameter has not been operated since the current Scene Memory was recalled.

Dots go off at the point at which any parameter of the current memory is changed, or by selecting another Scene Memory.

Writing a Scene Memory

Writing a Scene Memory uses the same procedure as **READ**. Select a memory file number, move the cursor to the WRITE button, and press the **ENTER** button. The **[MEMORY]** display will flash for five seconds, indicating that the settings have been written to the selected Scene Memory.

Input of Scene Memory Title

Press the **ENTER** button, when the cursor is over the NAME button, and the **[NAME EDITOR]** window will appear over the **[RD/WR]** window. Alpha-numeric characters can be input from the **Keypad** or the keyboard in the **[NAME EDITOR]** window.

Setting of Read Protection Channel

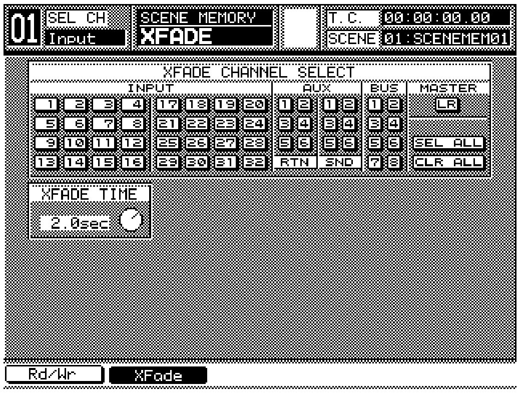
To activate read protection to a selected channel or all channels, cursor down to the **[PROTECT CHANNEL SELECT]** area in the window. If the SEL ALL button is selected and activated, nothing from the Scene Memory can be recalled into the system.

If you prefer to protect only a select group of channels, scroll through the channel numbers, and press the **ENTER** button on your choice.

In the **[READ PARAMETER]** area there are several parameters that can be programmed on or off selectively, or collectively.

15-2 XFADE TIME Window

XFade Time sets a programmable crossfade duration to be executed when a scene memory is changed.


01
SEL CH
Input
SCENE MEMORY
XFADE
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
XFADE CHANNEL SELECT
INPUT
AUX
BUS
MASTER
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
RTN
SND
LR
SEL ALL
CLR ALL
XFADE TIME
2.0sec
Rd/Wr
XFade

FADE TIME Window

[XFADE TIME CHANNEL SELECT] Area

This area lets you select crossfade time of **INPUTS 1-32**, **AUX RTN 1-6**, **AUX SND 1-6**, **BUS 1-8**, and **MASTER L/R**.

Selecting of XFade Channel

Cursor to any channel number button, and press the **ENTER** button.

SEL ALL **Button**

Here all of the channels in the **[XFADE TIME CHANNEL SELECT]** area are turned on, and all of the channel buttons appear as inverse video.

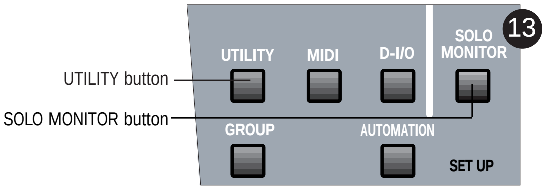
CLR ALL **Button**

Here all of the channels in the **[XFADE TIME CHANNEL SELECT]** area are turned off, and all of the channel buttons reset to default (off).

[XFADE TIME SET] Area

Activate the soft knob and adjust the crossfade time by turning the **JogDial**. This adjusts the crossfade time for all channels selected for the current **SCENE MEMORY** file. The crossfade time is adjustable from zero to three seconds.

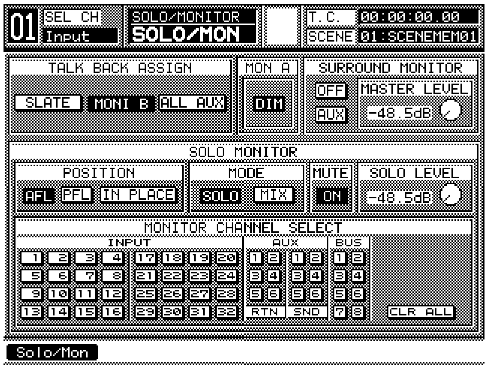
Chapter 16
Utility and Solo Monitor


UTILITY button
SOLO MONITOR button
UTILITY
MIDI
D-I/O
SOLO MONITOR
13
GROUP
AUTOMATION
SET UP

SETUP Section

The **UTILITY** and the **SOLO MONITOR** buttons on the Top Panel of the ***DA7*** access the following functions for the mixer. By pressing the **[SOLO MONITOR]** button, you can adjust the Talk Back, Surround Monitor and Solo Monitor. Pressing the **UTILITY** button displays the **[UTILITY]** window group in the LCD. This controls the Oscillator, Locking Functions, Function Configuration, and Fader Layer Customization.

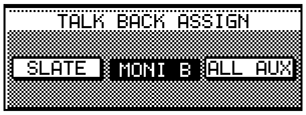
16-1 Utility, Solo/Monitor (SOLO/MON) Window


01
SEL CH
Input
SOLO/MONITOR
SOLO/MON
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
TALK BACK ASSIGN
SLATE
MONI B
ALL AUX
MON A
DIM
SURROUND MONITOR
OFF
AUX
MASTER LEVEL
-48.5dB
SOLO MONITOR
POSITION
AFL
PFL
IN PLACE
MODE
SOLO
MIX
MUTE
ON
SOLO LEVEL
-48.5dB
MONITOR CHANNEL SELECT
INPUT
AUX
BUS
RTN
SND
CLR ALL
Solo/Mon

SOLO / MONITOR Window

The **[SOLO/MONITOR]** window provides controls for the monitoring functions of the ***DA7***.

[TALK BACK ASSIGN] Area


TALK BACK ASSIGN
SLATE
MONI B
ALL AUX

TALK BACK ASSIGN Area

Selects the areas that will hear the Talk Back signal assigned in this area. See ***Section 16-3, Utility, Configuration (CONFIG) Window*** for information on momentary and locking features of the Talk Back button. You may assign Talk Back to any or all of the following buttons:

- SLATE **Button**

  When you select this button, it will appear in inverse video. Talk Back will go out to the **MASTER L/R** and **BUSES** to be recorded on the tape tracks.

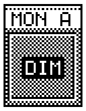
- MONI B **Button**

  The MONI B button routes the Talk Back to the **MONITOR B** (studio) outputs.

- ALL AUX **Button**

  When you select ALL AUX , all of the outgoing **AUX** channels will receive a signal from the Talk Back.

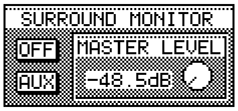
[MON A] Area



MON A Area

Engaging the **[MON A]** DIM button lowers the volume of the **MONITOR A** system by 20dB, regardless of Talk Back operations. To toggle the **[MON A] DIM** button while the button is not displayed on the **LCD**, from the **TopPanel** press and hold the **MMC/CURSOR** button, at the same time press the **SOLO/MONITOR** button.
If the **[MON A]** DIM button is off, the monitor volume will be lowered by 20dB whenever the **TALKBACK** button on the **Top Panel** is on. The monitor volume will be restored when the **TALKBACK** button is turned off.

[SURROUND MONITOR] Area



SURROUND MONITOR Area

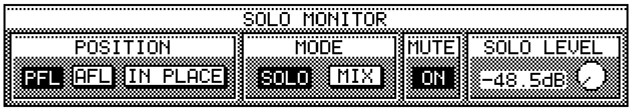
The surround monitor feature is toggled OFF or ON in this area of the window. The AUX button toggles with a MON button, which determines the assignment for the surround bus monitor outputs. Cursor to the AUX button, and press the **ENTER** button to toggle to the MON button. The surround bus assignments are reflected in the table below, as determined by the current selection.

	Surround bus 1 (L)	Surround bus 2 (R)	Surround bus 3 (C)	Surround bus 4 (SW)	Surround bus 5 (SL)	Surround bus 6 (SR)
AUX	Mon A (L)	Mon A (R)	Aux send 3	Aux send 4	Aux send 5	Aux send 6
MON	Mon A (L)	Mon A (R)	Mon B (L)	Mon B (R)	Master L	Master R

The outgoing **[MASTER LEVEL]** of the surround sound feature is also set in this area of the window. The soft knob controls the level for the surround sound monitoring system. The knob has a range of -∞ to +10dB. Cursor to the **[MASTER LEVEL]** soft knob, and rotate the **JogDial** to raise or lower the surround monitor output level. To control the **[MASTER LEVEL]** knob while that soft knob is not displayed on the **LCD**, from the **TopPanel,** rotate the **Level ON/OFF** knob in the **AUX** section, when the individual channel surround screen is displayed.

See **Chapter 8, Pan/Assign, Surround, Bus Assign** for further information.

[SOLO MONITOR] Area



SOLO MONITOR Area

There are four operational parameters for the **[SOLO MONITOR]**:

[POSITION] Area

SOLO can be assigned in these ways:

- PFL Button

  When assigned to this button, the solo source monitoring is pre-fader. When enabled, the PFL button is displayed in inverse video.

- AFL **Button**

  When assigned to this button, the solo source monitoring is post-fader. Pan will have no effect. Raising and lowering the fader for a channel in the **SOLO** mode will change the level of the **SOLO** monitoring.

- IN PLACE **Button**

  When assigned to this button, the solo source monitoring is post-fader and post-pan. In this mode you will hear the signal as it appears in stereo mode and at the level it had been before you selected it.

[MODE] Area

Mode has two conditions that apply to **SOLO** monitoring:

- SOLO **Button**

  Only one source at a time can be selected for **SOLO** monitoring.

- MIX **Button**

  You have the option of selecting multiple **SOLO** channels simultaneously.

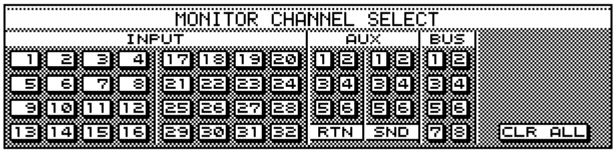
MUTE OFF or ON Buttons Area

In the **[SOLO MONITOR]** area the ON and OFF buttons toggle and enable or disable **SOLO** for the system.

[SOLO LEVEL] Area

The **[SOLO LEVEL]** can be controlled by the soft knob in the window. The current value appears in the field with a range of -∞ dB - +10dB. When you position the cursor on the soft knob, rotating the **JogDial** will raise or lower the output level.

[MONITOR CHANNEL SELECT] Area



MONITOR CHANNEL SELECT Area

An extension of the **[SOLO MONITOR]** functions, the **[MONITOR CHANNEL SELECT]** area, is divided into several sections for discrete assignment of **SOLO** to **CHANNELS 1-32**, **AUX RTN 1-6**, **AUX SND 1-6**, and **BUS 1-8**, individually for **[SOLO]** mode, or collectively in **[MIX]** mode.

When a **SOLO** button is selected from the Top Panel, the respective buttons in the **[MONITOR CHANNEL SELECT]** area will appear as inverse video.

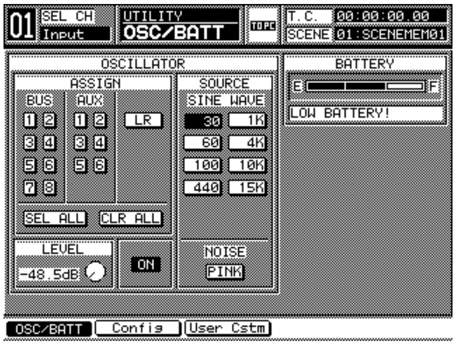
CLR ALL Button

Selecting the CLR ALL button terminates the assignments for the **[MONITOR CHANNEL SELECT]** area buttons.

When you have solo'd multiple channels, you may wish to clear them all at the same time. You may not be able to see all the channels you have solo'd at any one time because they may be on different fader layers, thus causing confusion as to what is or is not solo'd. In either case, simply press any lighted solo button for two seconds and all the solos will clear. See page 16-2**, Utility, Solo Monitor** (**SOLO/MON**) **Window, f**or more information.

You should turn ON and assign the buses as surround sound in the **[SURROUND SOUND]** area of the **[SOLO/MONITOR]** window.

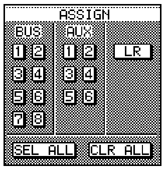
16-2 Utility, Oscillator/Battery (OSC/BATT) Window


01
SEL CH
Input
UTILITY
OSC/BATT
TO PC
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
OSCILLATOR
ASSIGN
BUS
AUX
1 2
3 4
5 6
7 8
LR
SEL ALL
CLR ALL
SOURCE
SINE WAVE
30
1K
60
4K
100
10K
440
15K
LEVEL
-48.5dB
ON
NOISE
PINK
BATTERY
E
F
LOW BATTERY!
OSC/BATT
Config
User Cstm

OSC/BATT Window

There is an on board oscillator in the ***DA7***. A reference **[SINE WAVE]** or **[NOISE]** generator can be assigned to the **BUS**, **AUX**, and **L/R** outputs of the mixer.

[ASSIGN] Area


ASSIGN
BUS
AUX
1 2
3 4
5 6
7 8
LR
SEL ALL
CLR ALL

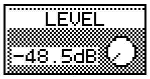
ASSIGN Area

The Oscillator can be assigned to any one or all of the **[BUS 1-8]**, **[AUX 1-6]**, and **[L/R]** outputs. Cursor to the output selection button, and press the **ENTER** button. The selected button will appear as inverse video.

When you enable the SEL ALL button, it will appear as inverse video and apply the Oscillator to all of the **BUS**, **AUX**, and **L/R** outputs.

The CLR ALL button performs the inverse function of SEL ALL. When it is selected, the Oscillator is no longer assigned to any of the outputs.

[LEVEL] Area



LEVEL -48.5dB

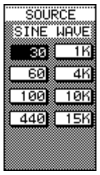
LEVEL Area

The **[LEVEL]** soft knob controls the output level. Move the cursor to the knob, and rotate the **JogDial** to change the level.

ON and OFF Buttons

Activating the ON or OFF buttons turns the Oscillator on or off for the system.

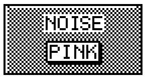
[SOURCE] Area



SOURCE Area

The tone output of the Oscillator is determined by selecting one of the eight frequency buttons in this area.

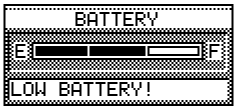
[NOISE] Area



NOISE Area

Instead of tone, activating the PINK button will output Pink Noise to the output of the selected sources. When selected, the PINK button will appear as inverse video.

[BATTERY] Area



LOW BATTERY!

BATTERY Area

A bar graph is displayed in the **[BATTERY]** area of the **[UTILITY>OSC/BATT]** window. The bar graph depicts the current battery strength, ranging from **[E]** (empty) to **[F]** (full). When the battery runs out, all memory will be erased from the mixer when the AC power for the ***DA7*** is turned off.

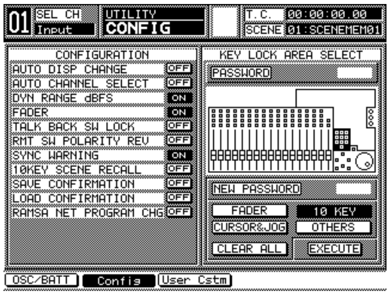
The message field is a text indicator of the battery status. If the battery needs to be replaced, the field will read **LOW BATTERY**. If the battery should run out, it will read **BATTERY EMPTY** until a new one is put in.

It would be a good idea to back up all important data stored in the DA7 prior to the battery running out.

To replace the battery, contact the PANASONIC Service Center nearest you.

> When the **[BATTERY]** graph displays “LOW BATTERY”, back up the ***DA7*** memory by performing a bulk output routine from the **[MIDI>BULK]** window. Do not let the battery run out, or you may inadvertently lose the ***DA7*** memory.

16-3 Utility, Configuration (CONFIG) Window

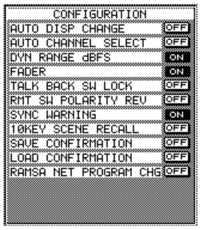

01
SEL CH
Input
UTILITY
CONFIG
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
KEY LOCK AREA SELECT
PASSWORD
NEW PASSWORD
FADER
10 KEY
CURSOR&JOG
OTHERS
CLEAR ALL
EXECUTE
OSC/BATT
Config
User Cstm

CONFIGURATION	
AUTO DISP CHANGE	OFF
AUTO CHANNEL SELECT	OFF
DYN RANGE dBFS	ON
FADER	ON
TALK BACK SW LOCK	OFF
RMT SW POLARITY REV	OFF
SYNC WARNING	ON
10KEY SCENE RECALL	OFF
SAVE CONFIRMATION	OFF
LOAD CONFIRMATION	OFF
RAMSA NET PROGRAM CHG	OFF

CONFIG Window

Use the settings in this window to define the configuration of various features in the ***DA7***. This area allows you to set up your own "personality" for the ***DA7***, making it work the way you want it to.

[CONFIGURATION] Area



CONFIGURATION	
AUTO DISP CHANGE	OFF
AUTO CHANNEL SELECT	OFF
DYN RANGE dBFS	ON
FADER	ON
TALK BACK SW LOCK	OFF
RMT SW POLARITY REV	OFF
SYNC WARNING	ON
10KEY SCENE RECALL	OFF
SAVE CONFIRMATION	OFF
LOAD CONFIRMATION	OFF
RAMSA NET PROGRAM CHG	OFF

CONFIGURATION Area

The selections in this area are toggled ON or OFF. Cursor to the currently displayed button for the selection, and press the **ENTER** button to toggle ON or OFF.

AUTO DISP CHANGE

When this selection is OFF, operating knobs on the Top Panel will not call up other windows in the LCD. When ON, operating Top Panel knobs will change the LCD to the window of the knob being adjusted.

AUTO CHANNEL SELECT

Any time this selection is activated, when a fader is moved or **SELECT** for any channel is pressed, the **[CHANNEL]** window for the selected channel will appear in the LCD.

DYN RANGE dBFS

When this selection is ON, the range of the characteristics graph in the **[DYNAMICS]** window is set to **[dBFS]**, which is OL to -100dB. When OFF, the range is set to **[dBu]**, which is +18 to -82 dB.

FADER

This selection determines whether the motorized faders are active or not. When this selection is off, automation will still play back and on the **TopPanel** a **LED** button in the **FADER LAYER Selection** section will blink if selected.

TALK BACK SW LOCK

This selection determines whether the **TALK BACK** button on the Top Panel is set to a momentary or locked position. In momentary, the button only operates when it is continually pressed. In locked mode, once pressed, the **TALK BACK** button will stay on until pressed again.

RMT SW POLARITY REV

This button makes the ***DA7*** match the polarity of the remote switch connected to ***DA7's*** Rear Panel. Cursor to this button, and press the **ENTER** button to activate, if a Closed type switch is normally used. The default setting to the button is inactive and matches a normally Open type switch.

SYNC WARNING

When this selection is on, if the sync of the master wordclock becomes unlocked, a warning message is displayed.

10KEY SCENE RECALL

When this selection is on, pressing **Keypad** numbers sends a MIDI program change message and recalls a scene memory from 00-50 corresponding to the numbers entered.

SAVE CONFIRMATION

When this selection is on, a confirmation message is displayed when a library or scene memory is saved via the TITLE button.

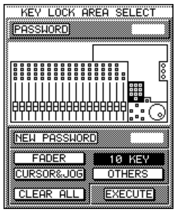
LOAD CONFIRMATION

If this selection is on, a confirmation message is displayed when a library, scene memory, or automation data is recalled.

RAMSA NET PROGRAM CHG

This selection is unassigned and is for future use and applications.

[KEY LOCK AREA SELECT]

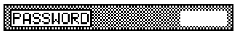

KEY LOCK AREA SELECT
PASSWORD
NEW PASSWORD
FADER
10 KEY
CURSOR&JOG
OTHERS
CLEAR ALL
EXECUTE

KEY LOCK AREA SELECT

The **[KEY LOCK AREA]** lets you lock operational sections of the ***DA7***, preventing anyone without the password from operating a section or sections of the mixer. The area diagram in the window shows areas that can be locked, which will appear in inverse video when locked.

In the **[KEY LOCK AREA]** you will find two fields.

[PASSWORD] Field



PASSWORD Field

This is a 4-digit field where you enter the password for controlling access to the ***DA7***. When the password is correct, both the **[NEW PASSWORD]** field and the lock section field can be operated.

[NEW PASSWORD] Field

NEW PASSWORD

NEW PASSWORD Field

When you enter the correct password in the **[PASSWORD]** field, a new 4-digit password can be entered in the field using the **Keypad**.

Areas that can be locked by selecting the respective buttons are FADER, CURSOR&JOG, 10 KEY (keypad), and OTHERS. Selecting the OTHERS button locks the controls for the **EQ**, **DYNAMICS/DELAY**, **PAN/ASSIGN/**SURROUND **BUS ASSIGN**, **AUX**, **MONITOR** (but not the **LEVEL** knobs), **SCENE MEMORY**, and **LIBRARY** sections of the Top Panel.

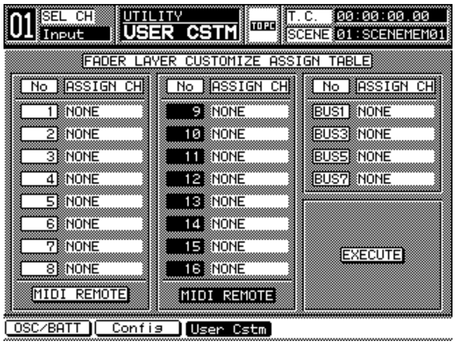
You retain control over the **UTILITY**, **MIDI**, **D-I/O**, **GROUP**, and **AUTOMATION** buttons and windows.

To activate the locking function, select which features are to be locked, cursor to the EXECUTE button, and press the **ENTER** button. The EXECUTE button will flash momentarily.

To disable locking features, select the CLEAR ALL button, and press the EXECUTE button.

Be careful not to forget your password.

16-4 Utility, User Custom (USER CSTM) Window


01
SEL CH
Input
UTILITY
USER CSTM
TO PC
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
FADER LAYER CUSTOMIZE ASSIGN TABLE
MIDI REMOTE
MIDI REMOTE
EXECUTE
OSC/BATT
Config
User Cstm

No	ASSIGN CH	No	ASSIGN CH	No	ASSIGN CH
1	NONE	9	NONE	BUS1	NONE
2	NONE	10	NONE	BUS3	NONE
3	NONE	11	NONE	BUS5	NONE
4	NONE	12	NONE	BUS7	NONE
5	NONE	13	NONE		
6	NONE	14	NONE		
7	NONE	15	NONE		
8	NONE	16	NONE		

USER CSTM Window

This window allows you to program which sources will be controlled by the 16 channels in the **CUSTOM/MIDI Fader Layer**.

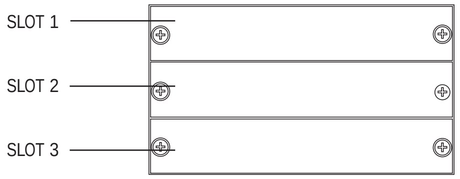
The **[FADER LAYER CUSTOMIZE ASSIGN TABLE]** lets you assign sources to the channels. The **[ASSIGN CH]** (assign channel) selection can be any source: inputs 1 through 32, aux returns 1 through 6, buses 1 through 8, and aux sends 1 through 6. Cursor to the channel number that you want to change, and rotate the **JogDial** to select the desired source.

At the bottom of the channel assignment columns there is a MIDI REMOTE button. When selected, it changes to inverse video. When active, the columns will change from [ASSIGN CH] information to [MIDI CH#]. Each of these can be programmed to the desired MIDI channel selection and can be assigned to MIDI message in the **[MIDI > MIDI RMT]** window. When selected, MIDI messages are reflected to **SOLO**, **ON**, **PAN** and **FADER** functions of respective channels in the **[MIDI > MIDI RMT]** window.

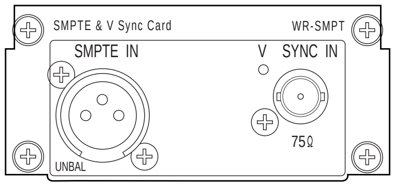
Cursor to the EXECUTE button, and press the **ENTER** button to activate the selections for use as the **CUSTOM/MIDI Fader Layer** assignments.

For more information, see **Chapter 11, MIDI**.

Chapter 17
Options



SLOT Panels



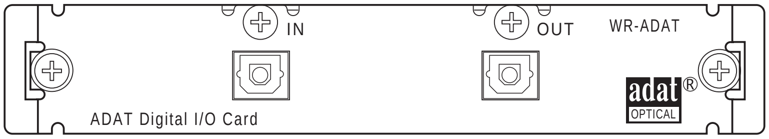
SMPTE/V SYNC Slot

The ***DA7*** has three option card slots on the Rear Panel. **SLOT 1** corresponds to **Channel 17-24**, **SLOT 2** connects to **Channel 25-32**, and **SLOT 3** can appear as **Channel 9-16**. Although **SLOT 3** has multiple functions when **SLOT 3** is being used to bring sources into the ***DA7***, the **FLIP** LED buttons for those channels will change to *(orange)* to let you know you are using the option slot inputs. Routing of **SLOT 3** is assigned in the **[DIGITAL INPUT SELECT]** area of the **[D-I/O>INPUT SET]** window.

A separate slot is provided for the SMPTE & V Sync option card, as described in ***Section 17-5***.

Be sure to note the wordclock requirements for the option cards. See ***Section 12-1, D-I/O Input Set*** for additional information.

17-1 ***ADAT*** *Digital I/O Card, WR-ADAT*


IN
OUT
WR-ADAT
adat
OPTICAL
ADAT Digital I/O Card

ADAT Digital I/O Card

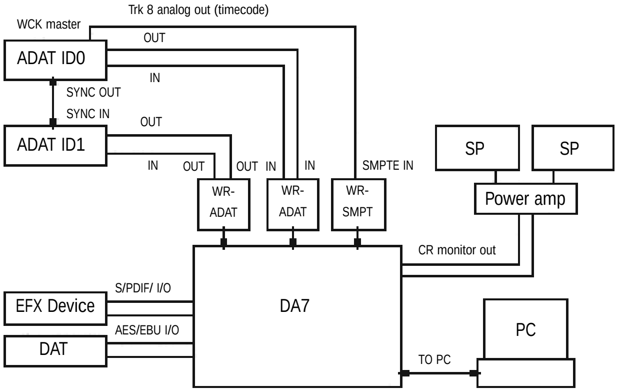
You can use the **ADAT** card with the ***DA7*** to connect an external ADAT recorder.

Connect the **ADAT** card to an ADAT recorder, with a pair of fiber cables, from the In and Out of the **ADAT** card to the Out and In of the ADAT recorder.

To send a signal to the ADAT recorder, the **[DIGITAL INPUT SELECT]** area of the **[D-I/O>INPUT SET]** window must be assigned to reflect the routing being used to feed the ADAT recorder. When the **ADAT** card is used in **SLOT 3**, it replaces analog inputs 9-16, and the **FLIP** buttons are illuminated *(orange)*. Go to the **[D-I/O>INPUT SET]** window and toggle the path of the **SLOT 3** card to the inputs of **Channels 9-16**.

ADAT + *DA7*

Use this diagram when setting up the ***DA7*** with an ADAT recorder. This will provide the ***DA7*** with a connection to 16 tracks of digital recording. To verify that the setup is properly connected, go to the **[D-I/O>INPUT SET]** window. On the lower left, where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.


Trk 8 analog out (timecode)
WCK master
OUT
ADAT ID0
IN
SYNC OUT
SYNC IN
OUT
ADAT ID1
IN
OUT
OUT
IN
IN
SMPTE IN
SP
SP
Power amp
WR-ADAT
WR-ADAT
WR-SMPT
CR monitor out
S/PDIF/ I/O
EFX Device
DA7
AES/EBU I/O
DAT
PC
TO PC

ADAT + DA7 GRAPHIC

Connections

With the power to the ***DA7*** off, insert two optional ADAT cards into **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the ***DA7*** so they are properly grounded. Each ADAT machine is connected to an option card via two optical cables, one In and one Out. The 8-track ADAT signal in **SLOT 1** is assigned to inputs 17-24, and the 8-track ADAT signal in **SLOT 2** is assigned to inputs 25-32.

The output sources into the ADAT can be selected from the **[D-I/O>SLOT OUT]** window.

Refer to **Chapter 12, D-I/O** for additional information.

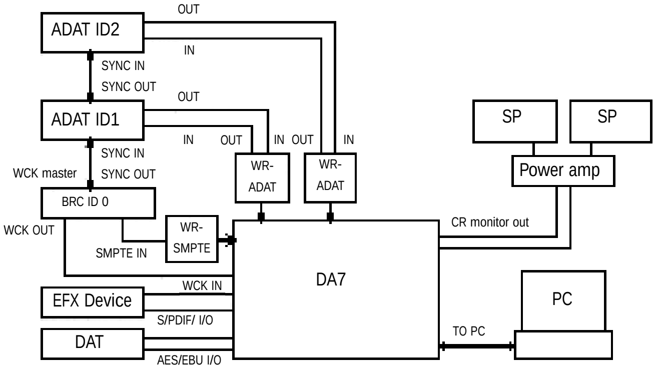
Wordclock Setup

The Word Clock master is the ADAT connected to **SLOT 1,** and the ID setting must be set to zero. From the **[D-I/O>INPUT SET]** window scroll to **SLOT 1** and select it as the Word Clock master source. This will tell the ***DA7*** that the device in **SLOT 1** is the Word Clock master.

ADAT + BRC + *DA7*

This diagram shows how to connected an ADAT and a BRC Clock master to the ***DA7***.

To verify that the setup is properly connected, go to the **[D-I/O>INPUT SET]** window. On the lower left, where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.


OUT
ADAT ID2
IN
SYNC IN
SYNC OUT
OUT
ADAT ID1
IN
OUT
IN
OUT
IN
SYNC IN
SYNC OUT
WCK master
WR-ADAT
WR-ADAT
SP
SP
Power amp
BRC ID 0
WCK OUT
WR-SMPTE
SMPTE IN
CR monitor out
DA7
WCK IN
EFX Device
S/PDIF/ I/O
DAT
AES/EBU I/O
PC
TO PC

ADAT + BRC + DAT GRAPHIC

Connections

Insert two optional ADAT cards into **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the ***DA7*** so they are properly grounded. Each ADAT machine is connected to an option card via two optical cables, one In and one Out. The 8-track ADAT signal in **SLOT 1** is assigned to inputs 17-24, and the 8-track ADAT signal in **SLOT 2** is assigned to inputs 25-32.

The output sources into the ADAT can be selected from the **[D-I/O>SLOT OUT]** window.

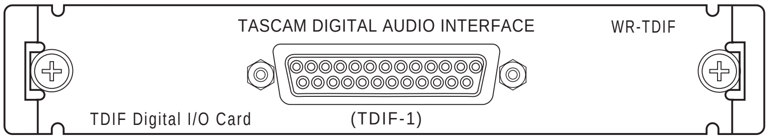
Refer to **Chapter 12, D-I/O** for additional information.

Wordclock Setup

The Word Clock master for this example is an Alesis BRC and the ID setting must be set to zero. Both ADATs and the ***DA7*** operate as slaves to the BRC. The wordclock signal from the "WC OUT" of the BRC connects to the **WORD CLOCK IN** of the ***DA7*** Rear Panel. Set the terminate switch on the ***DA7*** to on.

The ***DA7*** clock must be set from the **[D-I/O>INPUT SET]** window by selecting **[WCK IN]**.

17-2 ***TDIF (TASCAM Digital Audio Interface) Card, WR-TDIF***

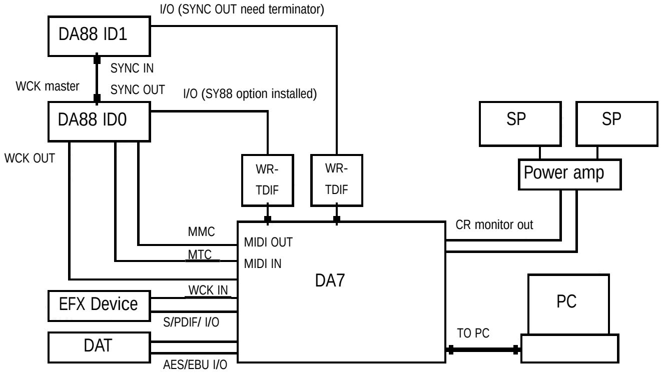

TASCAM DIGITAL AUDIO INTERFACE
WR-TDIF
TDIF Digital I/O Card
(TDIF-1)

TDIF Digital I/O Card

Use the **TDIF** card with the ***DA7*** to connect an external digital tape recorder, such as the TASCAM DA-88.

DA88 + *DA7*

This diagram will help you set up a pair of DA88 DTRs with the ***DA7*** using one of the DA88s as the Word Clock master.


I/O (SYNC OUT need terminator)
DA88 ID1
SYNC IN
WCK master
SYNC OUT
I/O (SY88 option installed)
DA88 ID0
WCK OUT
SP
SP
Power amp
WR-TDIF
WR-TDIF
MMC
MTC
MIDI OUT
MIDI IN
DA7
CR monitor out
WCK IN
EFX Device
S/PDIF/ I/O
DAT
AES/EBU I/O
PC
TO PC

DA88 + DA7 GRAPHIC

You will need to follow these instructions carefully, otherwise your system may not function properly.

Connections

With the power to the ***DA7*** off, insert a TDIF option card into both **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the ***DA7*** so they are properly grounded. The DA88 8-track signal from **SLOT 1** is assigned to inputs 17-24. The DA88 8-track signal from the **SLOT 2** card is assigned to inputs 25-32.

The output sources into the DA88 can be selected from the **[D-I/O>SLOT OUT]** window.

Refer to **Chapter 12, D-I/O** for additional information.

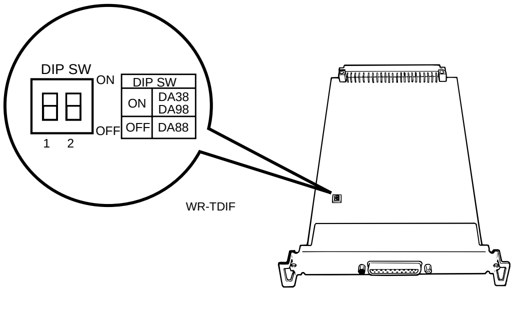
To verify that the setup is properly connected, go to the **[D-I/O>INPUT SET]** window. On the lower left, where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.

Wordclock Setup

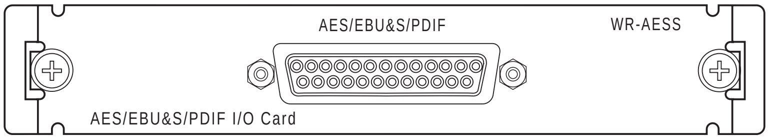
The Word Clock master in this setup is the DA88 that is attached to **SLOT 1** of the ***DA7***. The other DA88 and the ***DA7*** operate as slave units. Set up the master DA88 as ID zero, and set the ***DA7*** to be the slave device. Select and activate the **[WCK IN]** button in the **[D-I/O INPUT SET]** window (see **Chapter 12**). The wordclock signal from the "WORD SYNC OUT" of the SY88 (which is an option card for the DA88) goes to the **WORD CLOCK IN** of the ***DA7*** Rear Panel. Set the termination switch on the ***DA7*** to On.

When using the TASCAM DA88 setup, the **TDIF** card has a pair of dip switches physically mounted on it. From the factory both switches are set to Off. This setting permits operation between the ***DA7*** and the DA88. If you use either a DA38 or DA98, switch 1 must be set to On for proper operation.

Switch 2 has no specific function and should not be changed from its Off status. Changing it could create communication protocol problems and conflicts, and should be avoided.

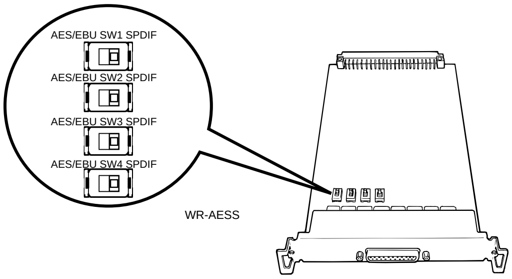


17-3 **AES/EBU & S/PDIF** Card, WR-AESS



AES/EBU & S/PDIF I/O Card

AES/EBU (Audio Engineering Society/European Broadcasting Union) is a digital audio interface standard used in most modern professional equipment. S/PDIF (Sony/Phillips Digital InterFace) is the standard interface used by many consumer-level components. This option card has four toggle switches, located on the card itself, to choose the output signal, either the **AES/EBU** (RS-422/110 Ω) or **S/PDIF** (0.5 V[p-p]/75Ω). The status information contained in the output signals is always "professional" regardless of the switch position.

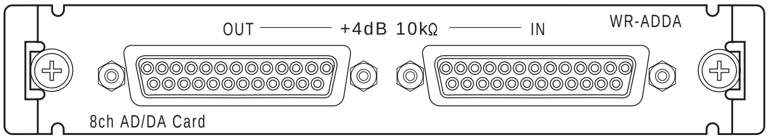


This **AES/EBU & S/PDIF** card can be used as an interface between digital equipment and the ***DA7***. If you need to send audio signals to an external recorder, use a breakout cable with a connector which connects to the **AES/EBU & S/PDIF** card and eight male XLR connectors which make up the other end, or the tail. When doing this, make sure the four toggle switches on the option card are set to **AES/EBU**.

The **[D-I/O>TO SLOT]** window shows which card is connected to what **SLOT**, and allows you to program the ***DA7*** to output up to eight different sources to the external recorder. Simultaneously, by using female XLR connectors (or turnarounds on the male XLR connectors) from the external device, the eight tracks of the recorder can be routed back as inputs to the ***DA7***.

If attempting to connect a consumer level recorder to the ***DA7***, the same procedure will work, but the breakout cable should have RCA connectors on the tail. When connecting with the RCA plugs, be sure to set the four switches on the option card to **S/PDIF**. See **Chapter 12, D-I/O**, and **Chapter 2, DA7 Tour** for additional information on connecting and using the three option card slots on the Rear Panel of the ***DA7***. Cable information is shown in **Appendix E, Cables and Connections.**

17-4 **AD/DA** Card, WR-ADDA



AD/DA Card

The **AD/DA** card is an analog-to-digital/digital-to-analog converter. Use this card to input an external analog device to the ***DA7***. Since the ***DA7*** only has 16 analog inputs accessible from the Rear Panel, using the **AD/DA** card in the D-I/O slots permits routing additional sources into **Channel INPUTS 17-25** and **26-32**.

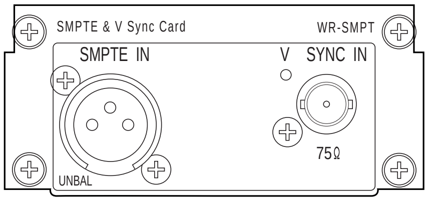
The **AD/DA** card has two DB-25 connectors, one for input signals and one for output signals. There are several possible scenarios for connecting external devices with the **AD/DA** card.

The **[D-I/O>TO SLOT]** window shows which card is connected to what **SLOT**, and allows you to program the ***DA7*** to output up to eight different sources to the external recorder. Conversely, eight channels of the external device can be routed back as inputs to the ***DA7***.

See **Chapter 12, D-I/O**, and **Chapter 2, DA7 Tour** for information on where D-I/O input signals from the slot cards come into the ***DA7***.

If you are using a small external mixer, say for a drum submix, those eight channels could come back into the ***DA7*** through a breakout cable. Or, the output from the **AD/DA** card can be used to send eight discrete signals to an analog recorder. See **Appendix E, Cables and Connections** for additional information.

17-5 **SMPTE** *Card, WR-SMPT*



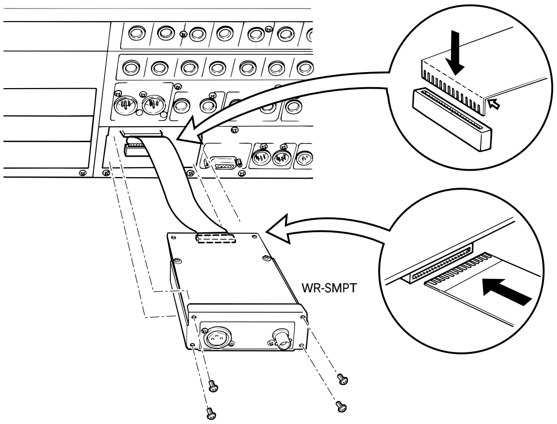
SMPTE & V Sync Card

The **SMPTE** (Society of Motion Picture and Television Engineers) & **V Sync** (Vertical Sync) option card lets external time code, usually from a video source, control the ***DA7***'s Automation functions. When using the ***DA7*** in a video post-production environment, the video master device will slave the ***DA7*** to its time code, which can be preset in the **[AUTOMATION>EXECUTE]** and **[AUTOMATION>SETUP]** windows.

The SMPTE connection is made to the ***DA7*** with a male XLR plug, while the V Sync signal connects to the Rear Panel with a BNC connector. The XLR is an UNBALANCED connection. When sending a balanced signal to the card, pins 1 & 3 of the incoming male XLR should be tied together. This is a -10 dB input.

The SMPTE time code that the ***DA7*** accepts is longitudinal, or LTC. Although often generated by a video deck, SMPTE time code can be generated by a number of devices, non-video in nature. The V Sync signal allows the ***DA7*** to synchronize to an incoming composite video signal by reading the video sync pulse.

when using timecode for AUTOMATION during TANDEM operations, 2 **WR-SMPT** cards must be used, one in each ***DA7***.

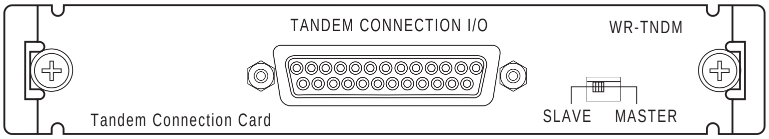


Connections

Please take the following steps to install the SMPTE/V SYNC card. See illustration above.

1. Loosen the 4 screws, and then remove the blank panel of the SMPTE/V SYNC slot.
2. Bend one end of the accessory cable of the WR-SMPT card, so that the conductive surface becomes exposed as in the illustration.
3. Connect the bent end of the cable, as shown, to the ***DA7.***
4. Connect the other end of the cable to the WR-SMPT, so that the conductive surface is in the up position, as shown.
5. After making sure that the conductive surface of the accessory cable is facing up, insert the card carefully and fasten the 4 removed screws.

17-6 ***TANDEM*** *Card, WR-TNDM*

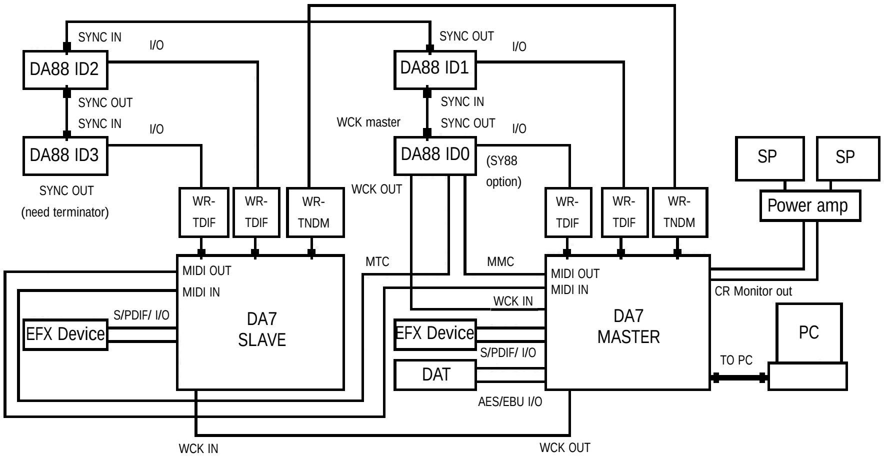

TANDEM CONNECTION I/O
WR-TNDM
Tandem Connection Card
SLAVE
MASTER

TANDEM Connection Card

The **TANDEM** card is for use only with **SLOT 3** on the Rear Panel of the ***DA7***. **SLOT 3** has the options of **[NORMAL]**, **[INS]**, or **[TANDEM]** mode. When the TANDEM button is selected, the **SLOT 3** column of the **[D-I/O>TO SLOT]** window changes to recognize which option card is in the slot. When you assign **[TANDEM]** on or off, a data field in the window will confirm connection. Another data field is used to program an **[OFFSET DELAY]** value to the slave ***DA7***.

TANDEM Connection

This diagram shows how to connect two ***DA7s*** with four DA88s, with a DA88 operating as the Master Clock source.


SYNC IN
I/O
DA88 ID2
SYNC OUT
SYNC IN
I/O
DA88 ID3
SYNC OUT
(need terminator)
SYNC OUT
I/O
DA88 ID1
SYNC IN
SYNC OUT
I/O
WCK master
DA88 ID0
(SY88 option)
WCK OUT
SP
SP
Power amp
WR-TDIF
WR-TDIF
WR-TNDM
WR-TDIF
WR-TDIF
WR-TNDM
MIDI OUT
MIDI IN
DA7 SLAVE
MTC
MMC
MIDI OUT
MIDI IN
DA7 MASTER
CR Monitor out
WCK IN
S/PDIF/ I/O
EFX Device
EFX Device
S/PDIF/ I/O
DAT
AES/EBU I/O
PC
TO PC
WCK IN
WCK OUT

TANDEM CONNECTION GRAPHIC

Connections

Insert a TDIF option card into both **SLOT 1** and **SLOT 2**. Carefully screw these cards into their respective slots in the ***DA7*** so they are properly grounded. The DA88 8-track signal from **SLOT 1** is assigned to inputs 17-24. The DA88 8-track signal from the **SLOT 2** card is assigned to inputs 25-32.

Insert a **TANDEM** connection card into **SLOT 3** of each of the ***DA7s***. Connect using the customized table in the **[D-I/O>TO SLOT]** window by selecting **TANDEM** from the **SLOT 3** column. Connect a serial cable between the two option cards. On the Master ***DA7***, the **MASTER/SLAVE** switch on the **TANDEM** Connection I/O card should be set to **MASTER**, and on the Slave ***DA7*** set to **SLAVE**. For details on the serial cable see **Appendix E, Cables and Connections**.

To know if the setup is properly connected, go to the **[D-I/O>INPUT SET]** window. On the lower left where **SLOT 1**, **SLOT 2**, and **SLOT 3** are indicated, the crosshatching will go away when a proper connection has been made.

The output sources into the DA88 can be selected from the **[D-I/O>TO SLOT]** window.

Refer to **Chapter 12, D-I/O** for additional information.

Connect between the two ***DA7s*** and the Word Clock master DA88 (ID 0) using the **MIDI IN** and **OUT** ports on the Rear Panels of the ***DA7s***.

Wordclock Setup

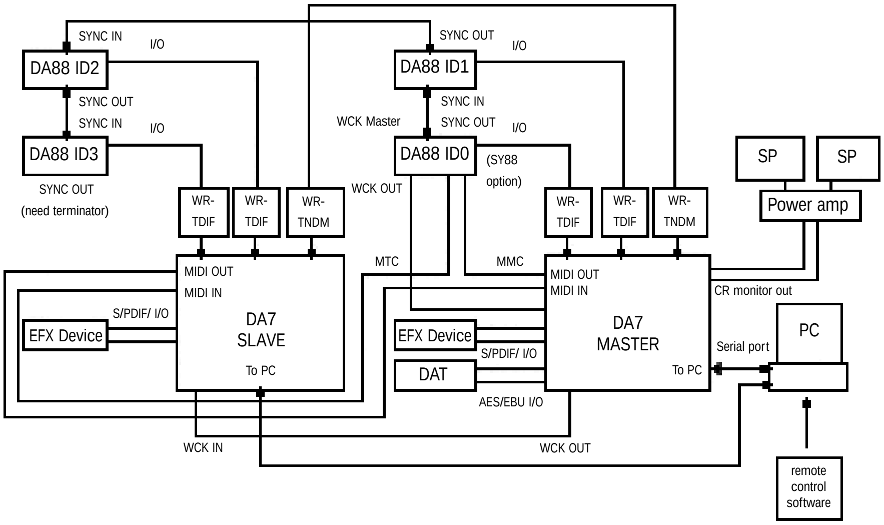
The Word Clock master is one of the DA88s and the ID must be set to zero. All other devices in the chain are slaved to that clock master. Use the wordclock signal from the “WORD SYNC OUT” of the SY88 option card on the DA88, and connect it to the **WORD CLOCK IN** of the Master ***DA7*** Rear Panel. Set the terminate switch of the master ***DA7*** to Off.

Connect the wordclock signal from the **WORD CLOCK OUT** of the Master ***DA7*** Rear Panel to the **WORD CLOCK IN** of the Slave ***DA7*** Rear Panel, and set the terminate switch of the Slave ***DA7*** to on.

The Master and Slave ***DA7’s*** clock must be selected from the **[D-I/O>INPUT SET]** window by selecting the WCK IN button.

TANDEM Connection + Remote Control Software (future development)

This diagram depicts the **TANDEM** Connection setup using an external computer.


SYNC IN
I/O
DA88 ID2
SYNC OUT
SYNC IN
I/O
DA88 ID3
SYNC OUT
(need terminator)
SYNC OUT
I/O
DA88 ID1
SYNC IN
SYNC OUT
I/O
WCK Master
DA88 ID0
(SY88
option)
WCK OUT
WR-
TDIF
WR-
TDIF
WR-
TNDM
WR-
TDIF
WR-
TDIF
WR-
TNDM
SP
SP
Power amp
MTC
MMC
MIDI OUT
MIDI IN
DA7
SLAVE
To PC
S/PDIF/ I/O
EFX Device
MIDI OUT
MIDI IN
DA7
MASTER
To PC
EFX Device
S/PDIF/ I/O
DAT
AES/EBU I/O
CR monitor out
Serial port
PC
WCK IN
WCK OUT
remote
control
software

TANDEM CONNECTION + REMOTE SOFTWARE GRAPHIC

Connections

Follow the steps for setup as outlined in the TANDEM Connection diagram.

Connect between the **TO PC** ports of the two ***DA7s*** and the serial ports of the PC as illustrated. If the computer is an IBM compatible, you may need a conversion cable that changes a Mini-DIN 8 pin (for **TO PC**) to a D-sub 9 pin(for RS-232C), available at your nearest dealer. Connect between the ***DA7*** master and the ***DA7*** slave with MIDI cables by using **MIDI IN** and **MIDI OUT** ports as shown above.

The ***DA7s*** and the PC will communicate control signals and data between each other through this bus connection. The connection baud rate can be set up to 125kbps from the **[MIDI>SETUP]** window **[PORT SELECT]** area.

Wordclock Setup

The wordclock setup for this configuration is the same as the TANDEM Connection configuration.

The differences in operation from a single ***DA7*** are:

❶ On the **TopPanel** of the slave ***DA7***, the buttons and the faders in the following channel strips are inoperative except the **FLIP** buttons. These channels are **AUX SEND 1-6**, **BUS 1-8** and **MASTER LR**.
On the LCD screen of the slave ***DA7***, the windows of **CHANNEL, CHANNEL LIBRARY, EQ, EQ LIBRARY, DYNAMICS** and **DYNAMICS LIBRARY** of these channels are not displayed.

❷ **MONITOR** and **TALKBACK** do not function to the slave ***DA7***.

❸ For **SOLO** operation, the slave ***DA7*** only allows you to select channels by pressing **SOLO** buttons. The **POSITION, MODE, MUTE** and **SOLO LEVEL** are controlled by the master ***DA7***.

❹ The **OSCILLATOR** function on the slave ***DA7*** will not operate.

❺ The **[TALK BACK SW LOCK], [RMT SW POLARITY REV]** and the **[10 KEY SCENE RECALL]** in the **[UTILITY>CONFIG]** window do not function on the slave ***DA7***.

❻ For **AUTOMATION**, only a few operations are available on the slave ***DA7***. These are **MANUAL SELECT** in the **[AUTOMATION >SETUP]** window, all operation in the **[AUTOMATION >EVT EDIT]** window, **START SCENE** in the **[AUTOMATION >EXECUTE]** window. The **EDIT PARAMETER** is also operable except when selecting the **SCENE** button in the **[AUTOMATION >EXECUTE]** window.

❼ The Dither control for the **[REC OUT]** and **[AUX SEND 1/2]** area of the **[D-I/O>DITHER]** window cannot be operated from the slave ***DA7***.

❽ Selecting a (meter) **POSITION** is inoperative in the **[METER>BUS /AUX]** window of the slave ***DA7***.

❾ The **METER BRIDGE** of the slave ***DA7*** does not show **MONITOR A** levels.

❿ The Read and Write functions of the **[SCENE MEMORY>RD/WT]** window cannot be controlled from the slave ***DA7***.

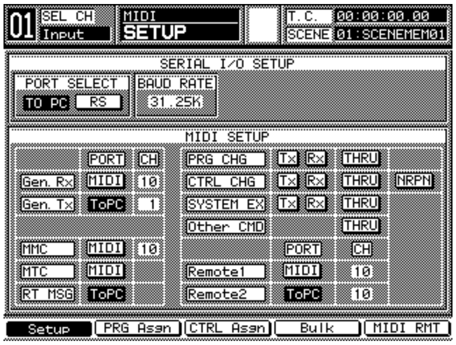
The **[PROTECT CHANNEL SELECT]** and **[XFADE CHANNEL SELECT]** areas on the slave mixer allow control of the INPUT Channels and **AUX Return**. The **AUX Send, BUS** and **MASTER L/R** cannot be controlled by the slave. SEL ALL and CLR ALL can only be controlled from the master ***DA7***.

The **[FADE TIME]** area of the **[SCENE MEMORY>XFADE TIME]** window can be controlled from both the slave and master ***DA7***.

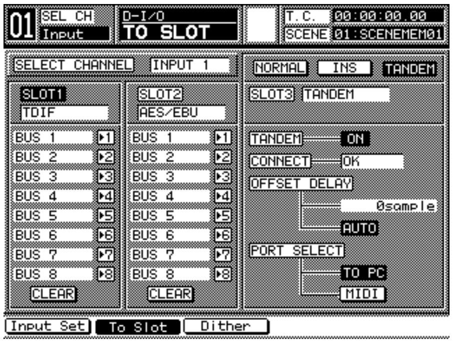
⑪ The buttons of **[ON], [SELECT], [SOLO]** and **[FADER]** that are placed in the **INPUT 1-16, 17-32** and the **AUX Return** channels can be operated from the **TopPanel** of both the slave and master ***DA7***. For the output channels of **AUX Send**, **BUS** and the **MASTER L/R**, these buttons and faders are inoperative from the **TopPanel** of the slave ***DA7***.

TANDEM connection settings

Settings are required in the **[MIDI>SETUP]** window and the **[D-I/O>TO SLOT]** window for both the master and the slave ***DA7***


01 SEL CH Input
MIDI SETUP
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
SERIAL I/O SETUP
PORT SELECT
TO PC
RS
BAUD RATE
31.25K
MIDI SETUP
PORT
CH
Gen. Rx
MIDI
10
Gen. Tx
ToPC
1
MMC
MIDI
10
MTC
MIDI
RT MSG
ToPC
PRG CHG
CTRL CHG
SYSTEM EX
Other CMD
Tx
Rx
THRU
NRPN
Remote1
MIDI
10
Remote2
ToPC
10
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

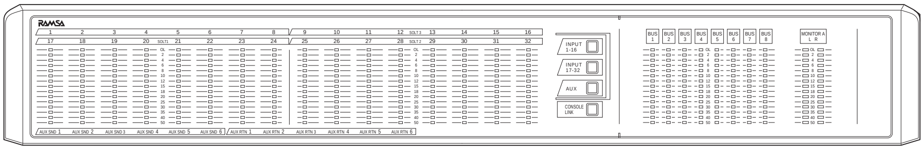
MIDI Setup Window


01 SEL CH Input
D-I/O TO SLOT
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
SELECT CHANNEL
INPUT 1
SLOT1
TDIF
SLOT2
AES/EBU
BUS 1
BUS 2
BUS 3
BUS 4
BUS 5
BUS 6
BUS 7
BUS 8
CLEAR
NORMAL
INS
TANDEM
SLOT3
TANDEM
TANDEM
ON
CONNECT
OK
OFFSET DELAY
0sample
AUTO
PORT SELECT
TO PC
MIDI
Input Set
To Slot
Dither

TO SLOT Window, Tandem Mode

1. Display the **[MIDI>SETUP]** window for both the master and the slave ***DA7***.
2. Select the **TO PC** button in the **PORT SELECT** area of the **[MIDI>SETUP]** window for both the master and the slave when using the **TO PC** port. For MIDI this selection is not required.
3. Set the same **BAUD RATE** in the **BAUD RATE** area for both the master and the slave when using the **TO PC** port. For MIDI this selection is not required. For ToPC operation, set **BAUD RATE** to 125 k.
4. Select the same MIDI channel for **Gen. Rx** and **Gen. Tx** in the **MIDI SETUP** area of the **[MIDI>SETUP]** window. Set the same channel for both the master and the slave.
5. Display the **TANDEM** mode of the **[D-I/O>TO SLOT]** window for both the master and the slave ***DA7***.
6. Set the **TANDEM** area to **ON** (inversed video) in the **SLOT 3** section.
7. Set the **OFFSET DELAY TIME** area to **AUTO**.
8. Select **TO PC** or **MIDI** in the **PORT SELECT** area.

17-7 METER BRIDGE


RAMSA
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
SOLT1
SOLT 2
SOLT 3
OL 2 4 6 8 10 12 15 18 20 25 30 35 40 50
AUX SND 1
AUX SND 2
AUX SND 3
AUX SND 4
AUX SND 5
AUX SND 6
AUX RTN 1
AUX RTN 2
AUX RTN 3
AUX RTN 4
AUX RTN 5
AUX RTN 6
INPUT 1-16
INPUT 17-32
AUX
CONSOLE LINK
BUS 1
BUS 2
BUS 3
BUS 4
BUS 5
BUS 6
BUS 7
BUS 8
MONITOR A L R

METER BRIDGE

The **METER BRIDGE** option for the ***DA7*** provides a visual representation of the **[METER]** input window. The **METER BRIDGE** will show the **16 Channel Meters (1-16** or **17-32)**, or **AUX SNDS 1-6** and **AUX RTNS 1-6**. The **BUS 1-8** and the **MONITOR A L/R** outputs are always displayed.

A **Fader Layer** selection LED pad is built into the **METER BRIDGE** and operates the same way as the **Fader Layer** section on the Top Panel of the ***DA7***. The **CONSOLE LINK** LED button when selected *(red)*, links the **METER BRIDGE** to follow the Top Panel **Fader Layer** selection.

See instructions packed with the METER BRIDGE for more information.

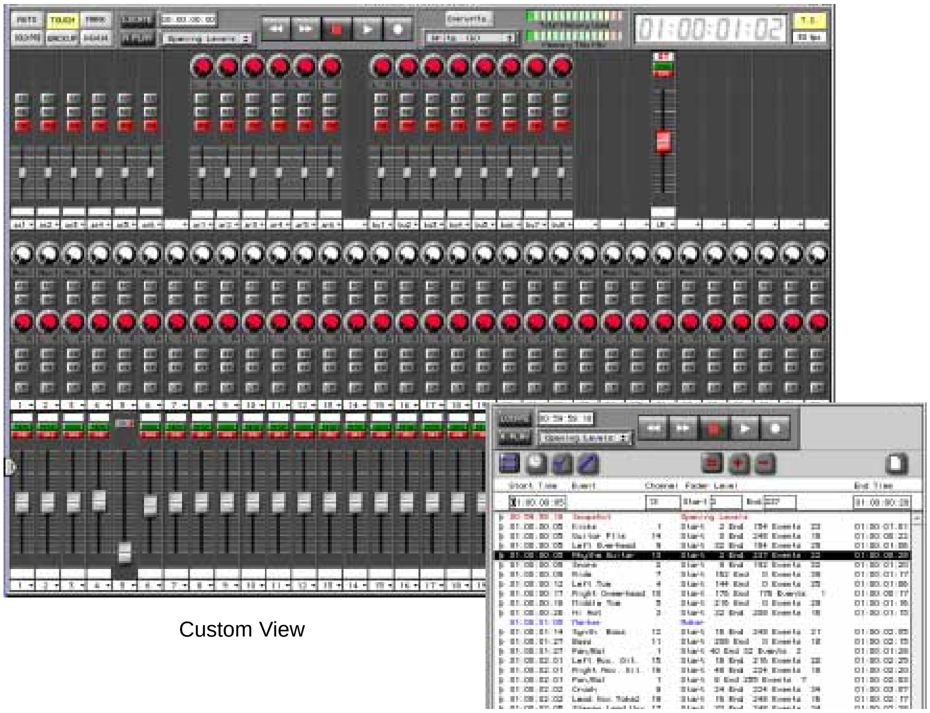
17-8 *MAX*, EXPANSION SOFTWARE

Expansion Software is a sophisticated software package engineered to automate your Panasonic WR-DA7 Digital Mixer in conjunction with a Macintosh or Windows computer.

Expansion Software provides time code-synchronized record and playback of all automatable mixer features, including automated moving faders, surround panning, channel on/offs, aux send levels, EQ, dynamics, and routing.

Even though the mixer already has automation, using Expansion Software gives you easier and more precise mix editing. Mixes can be longer and can be saved to disk. You can even connect two mixers to a single Macintosh creating a larger digital console treated as a single, integrated automation system.

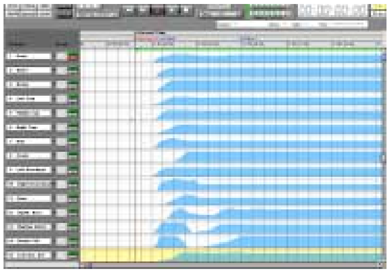
Expansion Software features multiple user-designable "Custom Views", a feature-packed Cue List, and easy to use Graphic Editing.



Custom View

Cue List

The Graphic Editing view displays the mix as curves on a time line. You can see multiple channels at the same time, and easily see what moves are coming up. You edit the mix by drawing fader curves.



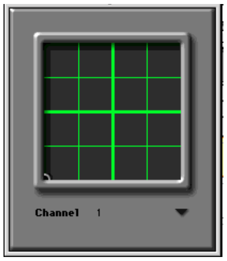
Graphic View

What's more, you can freely change the way you view the mix, with the Custom View, Cue List, or Graphic window, even while the mix is playing. And you can have multiple mixes open at the same time, allowing you to instantly compare two different mixes. You can even freely copy from one mix and paste into another mix!

A clear indication of channel names, edit modes, grouping, and channel on/off status, combined with a large, easy to read time code display, make mixing fast and easy.

Expansion Software also adds up to 15 groups to your mixer called "SoftGroups". Any fader on the mixer can be turned into a SoftGroup Master, in addition to the mixer's groups. When two mixer's are connected, faders on one mixer can be a group master to faders on the other mixer.

Your mixer faders become a virtual Control Surface, to control and automate signal processors and digital audio workstations.



Panning Module

Expansion Software provides a clear graphic display of automated Surround Panning positions. It also allows panning of either individual channels or the grouped multiple channels.

Mixes reside in the computer's "RAM". You can save the mixes to a disk, either manually or automatically using the Auto Backup feature.

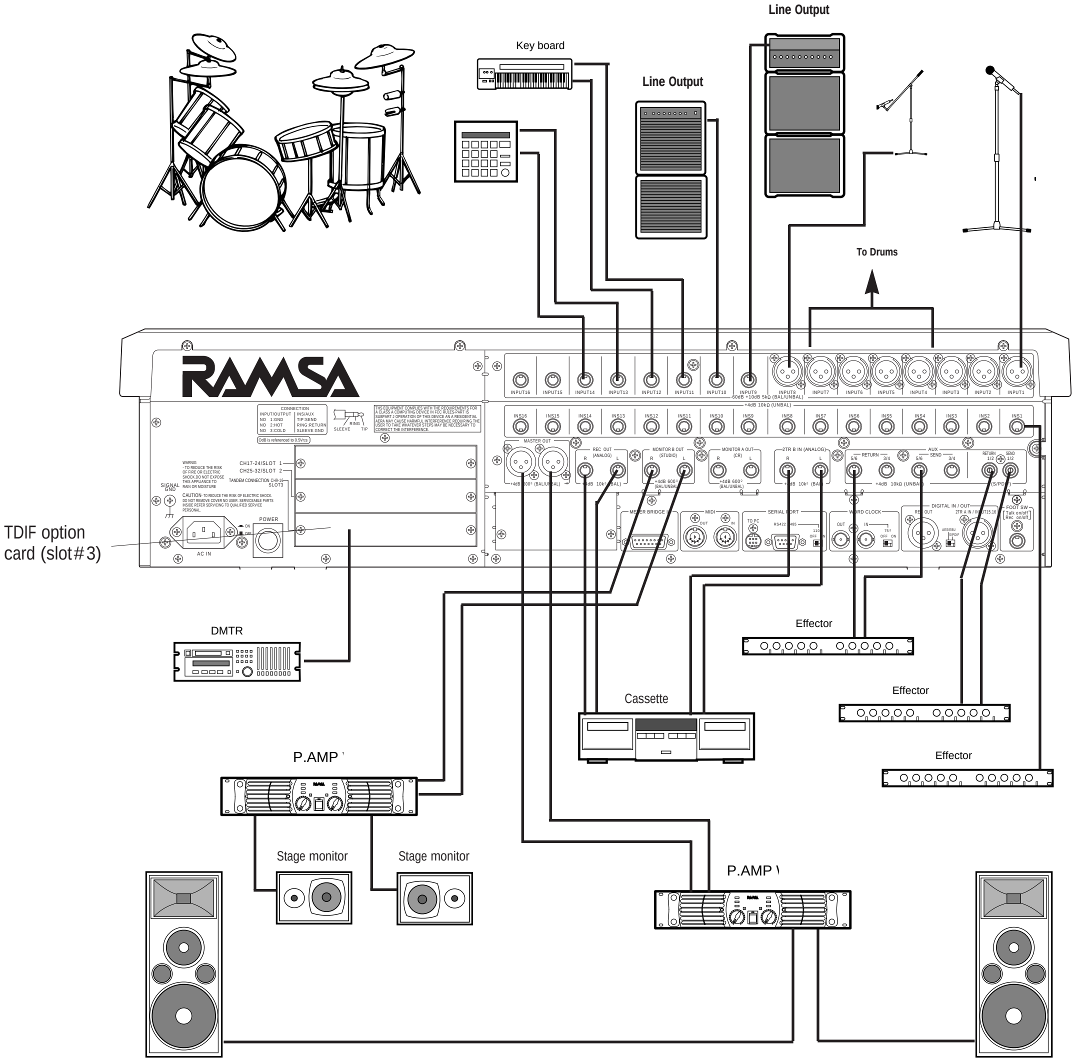
Expansion Software allows you to quickly create different mixes, listen to them, compare them, save them, retrieve and modify them.

Expansion Software also allows you to customize the software to your personal style of mixing. You can label each fader, re-arrange the order of the faders, turn certain features on and off, etc. This customization is saved as part of a Preference file. Multiple Preferences files are supported, so different engineers can each have their own preferences.

Appendix A
Setup Scenarios

The ***DA7*** is a versatile mixer that can be used in many different production and performance environments. Use these as guidelines for integrating the ***DA7*** into your own world.

The *DA7* in a Live Environment


Line Output
Key board
Line Output
To Drums
RAMSA
TDIF option card (slot#3)
DMTR
Effector
Cassette
Effector
Effector
P.AMP
Stage monitor
Stage monitor
P.AMP

AUDIO INPUT

• Microphones	**INPUTS 1-3** (only 1 shown)
• Drum microphones	**INPUTS 4-7**
• Guitar microphone	**INPUT 8**
• Guitar line	**INPUT 9**
• Bass guitar	**INPUT 10**
• Keyboards (analog)	**INPUTS 11-14**
• Digital multi-track recorder (DMTR)	**TDIF option card (slot #3)**
• Cassette player	**INPUTS 15,16**

AUDIO OUTPUT

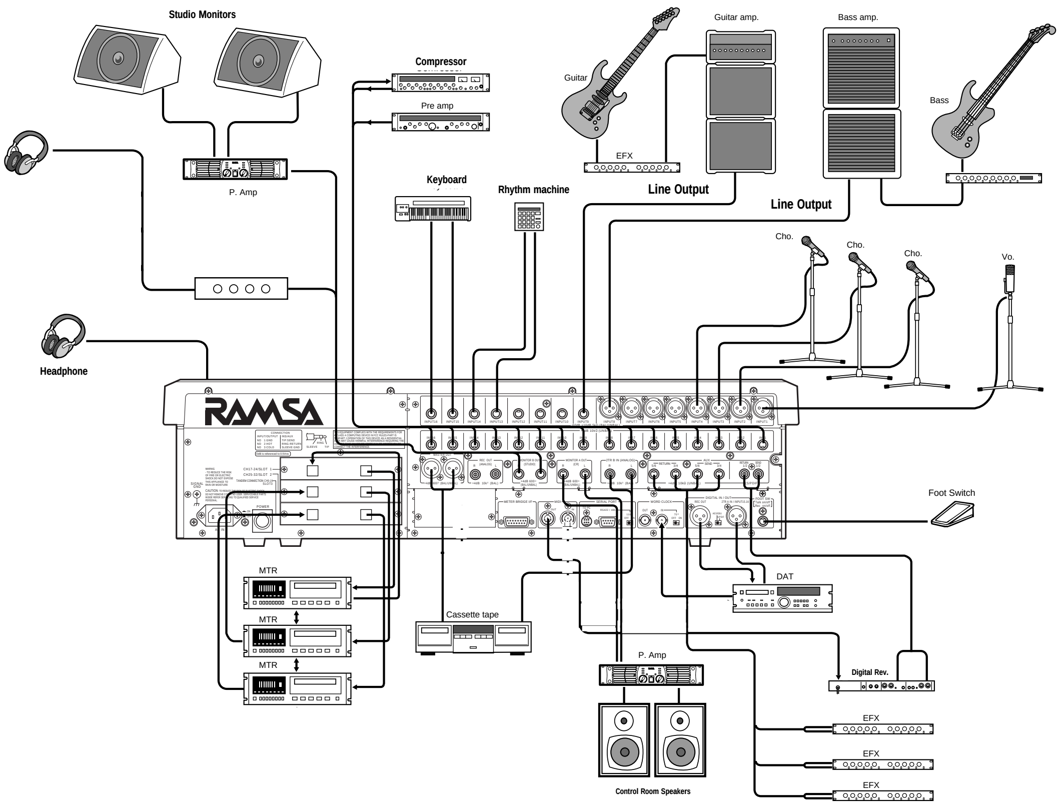
• PA system	**MASTER LR OUT**
• Stage monitors	**MONITOR B OUT**

AUXILIARY

• Digital effects processor	**AUX 1 S/PDIF SEND** and **RETURN**
• Effect processor (analog)	**SEND 3/4** and **RETURN 3/4**
• Effects insert (analog)	**CHANNEL 1 INS**
• Cassette tape recorder	**REC OUT** and **2TR B IN**

The ***DA7*** provides an incredible amount of flexibility in the studio environment. Multi-track recording is easily achieved with option cards and some basic understanding of the studio process. There are no black and white rules to follow. Let creativity be your guide.

The *DA7* in a Studio Environment


Studio Monitors
Compressor
Pre amp
Guitar
Guitar amp.
Bass amp.
Bass
EFX
P. Amp
Keyboard
Rhythm machine
Line Output
Line Output
Cho.
Cho.
Cho.
Vo.
Headphone
RAMSA
Foot Switch
MTR
MTR
MTR
Cassette tape
DAT
P. Amp
Digital Rev.
EFX
EFX
EFX
Control Room Speakers

AUDIO INPUT

- Microphones . . . . **INPUTS 1-4**
- Bass guitar . . . . **INPUT 8**
- Guitar . . . . **INPUT 9**
- Drum machine . . . . **INPUTS 13, 14**
- Keyboard . . . . **INPUTS 15, 16**

INSERT

- Compressor/pre-amp . . . . **INS 1-16**

AUXILIARY

- Digital reverb . . . . **AUX 1/2 SEND** and **RETURN**
- EFX (Analog) . . . . **AUX 3/4, 5/6 SEND** and **RETURN**
- Cassette tape recorder . . . . **REC OUT/2TR B IN**
- DAT . . . . **DIGITAL IN/OUT**
- 3 Multi-track recorders . . . . **ADAT option cards in SLOTS 1, 2,** and **3**

AUDIO OUTPUT

- Control room monitors . . . . **MONITOR A OUT**
- Studio monitors/headphones . . . . **MONITOR B OUT**
- Control room headphones . . . . . . **HEADPHONE OUTPUT**

Appendix B
LCD Screen Displays

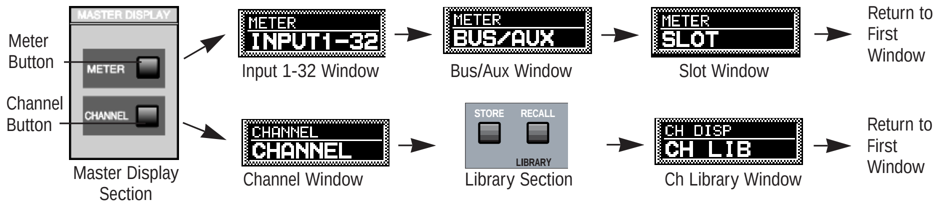
This appendix is designed to provide a ready-reference of the windows displayed on the LCD screen.

Pages B-2 and B-3 reflect the window titles for the window groups and the Top Panel selection method of displaying the windows.

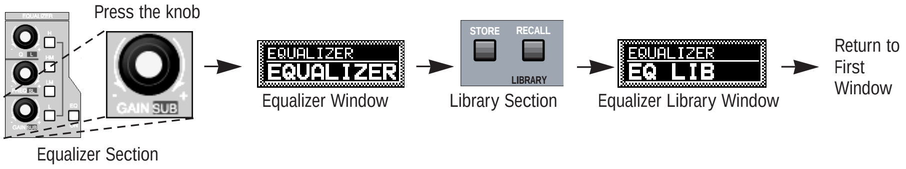
The remaining pages in this appendix reflect the windows for the window groups.

Refer to this appendix whenever you are unsure of how to access a particular window or window group.

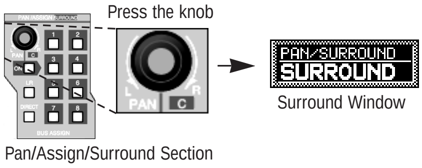
MASTER DISPLAY SECTION


MASTER DISPLAY
Meter Button
METER
Channel Button
CHANNEL
Master Display Section
METER
INPUT1-32
Input 1-32 Window
METER
BUS/AUX
Bus/Aux Window
METER
SLOT
Slot Window
Return to First Window
CHANNEL
CHANNEL
Channel Window
STORE
RECALL
LIBRARY
Library Section
CH DISP
CH LIB
Ch Library Window
Return to First Window

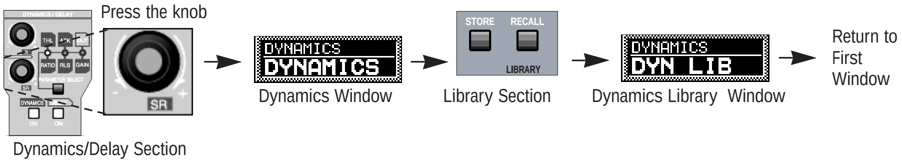
EQUALIZER SECTION


Press the knob
GAIN SUB
Equalizer Section
EQUALIZER
EQUALIZER
Equalizer Window
STORE
RECALL
LIBRARY
Library Section
EQUALIZER
EQ LIB
Equalizer Library Window
Return to First Window

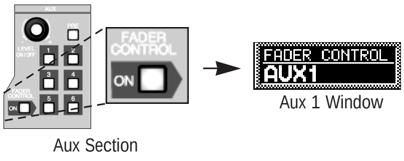
PAN/ASSIGN/SURROUND SECTION


Press the knob
PAN
C
L
R
Pan/Assign/Surround Section
PAN/SURROUND
SURROUND
Surround Window

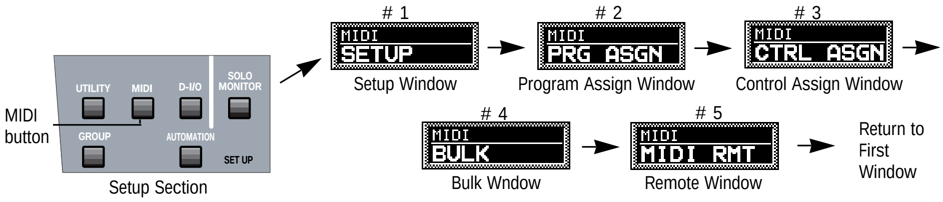
DYNAMICS/DELAY SECTION


Press the knob
SR
Dynamics/Delay Section
DYNAMICS
DYNAMICS
Dynamics Window
STORE
RECALL
LIBRARY
Library Section
DYNAMICS
DYN LIB
Dynamics Library Window
Return to First Window

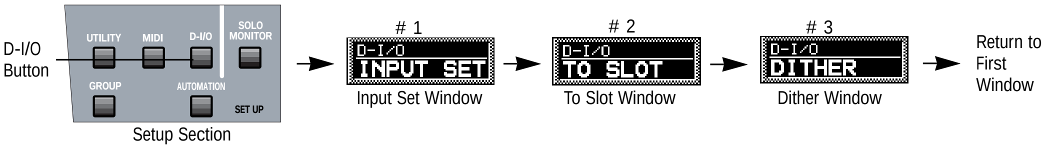
AUX SECTION


FADER CONTROL
ON
Aux Section
FADER CONTROL
AUX1
Aux 1 Window

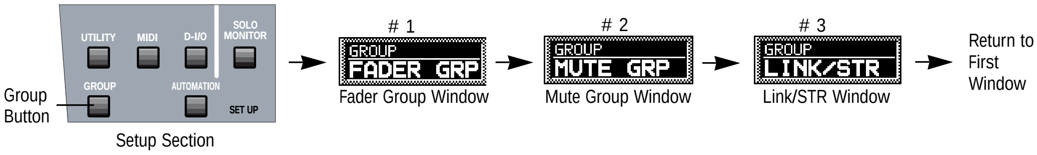
MIDI, SETUP SECTION


MIDI button
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Setup Section
# 1
MIDI
SETUP
Setup Window
# 2
MIDI
PRG ASGN
Program Assign Window
# 3
MIDI
CTRL ASGN
Control Assign Window
# 4
MIDI
BULK
Bulk Wndow
# 5
MIDI
MIDI RMT
Remote Window
Return to First Window

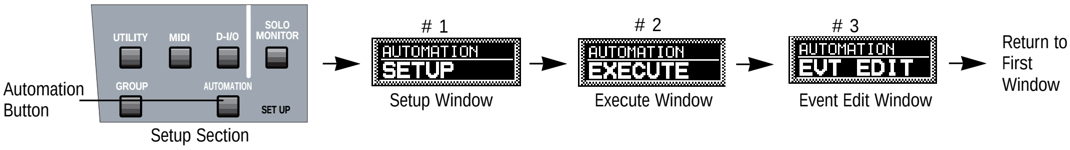
D-I/O, SETUP SECTION


D-I/O Button
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Setup Section
# 1
D-I/O
INPUT SET
Input Set Window
# 2
D-I/O
TO SLOT
To Slot Window
# 3
D-I/O
DITHER
Dither Window
Return to First Window

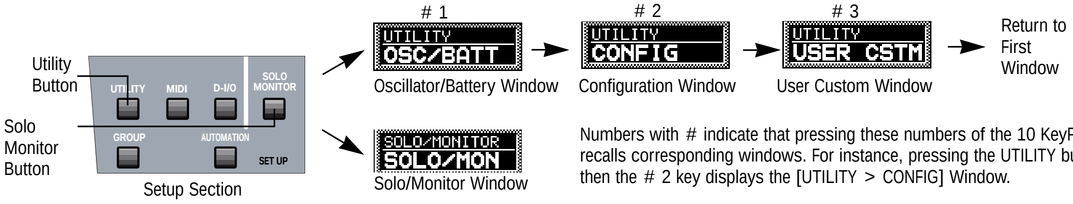
GROUP, SETUP SECTION


Group Button
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Setup Section
# 1
GROUP
FADER GRP
Fader Group Window
# 2
GROUP
MUTE GRP
Mute Group Window
# 3
GROUP
LINK/STR
Link/STR Window
Return to First Window

AUTOMATION, SETUP SECTION

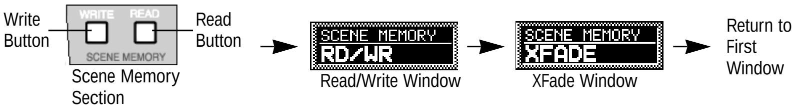

Automation Button
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Setup Section
# 1
AUTOMATION
SETUP
Setup Window
# 2
AUTOMATION
EXECUTE
Execute Window
# 3
AUTOMATION
EVT EDIT
Event Edit Window
Return to First Window

UTILITY/ SOLO MONITOR, SETUP SECTION

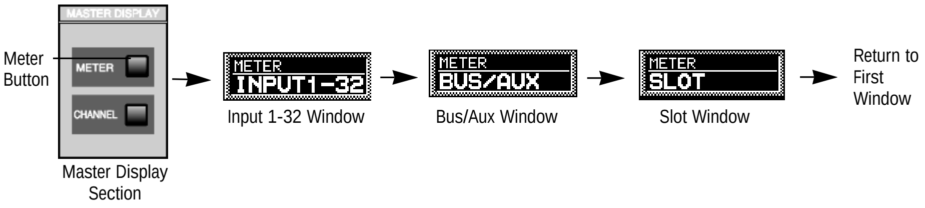

Utility Button
Solo Monitor Button
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Setup Section
# 1
UTILITY
OSC/BATT
Oscillator/Battery Window
# 2
UTILITY
CONFIG
Configuration Window
# 3
UTILITY
USER CSTM
User Custom Window
Return to First Window
SOLO/MONITOR
SOLO/MON
Solo/Monitor Window

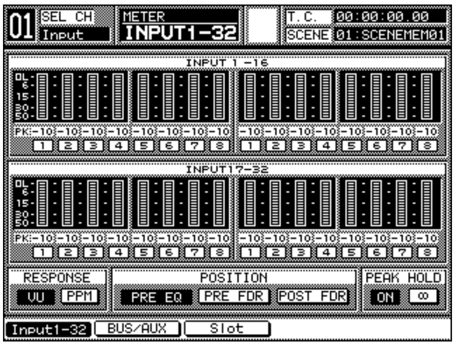
Numbers with # indicate that pressing these numbers of the 10 KeyPad recalls corresponding windows. For instance, pressing the UTILITY button then the # 2 key displays the [UTILITY > CONFIG] Window.

SCENE MEMORY SECTION

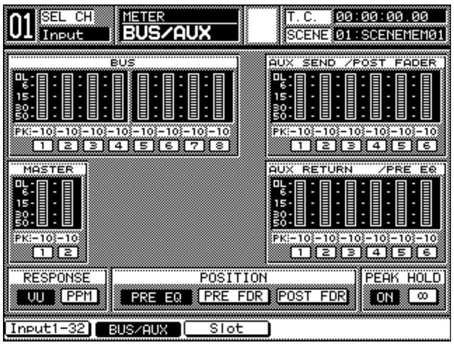

Write Button
WRITE
READ
SCENE MEMORY
Read Button
Scene Memory Section
SCENE MEMORY
RD/WR
Read/Write Window
SCENE MEMORY
XFADE
XFade Window
Return to First Window

METER, MASTER DISPLAY SECTION

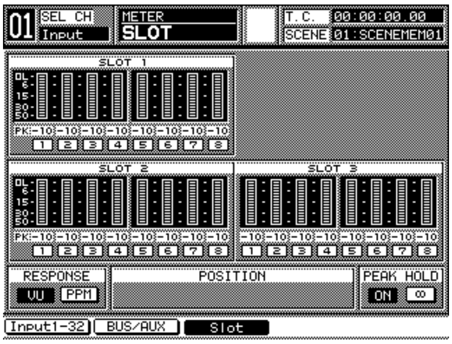

Meter Button
MASTER DISPLAY
METER
CHANNEL
Master Display Section
METER INPUT1-32
Input 1-32 Window
METER BUS/AUX
Bus/Aux Window
METER SLOT
Slot Window
Return to First Window


01 SEL CH Input
METER INPUT1-32
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
INPUT 1 -16
INPUT17-32
RESPONSE VU PPM
POSITION PRE EQ PRE FDR POST FDR
PEAK HOLD ON ∞
Input1-32 BUS/AUX Slot

Input 1-32 Window

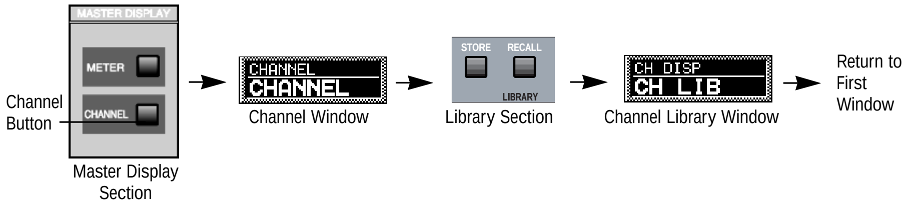

01 SEL CH Input
METER BUS/AUX
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
BUS
AUX SEND /POST FADER
MASTER
AUX RETURN /PRE EQ
RESPONSE VU PPM
POSITION PRE EQ PRE FDR POST FDR
PEAK HOLD ON ∞
Input1-32 BUS/AUX Slot

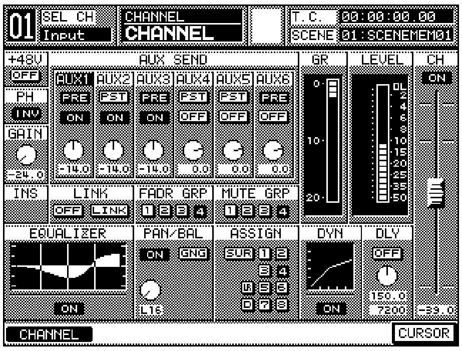
Bus/Aux Window


01 SEL CH Input
METER SLOT
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
SLOT 1
SLOT 2
SLOT 3
RESPONSE VU PPM
POSITION
PEAK HOLD ON ∞
Input1-32 BUS/AUX Slot

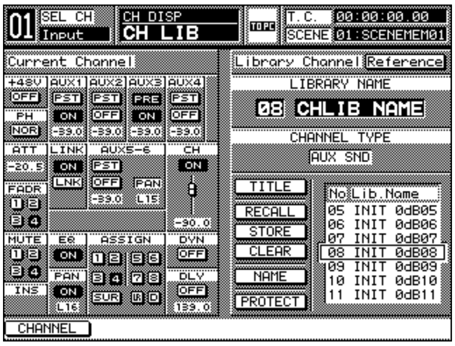
Slot Window

CHANNEL, MASTER DISPLAY SECTION

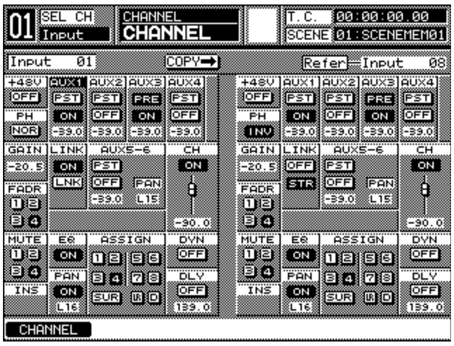

MASTER DISPLAY
METER
CHANNEL
Channel Button
Master Display Section
CHANNEL
CHANNEL
Channel Window
STORE
RECALL
LIBRARY
Library Section
CH DISP
CH LIB
Channel Library Window
Return to First Window


01 SEL CH Input
CHANNEL
CHANNEL
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
+48V OFF
PH INV
GAIN
AUX SEND
AUX1 AUX2 AUX3 AUX4 AUX5 AUX6
GR
LEVEL
CH ON
INS
LINK
FADR GRP
MUTE GRP
EQUALIZER
PAN/BAL
ASSIGN
DYN
DLY
CHANNEL
CURSOR

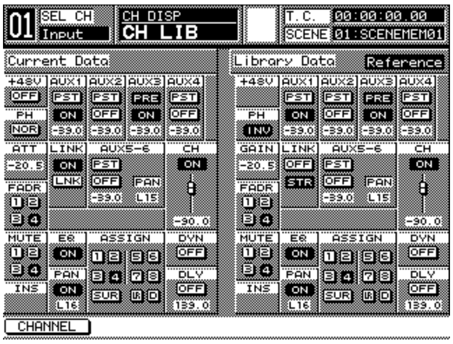
Channel Window


01 SEL CH Input
CH DISP
CH LIB
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Current Channel
Library Channel
Reference
LIBRARY NAME
08 CHLIB NAME
CHANNEL TYPE
AUX SND
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 INIT 0dB05
06 INIT 0dB06
07 INIT 0dB07
08 INIT 0dB08
09 INIT 0dB09
10 INIT 0dB10
11 INIT 0dB11
CHANNEL

Channel Library Window

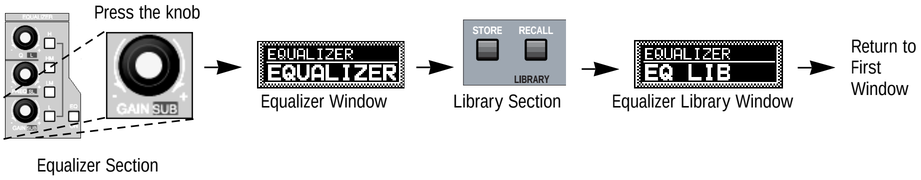

01 SEL CH Input
CHANNEL
CHANNEL
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Input 01
COPY
Refer
Input 08
CHANNEL

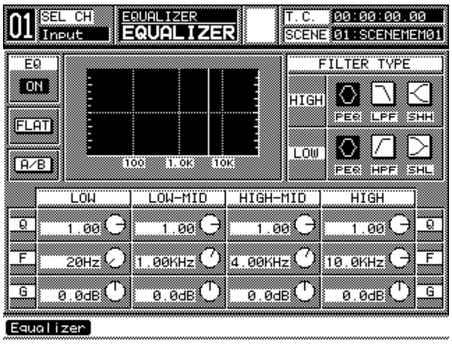
Channel Window, Multi Channel View

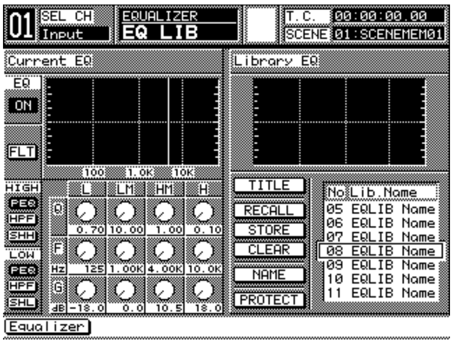

01 SEL CH Input
CH DISP
CH LIB
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Current Data
Library Data
Reference
CHANNEL

Channel Library Window, Multi Channel View

EQUALIZER SECTION

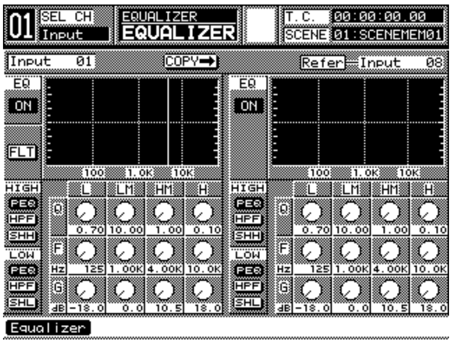

Press the knob
GAIN SUB
EQUALIZER
EQUALIZER
Equalizer Window
STORE
RECALL
LIBRARY
Library Section
EQUALIZER
EQ LIB
Equalizer Library Window
Return to First Window
Equalizer Section


01
SEL CH
Input
EQUALIZER
EQUALIZER
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
EQ
ON
FLAT
A/B
100
1.0K
10K
FILTER TYPE
HIGH
PEQ
LPF
SHH
LOW
PEQ
HPF
SHL
LOW
LOW-MID
HIGH-MID
HIGH
Q
1.00
1.00
1.00
1.00
F
20Hz
1.00KHz
4.00KHz
10.0KHz
G
0.0dB
0.0dB
0.0dB
0.0dB
Equalizer


01
SEL CH
Input
EQUALIZER
EQ LIB
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Current EQ
Library EQ
EQ
ON
FLT
100
1.0K
10K
HIGH
PEQ
HPF
SHH
LOW
PEQ
HPF
SHL
L
LM
HM
H
Q
0.70
10.00
1.00
0.10
F
Hz
125
1.00K
4.00K
10.0K
G
dB
-18.0
0.0
10.5
18.0
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 EQLIB Name
06 EQLIB Name
07 EQLIB Name
08 EQLIB Name
09 EQLIB Name
10 EQLIB Name
11 EQLIB Name
Equalizer

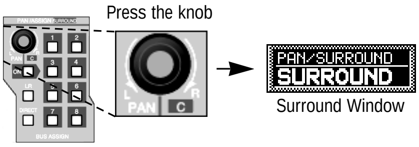
Equalizer Window

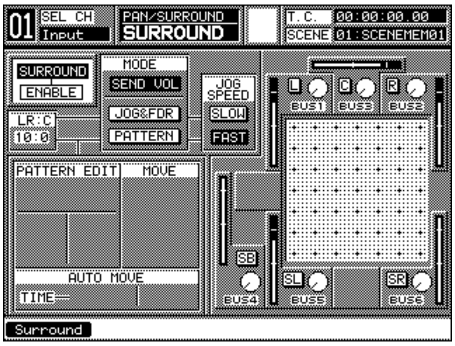
Equalizer Library Window


01
SEL CH
Input
EQUALIZER
EQUALIZER
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Input 01
COPY
Refer
Input 08
EQ
ON
FLT
100
1.0K
10K
HIGH
PEQ
HPF
SHH
LOW
PEQ
HPF
SHL
L
LM
HM
H
Q
0.70
10.00
1.00
0.10
F
Hz
125
1.00K
4.00K
10.0K
G
dB
-18.0
0.0
10.5
18.0
Equalizer

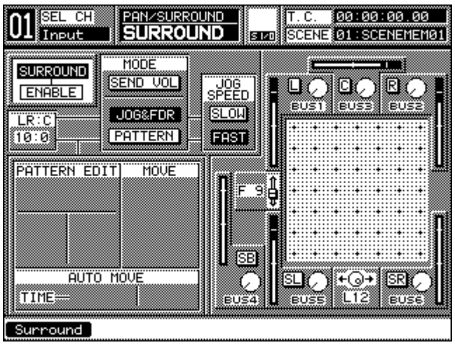
Equalizer Window, Multi-Channel View

PAN/ASSIGN/SURROUND SECTION

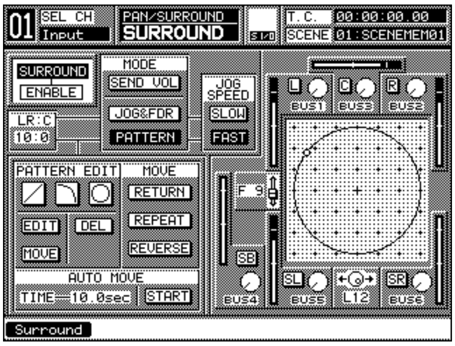

Press the knob
PAN
C
L
R
PAN/SURROUND
SURROUND
Surround Window
Pan/Assign/Surround Section


01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
SURROUND
ENABLE
MODE
SEND VOL
JOG&FDR
PATTERN
JOG SPEED
SLOW
FAST
LR:C
10:0
L
C
R
BUS1
BUS3
BUS2
PATTERN EDIT
MOVE
AUTO MOVE
TIME
SB
BUS4
SL
BUS5
SR
BUS6
Surround

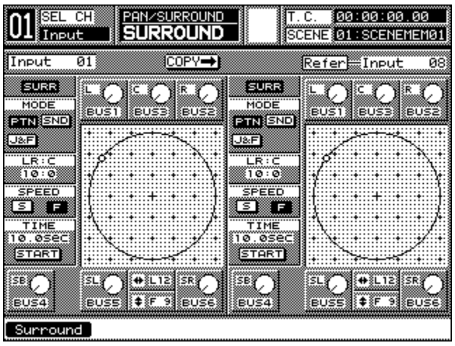
Surround Window (Send Vol)


01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
SURROUND
ENABLE
MODE
SEND VOL
JOG&FDR
PATTERN
JOG SPEED
SLOW
FAST
LR:C
10:0
L
C
R
BUS1
BUS3
BUS2
PATTERN EDIT
MOVE
F 9
AUTO MOVE
TIME
SB
BUS4
SL
BUS5
L12
SR
BUS6
Surround

Surround Window (Jog & Fader)

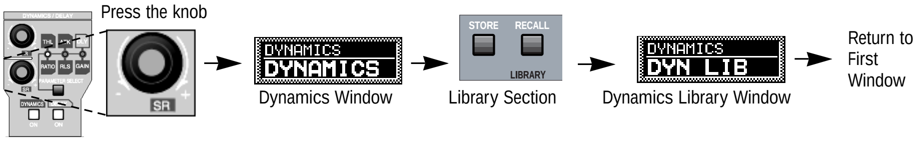

01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
SURROUND
ENABLE
MODE
SEND VOL
JOG&FDR
PATTERN
JOG SPEED
SLOW
FAST
LR:C
10:0
L
C
R
BUS1
BUS3
BUS2
PATTERN EDIT
MOVE
RETURN
REPEAT
REVERSE
EDIT
DEL
MOVE
F 9
AUTO MOVE
TIME
10.0sec
START
SB
BUS4
SL
BUS5
L12
SR
BUS6
Surround

Surround Window (Pattern)

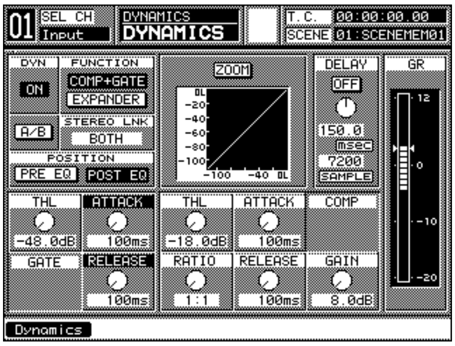

01
SEL CH
Input
PAN/SURROUND
SURROUND
T.C.
00:00:00.00
SCENE
01:SCENEMEM01
Input 01
COPY
Refer
Input 08
SURR
MODE
PTN
SND
J&F
LR:C
10:0
SPEED
S
F
TIME
10.0sec
START
L
C
R
BUS1
BUS3
BUS2
SB
BUS4
SL
BUS5
L12
F 9
SR
BUS6
Surround

Surround Window, Multi-Channel View

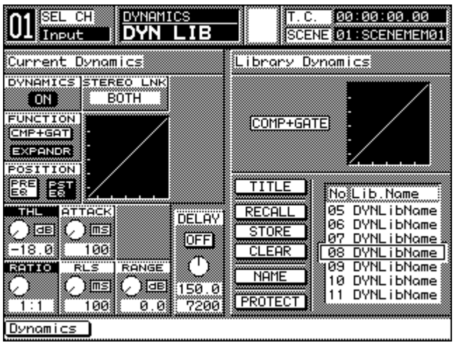
DYNAMICS/DELAY SECTION


Press the knob
SR
DYNAMICS
DYNAMICS
Dynamics Window
STORE
RECALL
LIBRARY
Library Section
DYNAMICS
DYN LIB
Dynamics Library Window
Return to First Window

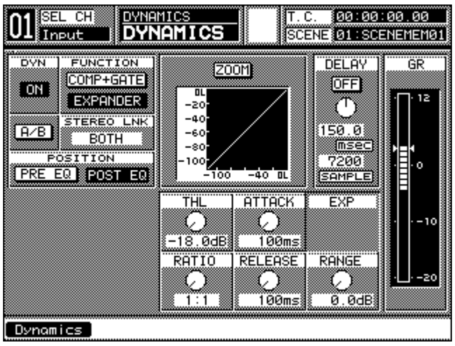
Dynamics/Delay Section


01 SEL CH Input
DYNAMICS
DYNAMICS
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
DYN ON
FUNCTION COMP+GATE EXPANDER
A/B
STEREO LNK BOTH
POSITION PRE EQ POST EQ
ZOOM
DELAY OFF 150.0 msec 7200 SAMPLE
GR 12 0 -10 -20
THL -48.0dB
ATTACK 100ms
GATE
RELEASE 100ms
THL -18.0dB
ATTACK 100ms
COMP
RATIO 1:1
RELEASE 100ms
GAIN 8.0dB
Dynamics

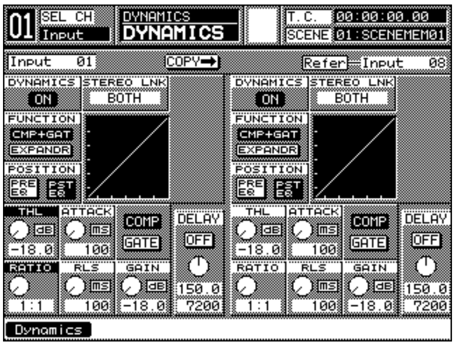
Dynamics Window(COMP＋GATE)


01 SEL CH Input
DYNAMICS
DYN LIB
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Current Dynamics
DYNAMICS ON
STEREO LNK BOTH
FUNCTION CMP+GAT EXPANDR
POSITION PRE EQ PST EQ
THL -18.0
ATTACK 100
RATIO 1:1
RLS 100
RANGE 0.0
DELAY OFF 150.0 7200
Library Dynamics
COMP+GATE
TITLE
RECALL
STORE
CLEAR
NAME
PROTECT
No Lib.Name
05 DYNLibName
06 DYNLibName
07 DYNLibName
08 DYNLibName
09 DYNLibName
10 DYNLibName
11 DYNLibName
Dynamics

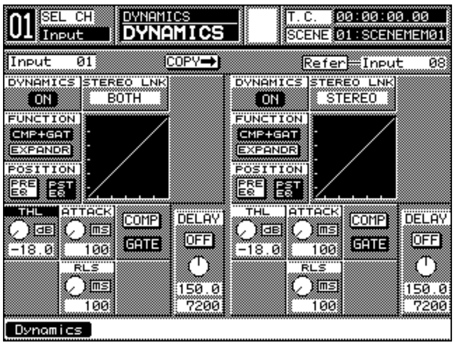
Dynamics Library Window


01 SEL CH Input
DYNAMICS
DYNAMICS
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
DYN ON
FUNCTION COMP+GATE EXPANDER
A/B
STEREO LNK BOTH
POSITION PRE EQ POST EQ
ZOOM
DELAY OFF 150.0 msec 7200 SAMPLE
GR 12 0 -10 -20
THL -18.0dB
ATTACK 100ms
EXP
RATIO 1:1
RELEASE 100ms
RANGE 0.0dB
Dynamics

Dynamics Window(EXPANDER)

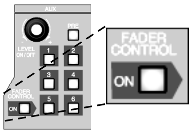

01 SEL CH Input
DYNAMICS
DYNAMICS
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Input 01
COPY
Refer Input 08
DYNAMICS ON
STEREO LNK BOTH
FUNCTION CMP+GAT EXPANDR
POSITION PRE EQ PST EQ
THL -18.0
ATTACK 100
COMP GATE
DELAY OFF 150.0 7200
RATIO 1:1
RLS 100
GAIN -18.0
Dynamics

Dynamics Window, Multi-Channel View(COMP)


01 SEL CH Input
DYNAMICS
DYNAMICS
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
Input 01
COPY
Refer Input 08
DYNAMICS ON
STEREO LNK BOTH
STEREO
FUNCTION CMP+GAT EXPANDR
POSITION PRE EQ PST EQ
THL -18.0
ATTACK 100
COMP GATE
DELAY OFF 150.0 7200
RLS 100
Dynamics

Dynamics Window, Multi-Channel View(GATE)

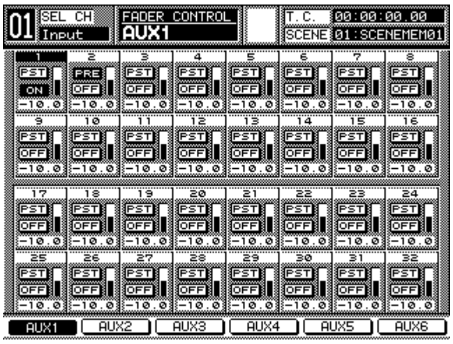
AUX SECTION


AUX
LEVEL
ON / OFF
1
2
3
4
5
6
FADER CONTROL
ON

Aux Section

FADER CONTROL
AUX1

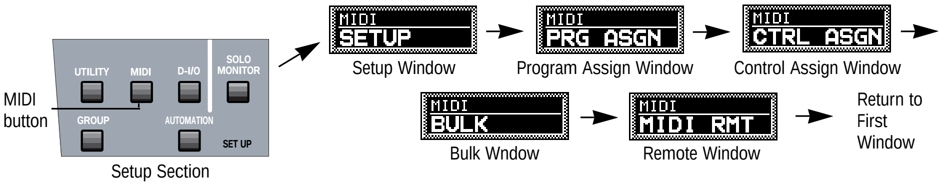
Aux 1 Window

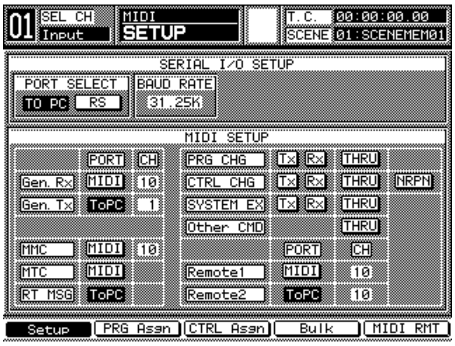

01
SEL CH
Input
FADER CONTROL
AUX1
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
1 PST ON -10.0
2 PRE OFF -10.0
3–32 PST OFF -10.0
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6

Aux 1 Window

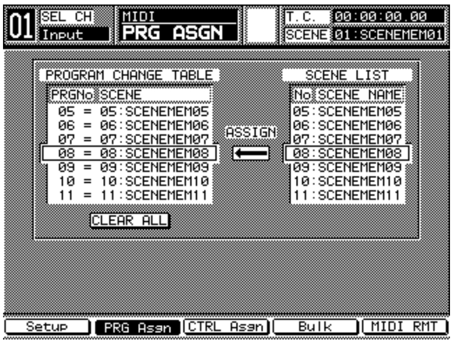
When the **FADER CONTROL ON** LED button is on *(green)*, press the respective **AUX1-6** LED buttons to view other **AUX** windows.

MIDI, SETUP SECTION

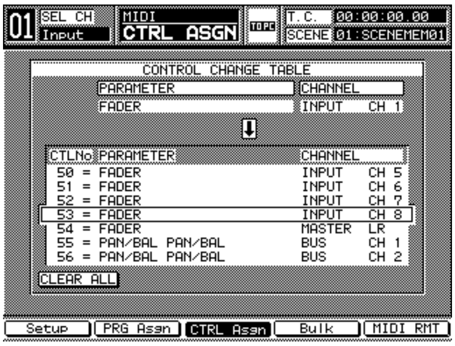

UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
MIDI button
Setup Section
MIDI SETUP
Setup Window
MIDI PRG ASGN
Program Assign Window
MIDI CTRL ASGN
Control Assign Window
MIDI BULK
Bulk Wndow
MIDI MIDI RMT
Remote Window
Return to First Window


01 SEL CH Input
MIDI SETUP
T. C. 00:00:00.00
SCENE 01:SCENEMEM01
SERIAL I/O SETUP
PORT SELECT
TO PC
RS
BAUD RATE
31.25K
MIDI SETUP
PORT
CH
Gen. Rx
MIDI
10
Gen. Tx
ToPC
1
PRG CHG
CTRL CHG
SYSTEM EX
Other CMD
Tx
Rx
THRU
NRPN
MMC
MTC
RT MSG
Remote1
Remote2
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

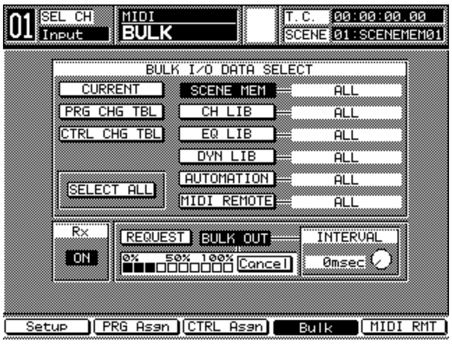
MIDI Setup Window


01 SEL CH Input
MIDI PRG ASGN
T. C. 00:00:00.00
SCENE 01:SCENEMEM01
PROGRAM CHANGE TABLE
PRGNo SCENE
05 = 05:SCENEMEM05
06 = 06:SCENEMEM06
07 = 07:SCENEMEM07
08 = 08:SCENEMEM08
09 = 09:SCENEMEM09
10 = 10:SCENEMEM10
11 = 11:SCENEMEM11
ASSIGN
SCENE LIST
No SCENE NAME
05:SCENEMEM05
06:SCENEMEM06
07:SCENEMEM07
08:SCENEMEM08
09:SCENEMEM09
10:SCENEMEM10
11:SCENEMEM11
CLEAR ALL
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

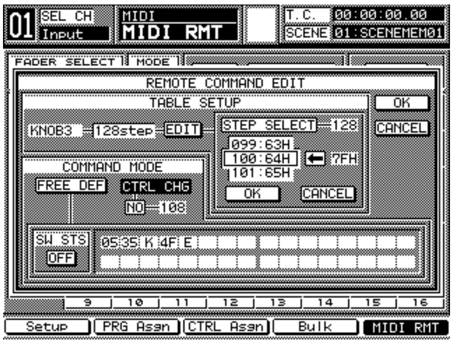
Program Assign Window


01 SEL CH Input
MIDI CTRL ASGN
TO PC
T. C. 00:00:00.00
SCENE 01:SCENEMEM01
CONTROL CHANGE TABLE
PARAMETER
CHANNEL
FADER
INPUT CH 1
CTLNo PARAMETER
50 = FADER INPUT CH 5
51 = FADER INPUT CH 6
52 = FADER INPUT CH 7
53 = FADER INPUT CH 8
54 = FADER MASTER LR
55 = PAN/BAL PAN/BAL BUS CH 1
56 = PAN/BAL PAN/BAL BUS CH 2
CLEAR ALL
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

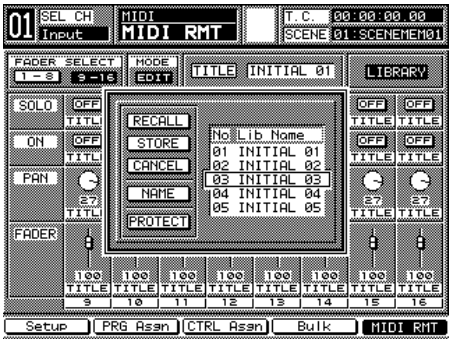
Control Assign Window


01 SEL CH Input
MIDI BULK
T. C. 00:00:00.00
SCENE 01:SCENEMEM01
BULK I/O DATA SELECT
CURRENT
PRG CHG TBL
CTRL CHG TBL
SELECT ALL
SCENE MEM
CH LIB
EQ LIB
DYN LIB
AUTOMATION
MIDI REMOTE
ALL
Rx
ON
REQUEST
BULK OUT
0% 50% 100%
Cancel
INTERVAL
0msec
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

Bulk Window

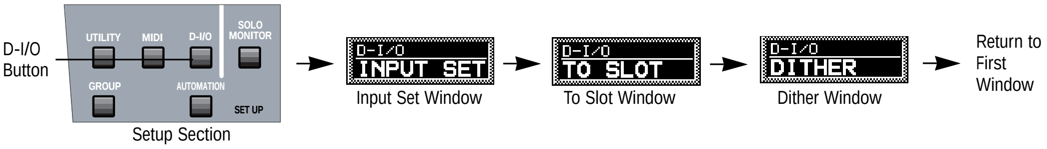

01 SEL CH Input
MIDI MIDI RMT
T. C. 00:00:00.00
SCENE 01:SCENEMEM01
FADER SELECT
MODE
REMOTE COMMAND EDIT
TABLE SETUP
OK
CANCEL
KNOB3
128step
EDIT
STEP SELECT
128
099:63H
100:64H
101:65H
7FH
COMMAND MODE
FREE DEF
CTRL CHG
NO
108
SW STS
OFF
05 35 K 4F E
9 10 11 12 13 14 15 16
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

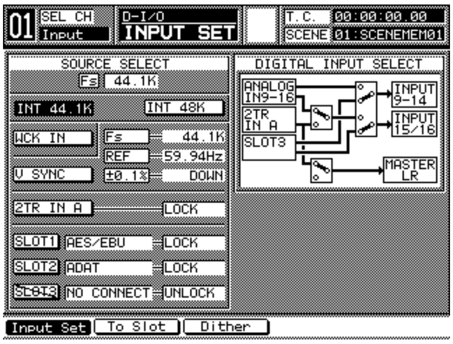
MIDI Remote Window (EDIT)


01 SEL CH Input
MIDI MIDI RMT
T. C. 00:00:00.00
SCENE 01:SCENEMEM01
FADER SELECT
1-8
9-16
MODE
EDIT
TITLE
INITIAL 01
LIBRARY
SOLO
ON
PAN
FADER
OFF
TITLE
RECALL
STORE
CANCEL
NAME
PROTECT
No Lib Name
01 INITIAL 01
02 INITIAL 02
03 INITIAL 03
04 INITIAL 04
05 INITIAL 05
27
100
9 10 11 12 13 14 15 16
Setup
PRG Asgn
CTRL Asgn
Bulk
MIDI RMT

MIDI Remote Window (Library)

D-I/O, SETUP SECTION



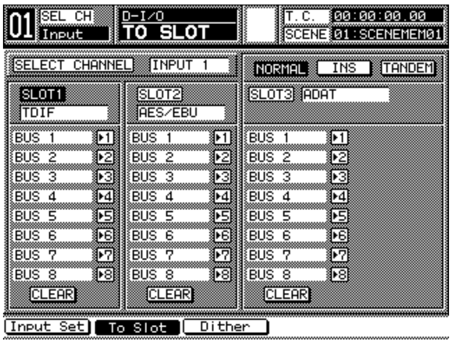

01 SEL CH Input | D-I/O INPUT SET | T.C. 00:00:00.00 | SCENE 01:SCENEMEM01

SOURCE SELECT
Fs 44.1K
INT 44.1K | INT 48K
WCK IN | Fs 44.1K | REF 59.94Hz
V SYNC | ±0.1% DOWN
2TR IN A LOCK
SLOT1 AES/EBU LOCK
SLOT2 ADAT LOCK
SLOT3 NO CONNECT UNLOCK

DIGITAL INPUT SELECT
ANALOG IN9-16 | 2TR IN A | SLOT3 | INPUT 9-14 | INPUT 15/16 | MASTER LR

Input Set | To Slot | Dither

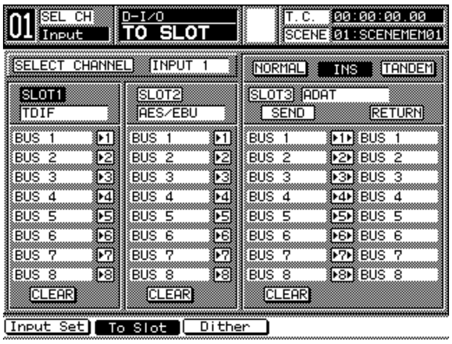
Input Set Window


01 SEL CH Input | D-I/O TO SLOT | T.C. 00:00:00.00 | SCENE 01:SCENEMEM01

SELECT CHANNEL INPUT 1
NORMAL | INS | TANDEM
SLOT1 TDIF: BUS 1 ▶1, BUS 2 ▶2, BUS 3 ▶3, BUS 4 ▶4, BUS 5 ▶5, BUS 6 ▶6, BUS 7 ▶7, BUS 8 ▶8, CLEAR
SLOT2 AES/EBU: BUS 1 ▶1, BUS 2 ▶2, BUS 3 ▶3, BUS 4 ▶4, BUS 5 ▶5, BUS 6 ▶6, BUS 7 ▶7, BUS 8 ▶8, CLEAR
SLOT3 ADAT: BUS 1 ▶1, BUS 2 ▶2, BUS 3 ▶3, BUS 4 ▶4, BUS 5 ▶5, BUS 6 ▶6, BUS 7 ▶7, BUS 8 ▶8, CLEAR

Input Set | To Slot | Dither

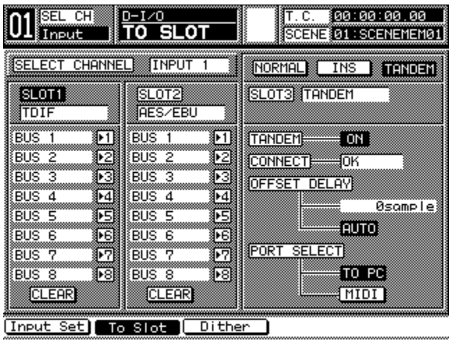
To Slot Window, Normal Mode


01 SEL CH Input | D-I/O TO SLOT | T.C. 00:00:00.00 | SCENE 01:SCENEMEM01

SELECT CHANNEL INPUT 1
NORMAL | INS | TANDEM
SLOT1 TDIF: BUS 1 ▶1, BUS 2 ▶2, BUS 3 ▶3, BUS 4 ▶4, BUS 5 ▶5, BUS 6 ▶6, BUS 7 ▶7, BUS 8 ▶8, CLEAR
SLOT2 AES/EBU: BUS 1 ▶1, BUS 2 ▶2, BUS 3 ▶3, BUS 4 ▶4, BUS 5 ▶5, BUS 6 ▶6, BUS 7 ▶7, BUS 8 ▶8, CLEAR
SLOT3 ADAT SEND / RETURN: BUS 1 ▶1◀ BUS 1, BUS 2 ▶2◀ BUS 2, BUS 3 ▶3◀ BUS 3, BUS 4 ▶4◀ BUS 4, BUS 5 ▶5◀ BUS 5, BUS 6 ▶6◀ BUS 6, BUS 7 ▶7◀ BUS 7, BUS 8 ▶8◀ BUS 8, CLEAR

Input Set | To Slot | Dither

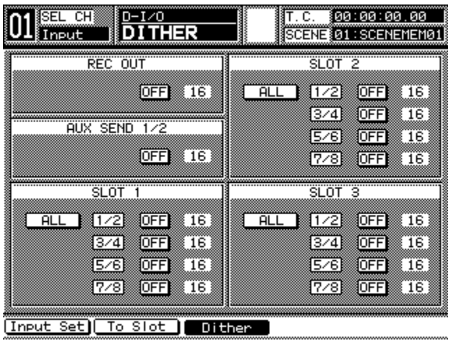
To Slot Window, Insert Mode


01 SEL CH Input | D-I/O TO SLOT | T.C. 00:00:00.00 | SCENE 01:SCENEMEM01

SELECT CHANNEL INPUT 1
NORMAL | INS | TANDEM
SLOT1 TDIF: BUS 1 ▶1, BUS 2 ▶2, BUS 3 ▶3, BUS 4 ▶4, BUS 5 ▶5, BUS 6 ▶6, BUS 7 ▶7, BUS 8 ▶8, CLEAR
SLOT2 AES/EBU: BUS 1 ▶1, BUS 2 ▶2, BUS 3 ▶3, BUS 4 ▶4, BUS 5 ▶5, BUS 6 ▶6, BUS 7 ▶7, BUS 8 ▶8, CLEAR
SLOT3 TANDEM
TANDEM ON
CONNECT OK
OFFSET DELAY 0sample AUTO
PORT SELECT TO PC | MIDI

Input Set | To Slot | Dither

To Slot Window, Tandem Mode

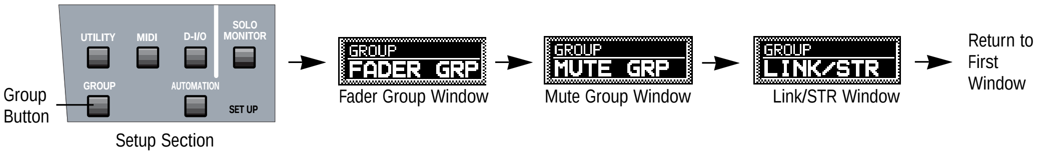

01 SEL CH Input | D-I/O DITHER | T.C. 00:00:00.00 | SCENE 01:SCENEMEM01

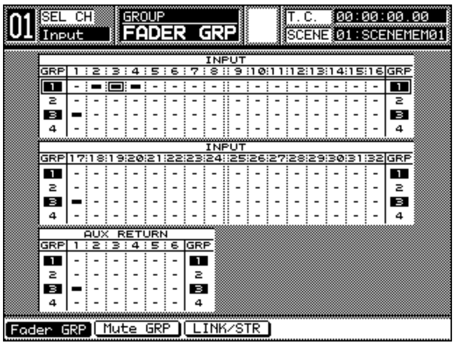
REC OUT: OFF 16
AUX SEND 1/2: OFF 16
SLOT 2: ALL | 1/2 OFF 16 | 3/4 OFF 16 | 5/6 OFF 16 | 7/8 OFF 16
SLOT 1: ALL | 1/2 OFF 16 | 3/4 OFF 16 | 5/6 OFF 16 | 7/8 OFF 16
SLOT 3: ALL | 1/2 OFF 16 | 3/4 OFF 16 | 5/6 OFF 16 | 7/8 OFF 16

Input Set | To Slot | Dither

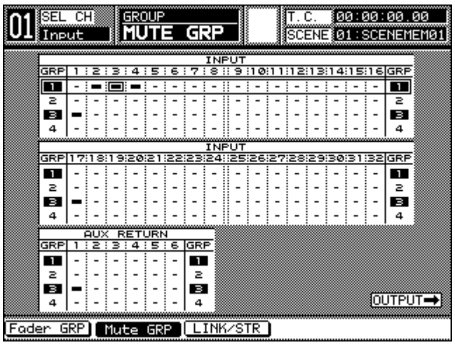
Dither Window

GROUP, SETUP SECTION

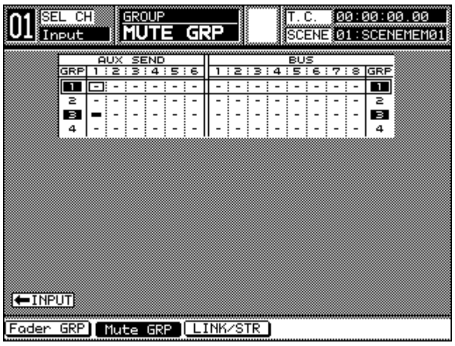

UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Group Button
Setup Section
GROUP FADER GRP
Fader Group Window
GROUP MUTE GRP
Mute Group Window
GROUP LINK/STR
Link/STR Window
Return to First Window


01
SEL CH
Input
GROUP
FADER GRP
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
INPUT
GRP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
AUX RETURN
1 2 3 4 5 6
Fader GRP
Mute GRP
LINK/STR

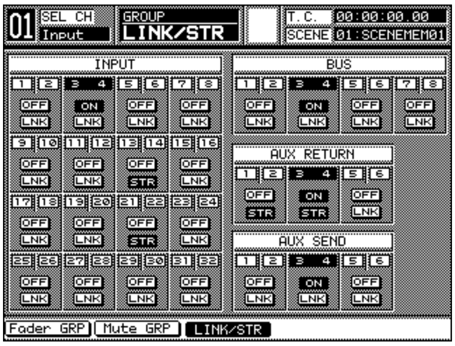
Fader Group Window


01
SEL CH
Input
GROUP
MUTE GRP
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
INPUT
GRP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
AUX RETURN
1 2 3 4 5 6
OUTPUT
Fader GRP
Mute GRP
LINK/STR

Mute Group Window

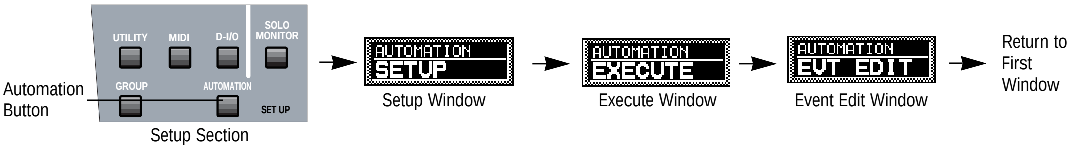

01
SEL CH
Input
GROUP
MUTE GRP
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
AUX SEND
BUS
GRP
1 2 3 4 5 6
1 2 3 4 5 6 7 8
INPUT
Fader GRP
Mute GRP
LINK/STR

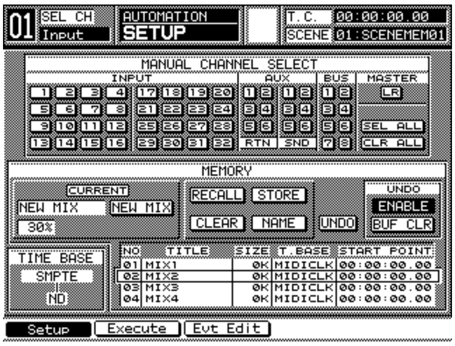
Mute Group Window


01
SEL CH
Input
GROUP
LINK/STR
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
INPUT
BUS
AUX RETURN
AUX SEND
OFF
ON
LNK
STR
Fader GRP
Mute GRP
LINK/STR

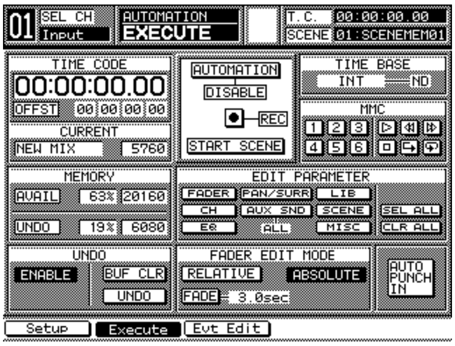
Link/STR Window

AUTOMATION, SETUP SECTION

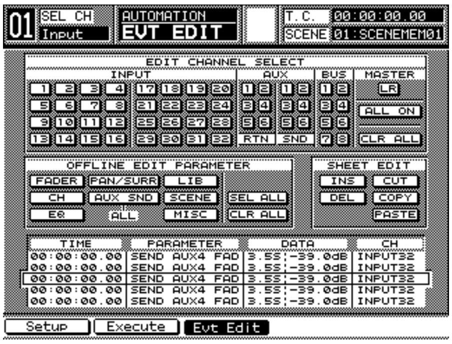

UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Automation Button
Setup Section
AUTOMATION SETUP
Setup Window
AUTOMATION EXECUTE
Execute Window
AUTOMATION EVT EDIT
Event Edit Window
Return to First Window


01
SEL CH
Input
AUTOMATION
SETUP
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
MANUAL CHANNEL SELECT
INPUT
AUX
BUS
MASTER
LR
SEL ALL
CLR ALL
MEMORY
CURRENT
NEW MIX
30%
RECALL
STORE
CLEAR
NAME
UNDO
ENABLE
BUF CLR
TIME BASE
SMPTE
MD
NO TITLE SIZE T.BASE START POINT
01 MIX1 0K MIDICLK 00:00:00.00
02 MIX2 0K MIDICLK 00:00:00.00
03 MIX3 0K MIDICLK 00:00:00.00
04 MIX4 0K MIDICLK 00:00:00.00
Setup
Execute
Evt Edit

Setup Window

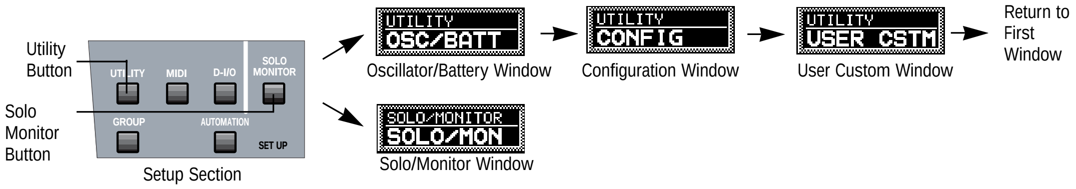

01
SEL CH
Input
AUTOMATION
EXECUTE
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
TIME CODE
00:00:00.00
OFFST 00:00:00:00
CURRENT
NEW MIX 5760
AUTOMATION
DISABLE
REC
START SCENE
TIME BASE
INT MD
MMC
MEMORY
AVAIL 63% 20160
UNDO 19% 6080
EDIT PARAMETER
FADER
PAN/SURR
LIB
CH
AUX SND
SCENE
EQ
ALL
MISC
SEL ALL
CLR ALL
UNDO
ENABLE
BUF CLR
UNDO
FADER EDIT MODE
RELATIVE
ABSOLUTE
FADE 3.0sec
AUTO PUNCH IN
Setup
Execute
Evt Edit

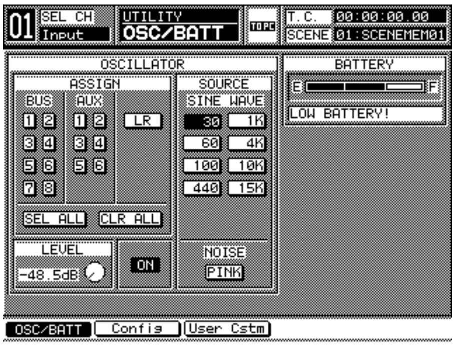
Execute Window


01
SEL CH
Input
AUTOMATION
EVT EDIT
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
EDIT CHANNEL SELECT
INPUT
AUX
BUS
MASTER
LR
ALL ON
CLR ALL
OFFLINE EDIT PARAMETER
FADER
PAN/SURR
LIB
CH
AUX SND
SCENE
EQ
ALL
MISC
SEL ALL
CLR ALL
SHEET EDIT
INS
CUT
DEL
COPY
PASTE
TIME PARAMETER DATA CH
00:00:00.00 SEND AUX4 FAD 3.5S -39.0dB INPUT32
00:00:00.00 SEND AUX4 FAD 3.5S -39.0dB INPUT32
00:00:00.00 SEND AUX4 FAD 3.5S -39.0dB INPUT32
00:00:00.00 SEND AUX4 FAD 3.5S -39.0dB INPUT32
00:00:00.00 SEND AUX4 FAD 3.5S -39.0dB INPUT32
Setup
Execute
Evt Edit

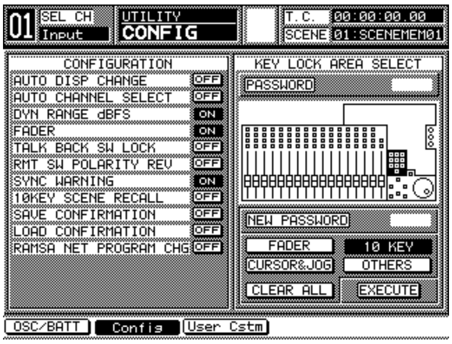
Event Edit Window

UTILITY/ SOLO MONITOR, SETUP SECTION


Utility Button
Solo Monitor Button
UTILITY
MIDI
D-I/O
SOLO MONITOR
GROUP
AUTOMATION
SET UP
Setup Section
UTILITY OSC/BATT
Oscillator/Battery Window
UTILITY CONFIG
Configuration Window
UTILITY USER CSTM
User Custom Window
Return to First Window
SOLO/MONITOR SOLO/MON
Solo/Monitor Window

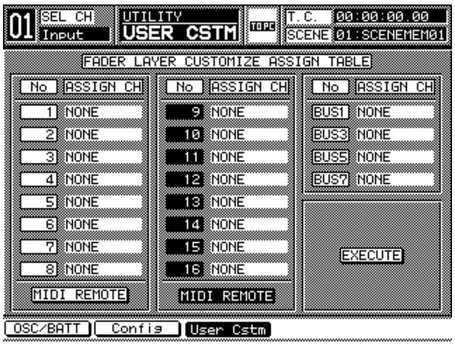

01 SEL CH Input
UTILITY OSC/BATT
TO PC
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
OSCILLATOR
ASSIGN
BUS
AUX
1 2
3 4
5 6
7 8
1 2
3 4
5 6
LR
SEL ALL
CLR ALL
SOURCE
SINE WAVE
30
1K
60
4K
100
10K
440
15K
LEVEL
-48.5dB
ON
NOISE
PINK
BATTERY
E
F
LOW BATTERY!
OSC/BATT
Config
User Cstm

Oscillator/Battery Window


01 SEL CH Input
UTILITY CONFIG
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
KEY LOCK AREA SELECT
PASSWORD
NEW PASSWORD
FADER
10 KEY
CURSOR&JOG
OTHERS
CLEAR ALL
EXECUTE
OSC/BATT
Config
User Cstm

CONFIGURATION
AUTO DISP CHANGE OFF
AUTO CHANNEL SELECT OFF
DYN RANGE dBFS ON
FADER ON
TALK BACK SW LOCK OFF
RMT SW POLARITY REV OFF
SYNC WARNING ON
10KEY SCENE RECALL OFF
SAVE CONFIRMATION OFF
LOAD CONFIRMATION OFF
RAMSA NET PROGRAM CHG OFF

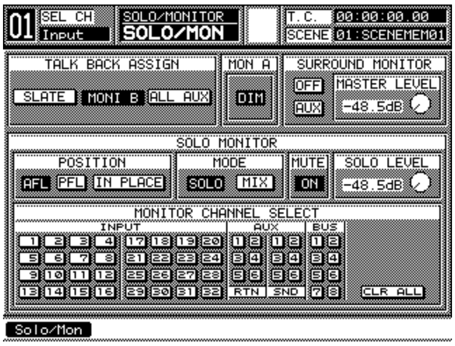
Configuration Window


01 SEL CH Input
UTILITY USER CSTM
TO PC
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
MIDI REMOTE
MIDI REMOTE
EXECUTE
OSC/BATT
Config
User Cstm

FADER LAYER CUSTOMIZE ASSIGN TABLE

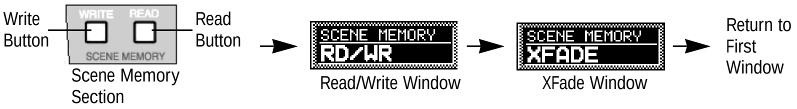
No	ASSIGN CH	No	ASSIGN CH	No	ASSIGN CH
1	NONE	9	NONE	BUS1	NONE
2	NONE	10	NONE	BUS3	NONE
3	NONE	11	NONE	BUS5	NONE
4	NONE	12	NONE	BUS7	NONE
5	NONE	13	NONE		
6	NONE	14	NONE		
7	NONE	15	NONE		
8	NONE	16	NONE		

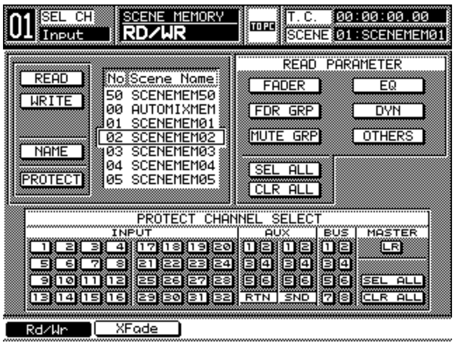
User Custom Window


01 SEL CH Input
SOLO/MONITOR SOLO/MON
T.C. 00:00:00.00
SCENE 01:SCENEMEM01
TALK BACK ASSIGN
SLATE
MONI B
ALL AUX
MON A
DIM
SURROUND MONITOR
OFF
AUX
MASTER LEVEL
-48.5dB
SOLO MONITOR
POSITION
AFL
PFL
IN PLACE
MODE
SOLO
MIX
MUTE
ON
SOLO LEVEL
-48.5dB
MONITOR CHANNEL SELECT
INPUT
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
AUX
1 2 1 2
3 4 3 4
5 6 5 6
RTN SND
BUS
1 2
3 4
5 6
7 8
CLR ALL
Solo/Mon

Solo/Monitor Window

SCENE MEMORY SECTION


Write Button
WRITE
READ
SCENE MEMORY
Read Button
Scene Memory Section
SCENE MEMORY
RD/WR
Read/Write Window
SCENE MEMORY
XFADE
XFade Window
Return to First Window


01
SCENE MEMORY
RD/WR
TO PC
READ
WRITE
NAME
PROTECT
READ PARAMETER
FADER
EQ
FDR GRP
DYN
MUTE GRP
OTHERS
SEL ALL
CLR ALL
PROTECT CHANNEL SELECT
INPUT
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
AUX
1 2 1 2
3 4 3 4
5 6 5 6
RTN SND
BUS
1 2
3 4
5 6
7 8
MASTER
LR
SEL ALL
CLR ALL
Rd/Wr
XFade

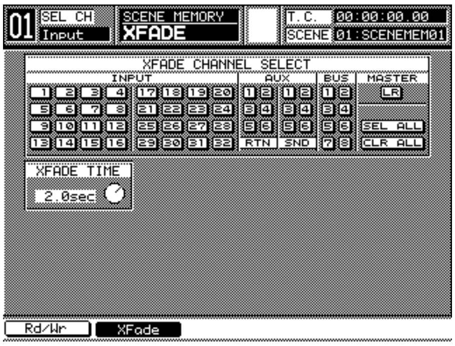
SEL CH: Input

T.C. 00:00:00.00

SCENE 01:SCENEMEM01

No	Scene Name
50	SCENEMEM50
00	AUTOMIXMEM
01	SCENEMEM01
02	SCENEMEM02
03	SCENEMEM03
04	SCENEMEM04
05	SCENEMEM05

Read/Write Window


01
SCENE MEMORY
XFADE
XFADE CHANNEL SELECT
INPUT
1 2 3 4 17 18 19 20
5 6 7 8 21 22 23 24
9 10 11 12 25 26 27 28
13 14 15 16 29 30 31 32
AUX
1 2 1 2
3 4 3 4
5 6 5 6
RTN SND
BUS
1 2
3 4
5 6
7 8
MASTER
LR
SEL ALL
CLR ALL
Rd/Wr
XFade

SEL CH: Input

T.C. 00:00:00.00

SCENE 01:SCENEMEM01

XFADE TIME 2.0sec

XFade Window

Appendix C Abbreviations & Acronyms

A

AC	alternating current
AES/EBU	Audio Engineering Society/ European Broadcasting Union
ATK	attack
AUTO DSP CHANGE	auto display change
AUTOMATION/AUX	automation/auxiliary
AUTOSTR	auto store
AUX	auxiliary
AUX SEND	auxiliary send
AUX RTN	auxiliary return

B

BAL	balance
BNC	bayonet nut connector
BUF CLR	buffer clear
BUS ASGN	bus assign

C

C	center
CH	channel
CH LIB	channel library
CLK	clock
CLR	clear
CMP+GAT	compressor and gate
CONFIG	configure

CR	control room
CTRL	control
CTRL ASGN	control assign
CTRL CHG	control change

D

D-I/O	digital input/output
DA7	Digital Mixer WR-DA7
DAT	digital audio tape
DATA TBL	data table
DEL	delete
DISP	display
DLY	delay
DMTR	digital master tape recorder
DYN	dynamics
DYN LIB	dynamic library

E

EFX	effects
EQ	equalizer
EQ ON	equalizer on
EQ LIB	equalizer library
EVT EDIT	event edit
EXPNDR	expander

F

FADR GRP	fader group
FDR	fader
FOOT SW	foot switch
FRQ	frequency
Fs	frequency sample

G

GEN RX	MIDI general receive
GEN TX	MIDI general transmit
GNG	gang
GR	gain reduction

H

H	high
HM	high-mid
HMI	human machine interface
HPF	high pass filter

I

INS	insert

J

JOG+FDR	jog and fader

L

L	low
L/R	left/right
LCD	liquid crystal display
LED	light emitting diode
LM	low-mid
LO	low
LPF	low pass filter

M

MASTER L/R	master left/right
MEM	memory
MIC	microphone
MIDI	musical instrument digital interface
MIDI PRG ASGN	MIDI program assign
MIDI RMT	MIDI remote

MMC	MIDI machine control
MON SETUP	monitor setup
MONO	monaural
MTC	MIDI timecode
MTR	meter
MULTI-CH	multi channel
MUTE GRP	mute group

O

OL PRTCT	overload protect
OSC/BATT	oscillator/battery
OTHER CMD	other command

P

PA	public address
PAN/BAL	pan/balance
PAN/ASSIGN/SURR	pan assign surround
PEQ	parametric equalizer
PH	phase
PINK	pink noise
PK LVL	peak level
POST EQ	post-equalizer
PPM	peak program meter
PRE FDR	pre-fader
PRE EQ	pre-equalizer
PRG CHG	program change
PRG ASGN	program assign
PST FDR	post-fader
PTN	pattern

Q

Q	quality

R

RD/WT	read/write
REC OUT	record out
REC MODE	record mode
REMOTE	remote
RLS	release
RT MSG	realtime message
RTN	return
RX	receive

S

S I/O	serial input/output
S/PDIF	Sony/Phillips digital interface
S/N	signal (to) noise
SCENE MEM	scene memory
SEL/MAN	select manual
SEL ALL	select all
SEND VOL	send volume
SHH	shelf high
SHL	shelf low
SIGNAL GND	signal ground
SL	surround left
SMPTE	Society for Motion Picture and Television Engineers
SND	send
SR	surround right
STEREO LNK	stereo link
STR	stereo
SUB	surround subwoofer
SUR	surround
SW	switch
SW STS	switch status
SYSTEM EX	system exclusive

T

TBL	table
TDIF	Tascam digital interface format
THL	threshold
TITLE DISP	title display
TO PC	to personal computer
TX	transmit

U

UNBAL	unbalanced
USER CSTM	user custom
UTILITY USER CSTM	utility user custom
UTILITY USER CONF	utility user configuration
UTILITY CONFIG	utility configuration

V

V SYNC	video synchronization
VOL	volume
VU	volume units

W

WCK IN	wordclock in

Appendix D
Default Settings

SCREEN/CATEGORY	PARAMETER			INITIAL VALUE
CHANNEL	PHANTOM			OFF
	PHASE			NOR (normal)
	GAIN			0dB
	INSERTION			OFF
	LINK	MODE		LINK
		ON/OFF		OFF
	FADER GROUP			OFF
	MUTE GROUP			OFF
	PAN/BAL	ON/OFF		OFF
		Value		C (center)
		GANG		OFF
	CH ON			OFF
	FADER			-∞
	DELAY	ON/OFF		OFF
		TIME		0 (sample)
	ASSIGN	BUS1		OFF
		BUS2		OFF
		BUS3		OFF
		BUS4		OFF
		BUS5		OFF
		BUS6		OFF
		BUS7		OFF
		BUS8		OFF
		LR		OFF
		DIRECT		OFF
		SURROUND		OFF
	AUX SEND	ON/OFF	AUX1	OFF
			AUX2	OFF
			AUX3	OFF
			AUX4	OFF
			AUX5	OFF
			AUX6	OFF
		POSITION	AUX1	PST (post-fader)
			AUX2	PST (post-fader)
			AUX3	PST (post-fader)
			AUX4	PST (post-fader)

			AUX5	PST (post-fader)
			AUX6	PST (post-fader)
		LEVEL	AUX1	-∞
			AUX2	-∞
			AUX3	-∞
			AUX4	-∞
			AUX5	-∞
			AUX6	-∞
		PAN/BAL	AUX1,2	C (center)
			AUX3,4	C (center)
			AUX5,6	C (center)
EQUALIZER	ON/OFF			OFF
	LOW BAND FILTER			PEQ
	HIGH BAND FILTER			PEQ
	LOW	Q	PEQ	1
		F	PEQ	125Hz
			HPF	125Hz
			SHL	125Hz
		G	PEQ	0dB
			HPF	ON
			SHL	0dB
	L-MID	Q		1
		F		1KHz
		G		0dB
	H-MID	Q		1
		F		4KHz
		G		0dB
	HIGH	Q	PEQ	1
		F	PEQ	10KHz
			LPF	10KHz
			SHH	10KHz
		G	PEQ	0dB
			LPF	ON
			SHH	0dB
DYNAMICS	ON/OFF			OFF
	FUNCTION			COMP + GATE
	STEREO LINK			OFF
	POSITION			POST EQ
	COMP + GATE	GATE	THL	OFF
			ATT	10ms
			RLS	100msec
		COMP	THL	-20dB
			RATIO	1:1
			ATT	10msec
			RLS	100msec
			GAIN	0dB
		EXP	THL	-20dB
			RATIO	1:1
			ATT	10msec

			RLS	100msec
			RANGE	20dB
CHANNEL LIBRARY	REFERENCE ON/OFF			OFF
	SELECT LIBRARY			1
EQUALIZER LIBRARY	SELECT LIBRARY			1
DYNAMICS LIBRARY	SELECT LIBRARY			1
MONITOR SETUP	TALK BACK	SLATE		OFF
		STUDIO		ON
		ALL AUX		OFF
	MONITOR A DIMMER			OFF
	SURR MON	ON/OFF		OFF
		ASSIGN		MON
		MASTER LEVEL		0dB
	SOLO MON	ON/OFF		OFF
		POSITION		PFL
		MODE		MIX
		LEVEL		0dB
		CHANNEL SELECT		OFF (all ch)
OSCILLATOR	ON/OFF			OFF
	SOURCE			1K
	ASSIGN			LR
CONFIGURATION	CONFIG	AUTO DISP CHG		OFF
		AUTO CH SEL		OFF
		DYN RANGE dBFS		ON
		FADER		ON
		TB SW LOCK		OFF
		RMT SW POLARITY REV		OFF
		SYNC WARNING		ON
		10KEY SCENE RECALL		OFF
		SAVE CONFIRM		OFF
		LOAD CONFIRM		OFF
		RAMSA NET PGM CHG		OFF
	KEY LOCK	PASSWORD		blank (4 digits)
		FADER		OFF
		CURSOR & JOG		OFF
		10KEY		OFF
		OTHERS		OFF
CUSTOMIZE	ASSIGN CH	CH1		NONE
		CH2		NONE
		CH3		NONE
		CH4		NONE
		CH5		NONE
		CH6		NONE
		CH7		NONE
		CH8		NONE
		CH9		NONE
		CH10		NONE
		CH11		NONE

		CH12	NONE
		CH13	NONE
		CH14	NONE
		CH15	NONE
		CH16	NONE
		BUS1	NONE
		BUS3	NONE
		BUS5	NONE
		BUS7	NONE
MIDI SETUP	SERIAL I/O	PORT SELECT	TO PC
		BAUD RATE	31.25 kbps
	MIDI SETUP	GEN Rx PORT	MIDI
		GEN Tx PORT	MIDI
		GEN Rx MIDI CH	1
		GEN Tx MIDI CH	1
		MMC PORT	MIDI
		MMC MIDI CH	1
		MTC PORT	MIDI
		RT MSG PORT	MIDI
		PROG CHG Rx	ON
		PROG CHG Tx	OFF
		PROG CHG THRU	OFF
		CTRL CHG Rx	ON
		CTRL CHG Tx	OFF
		CTRL CHG THRU	OFF
		CTRL CHG NRPN	OFF
		SYSTEM EX Rx	OFF
		SYSTEM EX Tx	OFF
		SYSTEM EX THRU	OFF
		Other CMD THRU	OFF
		Remote1 PORT	MIDI
		Remote1 MIDI CH	1
		Remote2 PORT	MIDI
		Remote2 MIDI CH	1
BULK OUT	SEL DATA	CURRENT	OFF
		PROG CHG TBL	OFF
		CTRL CHG TBL	OFF
		SCENE MEM	OFF
		SCENE MEM NO.	ALL
		CHANNEL LIB	OFF
		CHANNEL LIB NO.	ALL
		EQ LIB	OFF
		EQ LIB NO.	ALL
		DYN LIB	OFF
		DYN LIB NO.	ALL
		AUTOMATION	OFF
		AUTOMATION NO.	ALL
		MIDI REMOTE	OFF

		MIDI REMOTE NO.	ALL
	Rx ON/OFF		OFF
	INTERVAL		0
MIDI REMOTE	FADER SELECT		1-8
	EDIT		OFF
	SOLO SW	ON/OFF	OFF (16 ch)
		TABLE	SW1
		COMMAND MODE	CTRL CHG
		SW STS	OFF
		CTRL CHG NO/FREE DEF	0
		TITLE	TITLE
	ON SW	ON/OFF	OFF
		TABLE	SW1
		COMMAND MODE	CTRL CHG
		SW STS	OFF
		CTRL CHG NO/FREE DEF	0
		TITLE	TITLE
	PAN KNOB	LEVEL	OFF
		TABLE	KNOB1
		COMMAND MODE	CTRL CHG
		SW STS	OFF
		CTRL CHG NO/FREE DEF	0
		TITLE	TITLE
	FADER	LEVEL	OFF
		TABLE	FADER1
		COMMAND MODE	CTRL CHG
		CTRL CHG NO/FREE DEF	0
		TITLE	TITLE
	SELECT LIBRARY		1
DIGITAL INPUT	WORD CLOCK SOURCE		INT48K
	VSYNC	Fs	48 kHz
		REF	59.94 Hz
		±0.1%	0
	INPUT9-14		ANALOG 9-14
	INPUT15-16		ANALOG15-16
	2TR IN A → MASTER LR		OFF
SLOT OUT	SLOT1	CH1	BUS1
		CH2	BUS2
		CH3	BUS3
		CH4	BUS4
		CH5	BUS5
		CH6	BUS6
		CH7	BUS7
		CH8	BUS8
	SLOT2	CH1	BUS1
		CH2	BUS2
		CH3	BUS3
		CH4	BUS4

		CH5		BUS5
		CH6		BUS6
		CH7		BUS7
		CH8		BUS8
	SLOT3	MODE		NORMAL
		CH1		BUS1
		CH2		BUS2
		CH3		BUS3
		CH4		BUS4
		CH5		BUS5
		CH6		BUS6
		CH7		BUS7
		CH8		BUS8
		TANDEM	ON/OFF	ON
			DELAY	0 (sample)
			DELAY AUTO	ON
			PORT SELECT MIDI	ON
DITHER	REC OUT	ON/OFF		OFF
		BIT		23
	AUX SEND1/2	ON/OFF		OFF
		BIT		23
	SLOT1	CH1/2	ON/OFF	OFF
			BIT	23
		CH3/4	ON/OFF	OFF
			BIT	23
		CH5/6	ON/OFF	OFF
			BIT	23
		CH7/8	ON/OFF	OFF
			BIT	23
	SLOT2	CH1/2	ON/OFF	OFF
			BIT	23
		CH3/4	ON/OFF	OFF
			BIT	23
		CH5/6	ON/OFF	OFF
			BIT	23
		CH7/8	ON/OFF	OFF
			BIT	23
	SLOT3	CH1/2	ON/OFF	OFF
			BIT	23
		CH3/4	ON/OFF	OFF
			BIT	23
		CH5/6	ON/OFF	OFF
			BIT	23
		CH7/8	ON/OFF	OFF
			BIT	23
FADER GROUP	GROUP1	ON/OFF		ON
	GROUP2	ON/OFF		ON
	GROUP3	ON/OFF		ON

	GROUP4	ON/OFF		ON
MUTE GROUP	GROUP1	ON/OFF		ON
	GROUP2	ON/OFF		ON
	GROUP3	ON/OFF		ON
	GROUP4	ON/OFF		ON
INPUT METER	RESPONSE			VU
	PEAK HOLD			OFF
	POSITION			PST FDR
BUS/AUX METER	POSITION			PRE EQ
AUTOMATION EXEC	OFFSET			0
	AUTOMATION		ENABLE/DISABLE	DISABLE
	TIME BASE		TIMEBASE	INT
			FRAME	--
	MMC LOCATE POINT		1	0
			2	0
			3	0
			4	0
			5	0
			6	0
	EDIT PARAMETER		FADER	OFF
			CH	OFF
			EQ	OFF
			PAN/SURR	OFF
			AUX SND	OFF
			AUX SND NO.	ALL
			LIB	OFF
			SCENE	OFF
			MISC	OFF
	UNDO		ENABLE/DISABLE	ENABLE
	FADER EDIT	MODE		ABSOLUTE
	AUTO PUNCH IN			OFF
AUTOMATION EVENT	EDIT CHANNEL SELECT		Each CH	OFF
			ALL ON	OFF
	OFFLINE EDIT PARAMETER		EQ	OFF
			CH	OFF
			FADER	OFF
			PAN/SURR	OFF
			AUX SND	OFF
			AUX SND NO.	ALL
			LIB	OFF
			SCENE	OFF
			MISC	OFF
	SELECT AUTOMATION MEMORY			1
AUTOMATION SETUP	MANUAL CHANNEL SELECT			OFF (all ch)
	SELECT DATA			1
READ/WRITE	SELECT SCENE MEMORY			1
	READ PARAMETER		FADER	ON
			FDR GROUP	ON

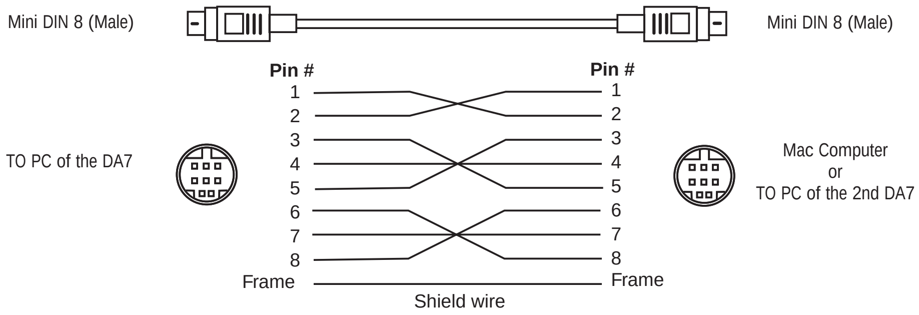
			MUTE GROUP	ON
			EQUALIZER	ON
			DYNAMICS	ON
			OTHERS	ON
	PROTECT CHANNEL SELECT			OFF (all ch)
FADE TIME	FADE CHANNEL SELECT			OFF (all ch)
	FADE TIME			0
SURROUND	SURROUND		ENABLE/DISABLE	DISABLE
	SURROUND MODE			SEND VOL
	LR:C			0:10
	JOG SPEED			SLOW
	MOVE MODE	RETURN		OFF
		REPEAT		OFF
		REVERSE		OFF
	AUTO MOVE TIME			10sec.
	SEND LEVEL	L (BUS1)		-∞
		R (BUS2)		-∞
		C (BUS3)		-∞
		SB (BUS4)		-∞
		SL (BUS5)		-∞
		SR (BUS6)		-∞
	CURRENT POSITION		FR	C (center)
			LR	C (center)
PANEL	AUTOMATION LED			AUX
	FLIP			OFF (all fader)
	LAYER			INPUT 1-16
	MULTI CH VIEW			OFF
	MONITOR A SOURCE			OFF
	MONITOR A MONO			OFF
	MONITOR B SOURCE			OFF
	TALK BACK			OFF
	MMC/CURSOR			CURSOR
GENERAL	CURRENT SCREEN			CHANNEL(S)
	SELECT CHANNEL			INPUT 1

Appendix E
Cables & Connections

The information in this appendix provides recommended cables, and details cable pin wiring connections for use with the ***DA7*** and the various option cards noted in **Chapter 17, Options**.

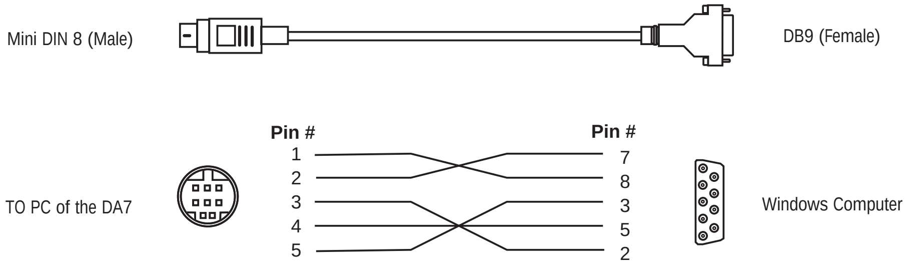
TO PC Cable

A Printer Cable illustrated below is recommended. This is used to connect two ***DA7***s each other, or between the ***DA7*** and the serial port of a Macintosh computer.


Mini DIN 8 (Male)
Mini DIN 8 (Male)
Pin #
Pin #
1
2
3
4
5
6
7
8
Frame
1
2
3
4
5
6
7
8
Frame
Shield wire
TO PC of the DA7
Mac Computer
or
TO PC of the 2nd DA7

Printer Cable

TO PC cable to connect with a Windows computer is shown below.

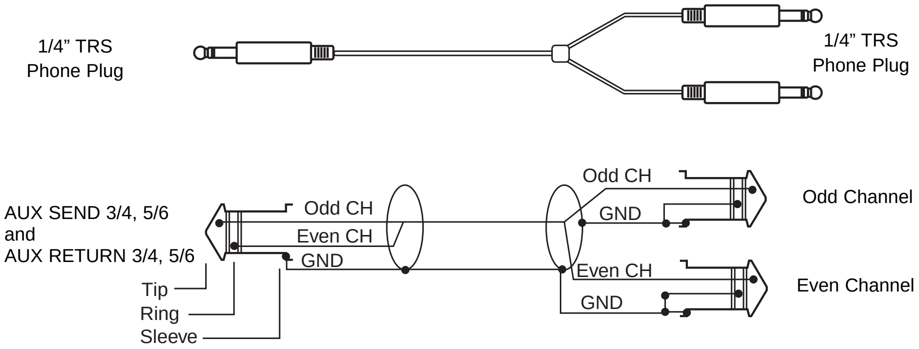

Mini DIN 8 (Male)
DB9 (Female)
Pin #
Pin #
1
2
3
4
5
7
8
3
5
2
TO PC of the DA7
Windows Computer

TO PC Cable

Note: Recommended Panasonic cables, described in this Appendix, are available only in the US market.

Y Cable for AUX Sends and AUX Returns

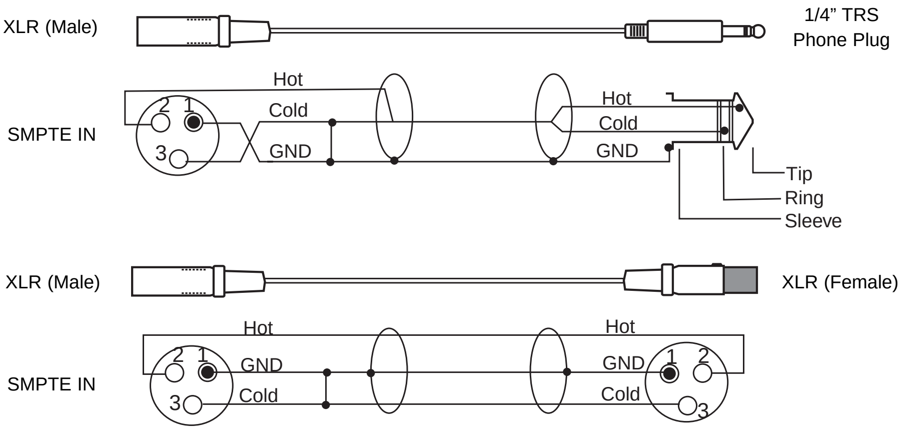
This is used to connect external analog devices with **AUX SEND 3/4**, **5/6** and **AUX RETURN 3/4, 5/6** connectors on the ***DA7***'s **Rear Panel**.


1/4" TRS
Phone Plug
1/4" TRS
Phone Plug
AUX SEND 3/4, 5/6
and
AUX RETURN 3/4, 5/6
Tip
Ring
Sleeve
Odd CH
Even CH
GND
Odd CH
GND
Odd Channel
Even CH
GND
Even Channel

Y Cable

SMPTE Option Card

This cable is used to supply the SMPTE timecode, often generated by a video deck, to the **SMPTE Option Card** installed in the ***DA7***.

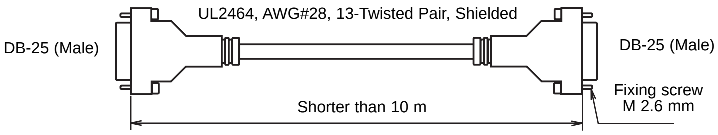

XLR (Male)
1/4" TRS
Phone Plug
SMPTE IN
2
1
3
Hot
Cold
GND
Hot
Cold
GND
Tip
Ring
Sleeve
XLR (Male)
XLR (Female)
SMPTE IN
2
1
3
Hot
GND
Cold
Hot
GND
Cold
1
2
3

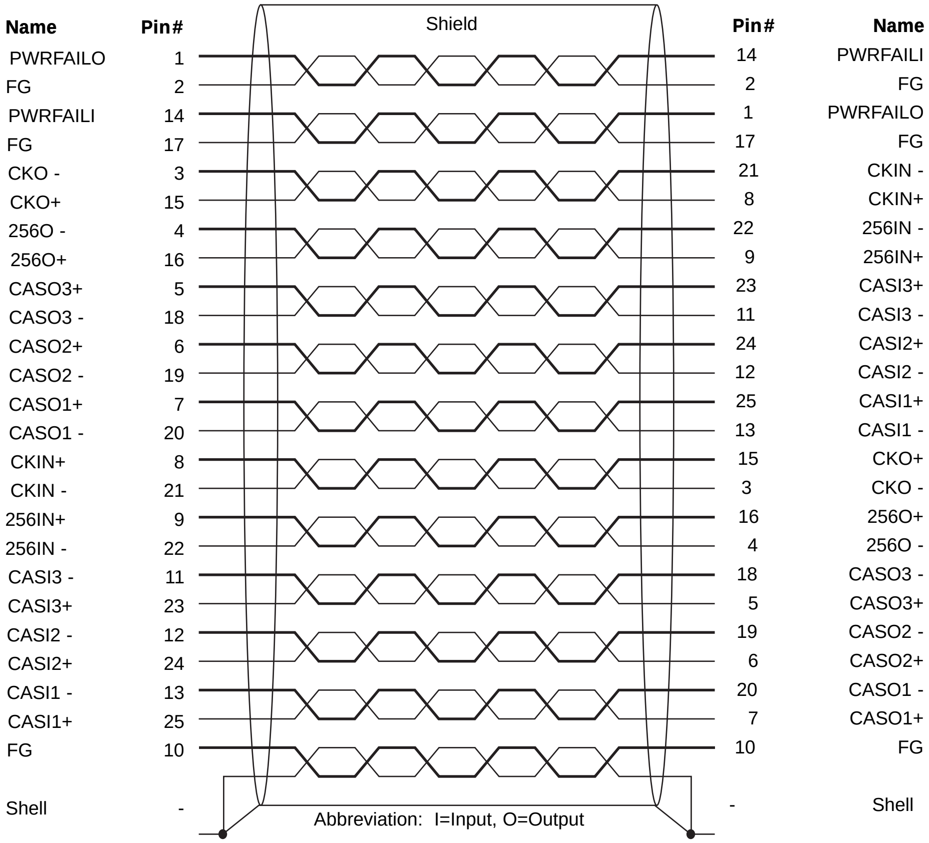
SMPTE timecode Cable

TANDEM Option Card

One of the Panasonic Premium Cables, part **# DA/DB-DB** (DB-25 to DB-25, Length 1 meter) is recommended.

See drawings below when you build a customized cable.


UL2464, AWG#28, 13-Twisted Pair, Shielded
DB-25 (Male)
DB-25 (Male)
Shorter than 10 m
Fixing screw
M 2.6 mm



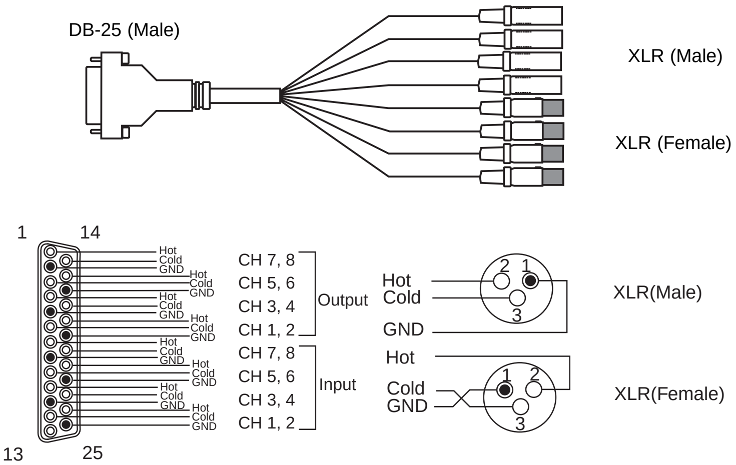
Name	Pin#	Pin#	Name
PWRFAILO	1	14	PWRFAILI
FG	2	2	FG
PWRFAILI	14	1	PWRFAILO
FG	17	17	FG
CKO -	3	21	CKIN -
CKO+	15	8	CKIN+
256O -	4	22	256IN -
256O+	16	9	256IN+
CASO3+	5	23	CASI3+
CASO3 -	18	11	CASI3 -
CASO2+	6	24	CASI2+
CASO2 -	19	12	CASI2 -
CASO1+	7	25	CASI1+
CASO1 -	20	13	CASI1 -
CKIN+	8	15	CKO+
CKIN -	21	3	CKO -
256IN+	9	16	256O+
256IN -	22	4	256O -
CASI3 -	11	18	CASO3 -
CASI3+	23	5	CASO3+
CASI2 -	12	19	CASO2 -
CASI2+	24	6	CASO2+
CASI1 -	13	20	CASO1 -
CASI1+	25	7	CASO1+
FG	10	10	FG
Shell	-	-	Shell

Abbreviation: I=Input, O=Output

TANDEM Cable

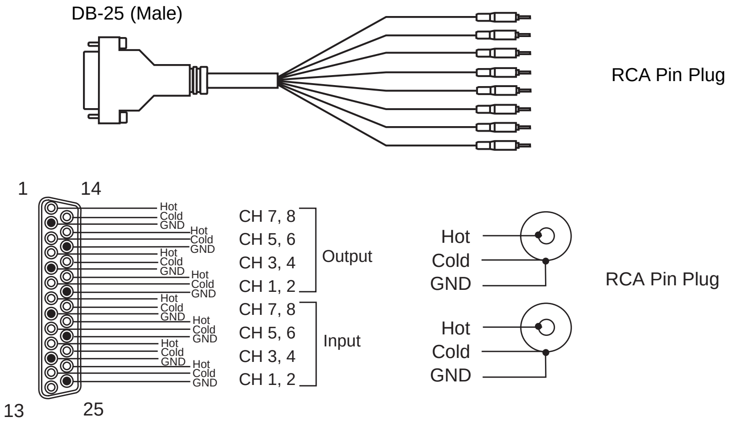
AES/EBU S/PDIF Option Card

Panasonic part **# DA/DB-AES** (DB-25 to 4 Male XLR/ 4 Female XLR, 110 Ω Length 3 meters) is recommended for connection with AES/EBU equipment.


DB-25 (Male)
XLR (Male)
XLR (Female)
1
14
13
25
Hot
Cold
GND
CH 7, 8
CH 5, 6
CH 3, 4
CH 1, 2
Output
Input
XLR(Male)
XLR(Female)
1
2
3

AES/EBU Cable

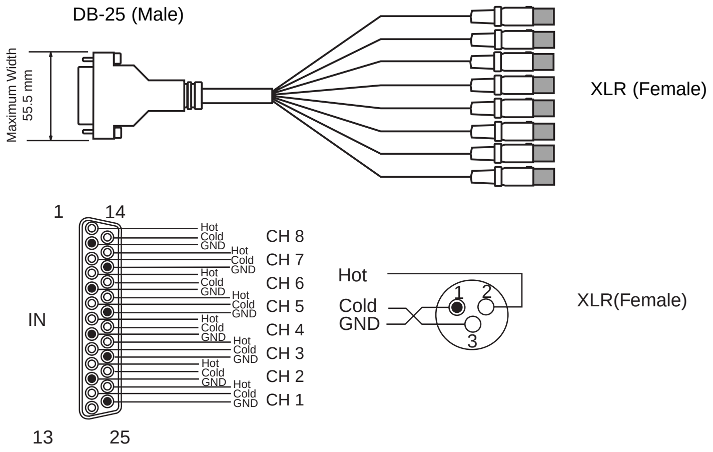
For S/PDIF devices, you need a breakout cable with RCA connectors on the tail.


DB-25 (Male)
RCA Pin Plug
1
14
13
25
Hot
Cold
GND
CH 7, 8
CH 5, 6
CH 3, 4
CH 1, 2
Output
Input
RCA Pin Plug

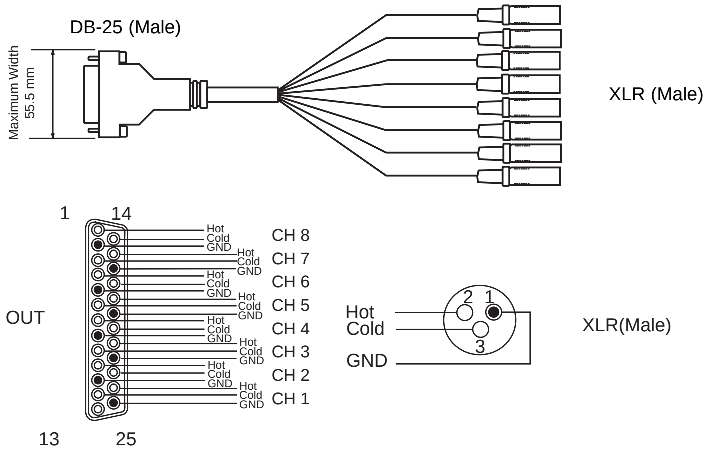
S/PDIF Cable

AD/DA Option Card

Panasonic part **# DA/DB-XLRF** (DB-25 to 8 Female XLR, Length 3 meters) and Panasonic part **# DA/DB-XLRM** (DB-25 to 8 Male XLR, Length 3 meters) are recommended.


DB-25 (Male)
Maximum Width
55.5 mm
XLR (Female)
1
14
IN
13
25
Hot
Cold
GND
CH 8
CH 7
CH 6
CH 5
CH 4
CH 3
CH 2
CH 1
Hot
Cold
GND
1
2
3
XLR(Female)

AD/DA Input Cable (for CN2 Input Connector)


DB-25 (Male)
Maximum Width
55.5 mm
XLR (Male)
1
14
OUT
13
25
Hot
Cold
GND
CH 8
CH 7
CH 6
CH 5
CH 4
CH 3
CH 2
CH 1
Hot
Cold
GND
2
1
3
XLR(Male)

AD/DA Output Cable (for CN3 Output Connector)

Note: Make sure to use DB-25 that are less wider than 55.5 mm (2-3/16 inches) when building cables. Connections both CN2 and CN3 to the AD/DA card will not be able if connectors are wider than 55.5 mm.

TDIF Option Card

The recommended cable for use with this card is Panasonic part **# DA/DB-TDIF** (DB-25 to DB-25(TDIF), Length 3 meters).

Appendix F
Technical Specifications

General

Power requirement	USA AC 120v 60Hz General AC 220 ~ 240v 50Hz
Power consumption	105w (with options)
Frequency response	20Hz ~ 20kHz, + 1dB ~ -2dB
T.H.D. (total harmonic distortion)	Less than 0.1% (input = +10dB/1kHz, output = +4dB/RL 600Ω
Equivalent input noise	-128dB (Rs=150Ω Input sensitivity=-60dB typical
Residual noise	-93dB typical
Maximum voltage gain	84dB: MIC/LINE(1-16) in ~ BUS out 84dB: MIC/LINE(1-16) in ~ MASTER out 84dB: MIC/LINE(1-16) in ~ AUX out
Common Mode Rejection Ratio	More than 80dB (1kHz)
Crosstalk	90dB typical (1kHz)
Dynamic Range (Fs = 48kHz, DIN audio filter)	113dB typical: DA converter (digital in ~ analog out) 112dB typical: AD converter (analog in ~ digital out) 110dB typical: AD+DA (analog in ~ analog out)
AD Converter	24 bit, 64 times oversampling (input 1-16) 20 bit, 64 times oversampling (aux returns 3 ~ 6)
DA Converter	24 bit, 64 times oversampling (MASTER, MONITOR A) 24 bit, 128 times oversampling (MONITOR B) 20 bit, 128 times oversampling (aux returns 3 ~ 6)
Internal signal processing	32 bit (Dynamic range 192dB)
Sampling Frequency (Fs)	Internal: 44.1kHz and 48kHz External: 44.1kHz ± 6% and 48kHz ± 6%
Signal delay	Less than 2.5ms, MIC/LINE input to MASTER out
Dynamics	

Compressor		
	Threshold	-60dB ~ 0dB (1dB/step)
	Ratio	1.0, 1.1, 1.3, 1.5, 1.7, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 8.0, 10, 20, ∞ (16 points)
	Attack time	0ms ~250ms (1ms/step)
	Release time	5ms ~ 2000ms (5ms/step)
	Gain	0dB ~ +12dB (0.5dB/step)
Gate		
	Threshold	-80dB ~ -15dB (1dB/step)
	Attack Time	0ms ~ 250ms (1ms/step)
	Release time	5ms ~ 2000ms (5ms/step)
Expander		
	Threshold	-80dB ~ -15dB (1dB/step)
	Ratio	1.0, 2.0, 3.0, 4.0, 5.0, 6.0, ∞
	Attack time	0ms ~ 250ms (1ms/step)
	Release time	5ms ~ 2000ms (5ms/step)
	Range	0dB ~ +40dB (0.5dB/step)

Equalizer	
LOW band PEQ (parametric equalizer) type:	Q = 0.5 ~ 50 (41 steps) F = 20Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
LOW band SHL (shelving low) type:	F = 20Hz ~ 1.6kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
LOW band HPF (high-pass) type:	F = 20Hz ~ 1.6kHz (1/12 oct step)
LOW-MID band PEQ type:	Q = 0.5 ~ 50 (41 steps) F = 20Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH-MID band PEQ type:	Q = 0.5 ~ 50 (41 steps) F = 500Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH band PEQ type:	Q = 0.5 ~ 50 (41 steps) F = 500Hz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH band SHH (shelving high) type:	F = 1kHz ~ 20kHz (1/12 oct step) G = ± 15dB (0.5dB/step)
HIGH band LPF (low-pass) type:	F = 1kHz ~ 20kHz (1/12 oct step)

Delay	0 ~14,400 samples/0 ~300ms (Fs = 48kHz), 0 ~ 326ms (Fs = 44.1kHz)
Phase	normal/reverse (switchable)
Stereo meter	Bar graph type LED, Left and Right, 20 points for each VU or PPM (selectable) Peak hold on/off, ∞
Fader	100mm motor fader (x21), + 10db ~ -90dB -∞ dB
Display	LCD, 320x240 dot, with backlight
Memory	SCENE MEMORY(Snapshot) 50 registers

CHANNEL library	50 registers
EQUALIZER library	50 registers
DYNAMICS library	50 registers
AUTOMATION	4 mix

Ambient operating temperature	0° C ~ 40° C (32° F ~ 104°F)
Dimensions (mm)	698W x 244H x 549.5D
Weight (without options)	23kg (51lbs)
Finish	ABS resin (Top Panel), Blue black
Standard Accessories	Power Cord, Users' Guide, Warranty Card, Registration Card

Analog Inputs (0dB = 0.775 Vrms, 0dBV = 1 Vrms)

Input Type	Source Impedance	Signal Level (Nominal- before clipping)	Connector Type
CH inputs 1-8 5kΩ	mics, 50Ω ~ 600Ω	-60dB ~ -46dB	XLR 3-31 (bal)
	lines, 600Ω	+10dB ~ +24dB	XLR 3-31 (bal)
CH inputs 9-16 5kΩ	mics, 50Ω ~ 600Ω	-60dB ~ -46dB	TRS phone jack (bal)
	lines, 600Ω	+10dB ~ +24dB	TRS phone jack (bal)
CH Insertion Returns 1 ~ 16 10kΩ	lines, 600Ω	+4dB ~ +18dB	TRS phone jack (unbal)
2TR B IN(analog)10kΩ	lines, 600Ω	+4dB ~ +18dB	TRS phone jack (bal)
Aux returns 3~6 10k Ω	lines, 600Ω	+4dB ~ +18dB	TRS phone jack (unbal)

Analog Outputs (0dB = 0.775 Vrms, 0dBV = 1 Vrms)

Input Type	Output Impedance	Adapted Load Impedance	Signal Level (Nominal- before clipping)	Connector Type
MASTER out L/R	150Ω	lines 600Ω	+4dB ~ +18dB	XLR 3-32 (bal)
Aux sends 3~6	75Ω	lines 10kΩ	+4dB ~ +18dB	Phone jack (unbal)
INSERTION 1~16	10Ω	lines 10kΩ	+4dB ~ +18dB	Phone jack (unbal)
REC OUT L/R(analog)	150Ω	lines 10kΩ	+4dB ~ +18dB	TRS phone jack (bal)
MONITOR A out L/R	150Ω	lines 600Ω	+4dB ~ +18dB	TRS phone jack (bal)
MONITOR B out L/R	150Ω	lines 600Ω	+4dB ~ +18dB	TRS phone jack (bal)
Headphones	8Ω	phones 40Ω/8Ω	400mW/100mW	Stereo phone jack (unbal)

Digital In and Out

2TR IN (INPUT 15,16)
in/out: In
format: IEC 958 Professional (AES/EBU) or Consumer (S/PDIF)
Level: RS-422 (AES/EBU) or 0.5v [pp]/75Ω (S/PDIF)
Connector: XLR 3-31

REC OUT
in/out: Out
format: IEC 958 Professional (AES/EBU) or Consumer (S/PDIF) switchable
Level: RS-422 (AES/EBU) or 0.5v [pp]/75Ω (S/PDIF)
Connector: XLR 3-32

AUX RETURN 1/2
in/out: In
format: IEC 958 Consumer (S/PDIF)
Level: 0.5v [pp]/75Ω
Connector: RCA pin jack

AUX SEND 1/2
in/out: Out
format: IEC 958 Consumer (S/PDIF)
Level: 0.5v [pp]/75Ω
Connector: RCA pin jack

WORD CLOCK IN
in/out: In
Level: TTL/75Ω switchable
Connector: BNC

WORD CLOCK OUT/THROUGH
in/out Out
Level: TTL/75Ω, Pass-through (75Ω OFF) or termination (75Ω ON)
Connector: BNC

MIDI IN
in/out: In
Format: MIDI
Connector: DIN Connector 5P

MIDI OUT
in/out: Out
Format: MIDI
Connector: DIN Connector 5P

TO PC

in/out:	In and Out
Connector:	Mini-DIN Connector 8P

RS422/485

in/out:	In and Out
Connector:	D-sub 9P

FOOT SWITCH

in/out:	In
Level:	TTL level, Normally Open (Unlatch type)
Connector:	Phone jack

Optional Accessories

Meter Bridge

Type:	Bargraph LED, 26 channels, 15 points for each
Format:	RAMSA original Level NET II
Power:	DC 7v
Connector:	D-sub 15P

ADAT Interface card (8 in / 8 out)

Type:	ADAT (DIRECT OUT / BUS / AUX / MASTER, Input 9-32)
in/out:	In and Out
Connector:	Optical

TDIF Card (8 in / 8 out)

Type:	TDIF (DIRECT OUT / BUS / AUX / MASTER, Input 9-32)
in/out:	In and Out
Format:	TDIF-1
Connector:	D-sub 25P (in and out)

AES/EBU Card (8 in / 8 out)

Type:	AES/EBU/SPDIF
Signal type:	RS422
Connector:	D-sub 25P (in and out)

A-D/D-A Card (8 in / 8 out)

Input 1 ~ 8 (balanced)

Indicated impedance:	10kΩ
Nominal source impedance:	50Ω ~ 600Ω
Nominal input level:	+4dB (1.23V)
Maximum input level before clipping:	+18dB (6.15V)
Connector type:	D-sub 25P

Output 1 ~ 8 (balanced)

Indicated impedance:	10kΩ
Nominal source impedance:	150Ω
Nominal input level:	+4dB (1.23V)
Maximum input level before clipping:	+18dB (6.15V)
Connector type:	D-sub 25P

SMPTE/V SYNC Card

SMPTE IN

in/out:	In
Format:	SMPTE (LTC)
Signal type:	nominal -10dBV / 10kΩ
Connector:	XLR

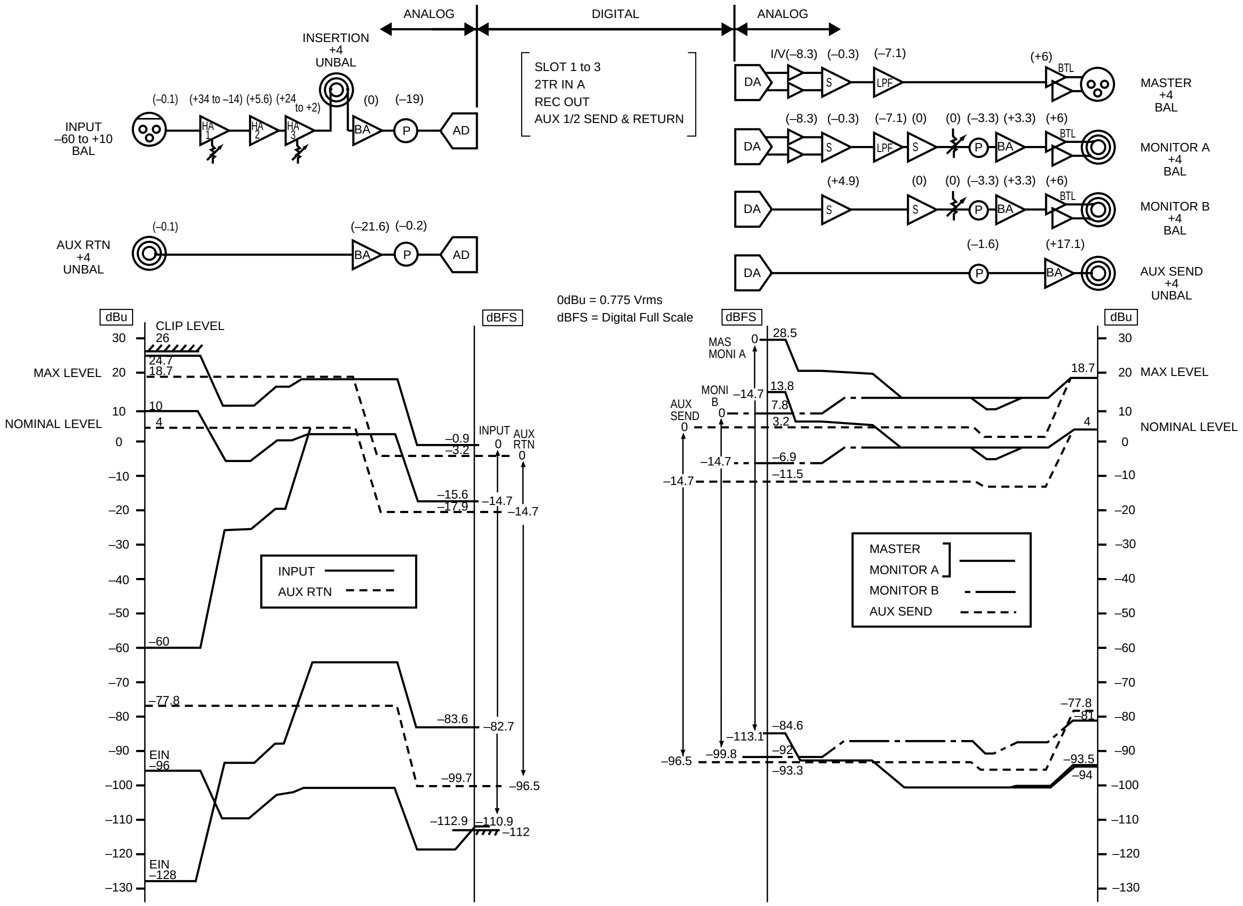
V SYNC

in/out:	In
Format:	NTSC (B/W or color) / PAL
Signal type:	75Ω , termination
Connector:	BNC

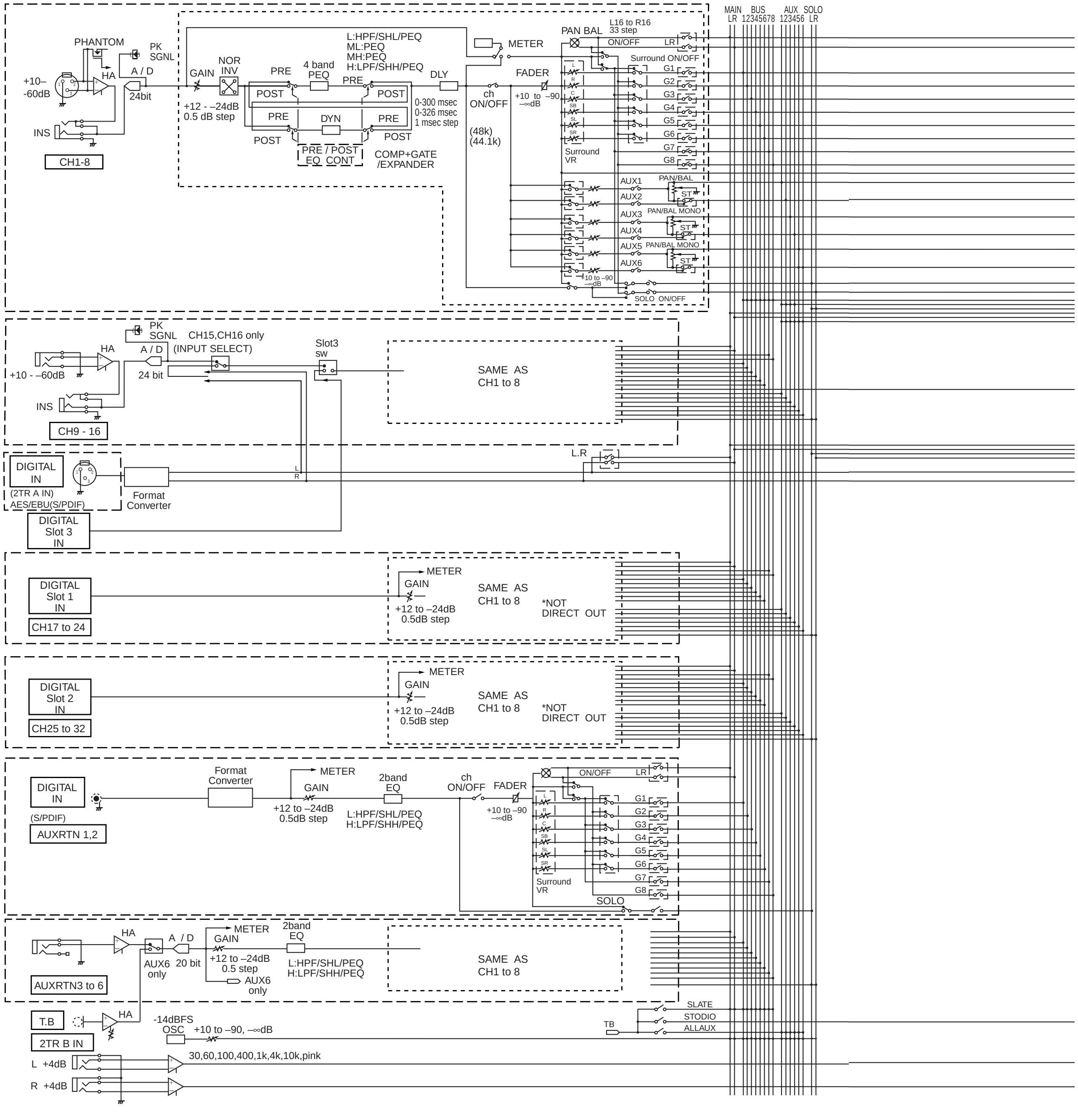
TANDEM Card (for running two ***DA7*** mixers simultaneously)

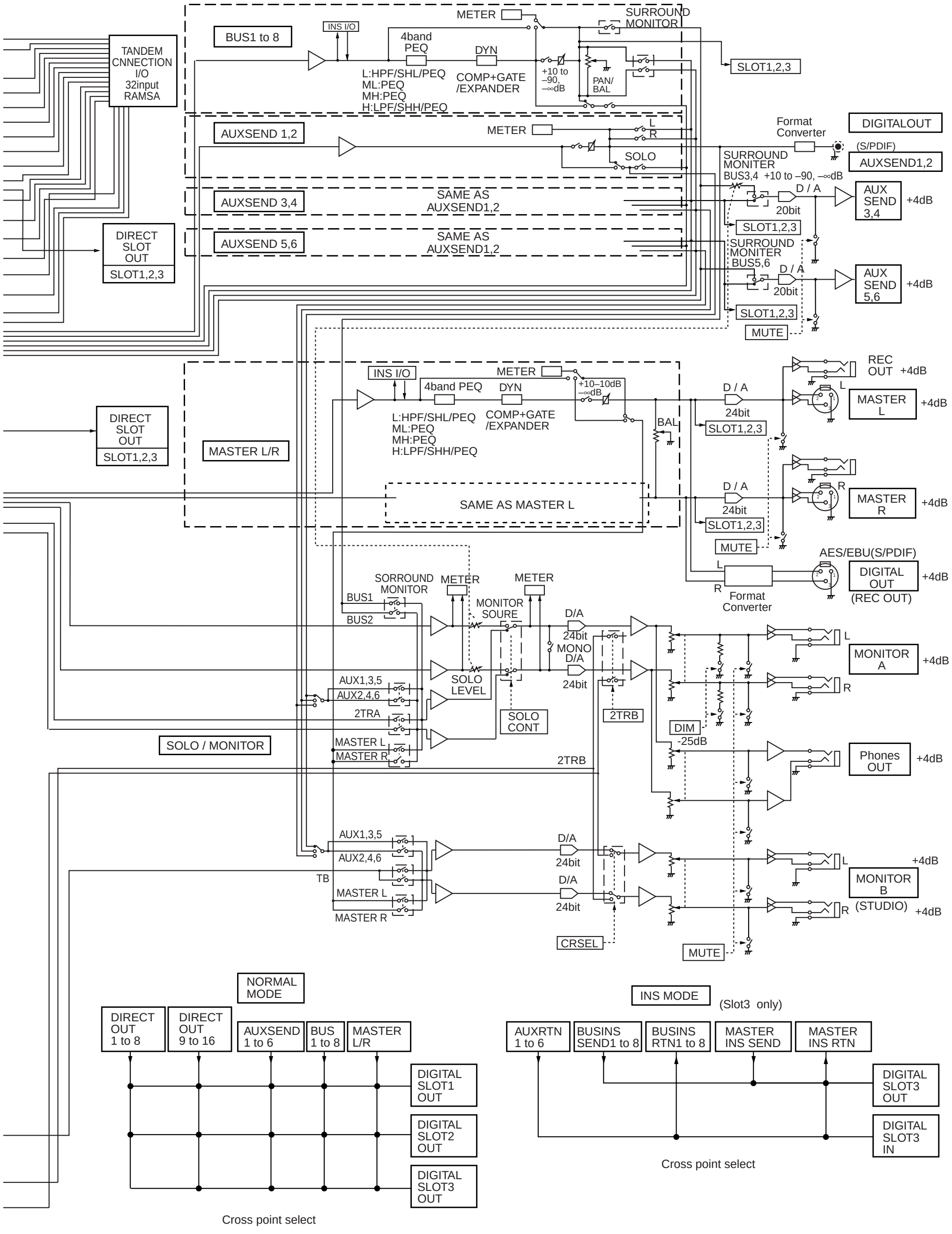
Type:	TANDEM connection
in/out:	In and Out
Format:	RAMSA SSA
Signal type:	RS422
Connector:	D-sub 25P

Level Diagram

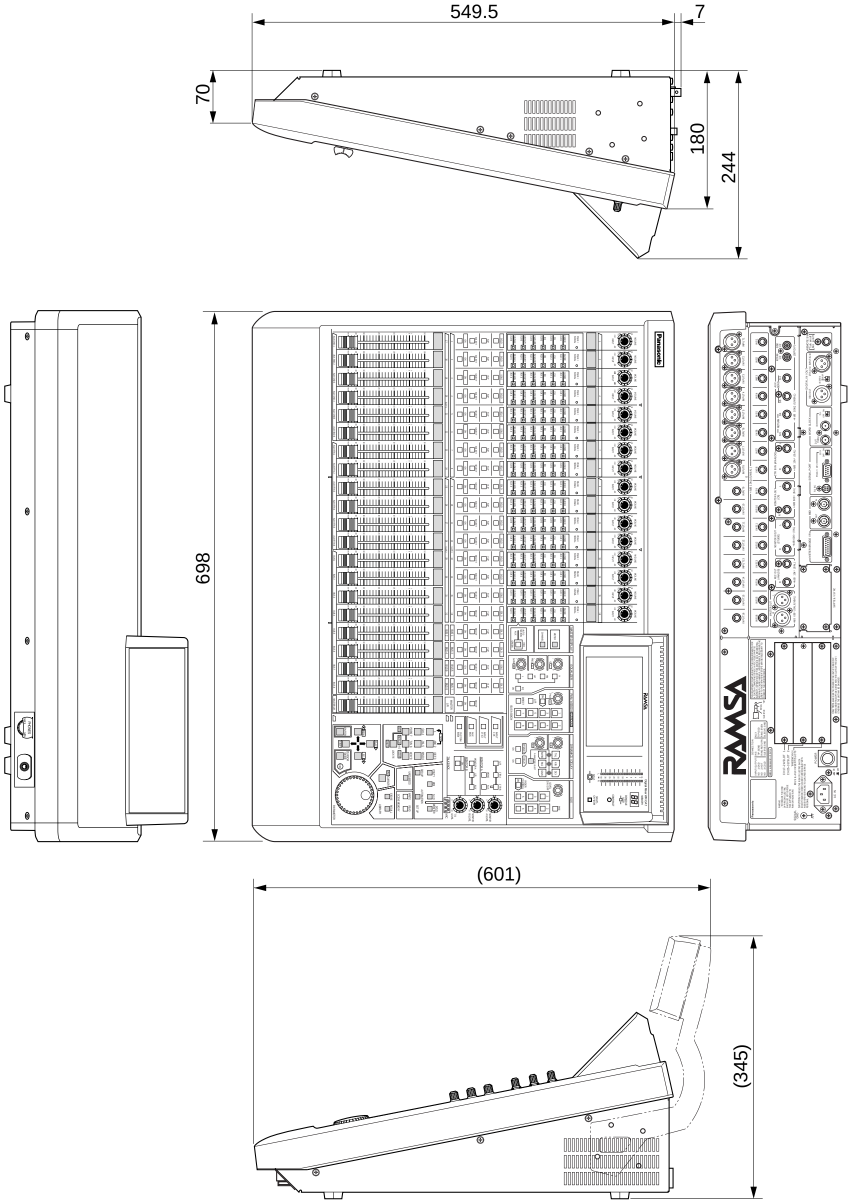

ANALOG
DIGITAL
ANALOG
INSERTION +4 UNBAL
INPUT –60 to +10 BAL
(–0.1) (+34 to –14) (+5.6) (+24 to +2) (0) (–19)
HA 1
HA 2
HA 3
BA
P
AD
AUX RTN +4 UNBAL
(–0.1) (–21.6) (–0.2)
SLOT 1 to 3
2TR IN A
REC OUT
AUX 1/2 SEND & RETURN
DA
I/V(–8.3) (–0.3) (–7.1) (+6)
S
LPF
BTL
MASTER +4 BAL
(–8.3) (–0.3) (–7.1) (0) (0) (–3.3) (+3.3) (+6)
MONITOR A +4 BAL
(+4.9) (0) (0) (–3.3) (+3.3) (+6)
MONITOR B +4 BAL
(–1.6) (+17.1)
AUX SEND +4 UNBAL
0dBu = 0.775 Vrms
dBFS = Digital Full Scale
dBu
dBFS
CLIP LEVEL
MAX LEVEL
NOMINAL LEVEL
30 20 10 0 –10 –20 –30 –40 –50 –60 –70 –80 –90 –100 –110 –120 –130
26
24.7
18.7
10
4
–60
–77.8
EIN –96
EIN –128
–0.9
–3.2
–15.6
–17.9
–83.6
–99.7
–112.9
INPUT 0
AUX RTN 0
–14.7
–14.7
–82.7
–96.5
–110.9
–112
INPUT
AUX RTN
MAS MONI A 0
MONI B 0
AUX SEND 0
–14.7
–14.7
–14.7
28.5
13.8
7.8
3.2
–6.9
–11.5
–113.1
–99.8
–96.5
–84.6
–92
–93.3
18.7
4
–77.8
–81
–93.5
–94
MASTER
MONITOR A
MONITOR B
AUX SEND

Block Diagram


MAIN LR
BUS 12345678
AUX 123456
SOLO LR
PHANTOM
PK SGNL
A / D
HA
24bit
+10– -60dB
INS
CH1-8
GAIN
+12 - –24dB 0.5 dB step
NOR INV
PRE
POST
4 band PEQ
L:HPF/SHL/PEQ
ML:PEQ
MH:PEQ
H:LPF/SHH/PEQ
DYN
PRE / POST
EQ CONT
COMP+GATE /EXPANDER
DLY
0-300 msec
0-326 msec
1 msec step
(48k)
(44.1k)
METER
ch ON/OFF
FADER
+10 to –90 –∞dB
PAN BAL
L16 to R16 33 step
ON/OFF
LR
Surround ON/OFF
G1
G2
G3
G4
G5
G6
G7
G8
Surround VR
AUX1
AUX2
AUX3
AUX4
AUX5
AUX6
PAN/BAL
PAN/BAL MONO
ST
+10 to –90 –∞dB
SOLO ON/OFF
CH15,CH16 only
(INPUT SELECT)
Slot3 sw
24 bit
+10 - –60dB
CH9 - 16
SAME AS CH1 to 8
L.R
DIGITAL IN
(2TR A IN)
AES/EBU(S/PDIF)
Format Converter
DIGITAL Slot 3 IN
DIGITAL Slot 1 IN
CH17 to 24
+12 to –24dB 0.5dB step
*NOT DIRECT OUT
DIGITAL Slot 2 IN
CH25 to 32
(S/PDIF)
AUXRTN 1,2
2band EQ
L:HPF/SHL/PEQ
H:LPF/SHH/PEQ
SOLO
AUX6 only
20 bit
0.5 step
AUXRTN3 to 6
T.B
2TR B IN
-14dBFS
OSC
+10 to –90, –∞dB
30,60,100,400,1k,4k,10k,pink
L +4dB
R +4dB
TB
SLATE
STODIO
ALLAUX


TANDEM CNNECTION I/O 32input RAMSA
BUS1 to 8
INS I/O
METER
4band PEQ
DYN
L:HPF/SHL/PEQ
ML:PEQ
MH:PEQ
H:LPF/SHH/PEQ
COMP+GATE /EXPANDER
+10 to –90, –∞dB
PAN/ BAL
SURROUND MONITOR
SLOT1,2,3
AUXSEND 1,2
L
R
SOLO
Format Converter
DIGITALOUT
(S/PDIF)
AUXSEND1,2
SURROUND MONITER
BUS3,4 +10 to –90, –∞dB
D / A
20bit
AUX SEND 3,4
+4dB
AUXSEND 3,4
SAME AS AUXSEND1,2
AUXSEND 5,6
SAME AS AUXSEND1,2
DIRECT SLOT OUT
SLOT1,2,3
SURROUND MONITER BUS5,6
AUX SEND 5,6
MUTE
INS I/O
4band PEQ
DYN
+10–10dB –∞dB
L:HPF/SHL/PEQ
ML:PEQ
MH:PEQ
H:LPF/SHH/PEQ
COMP+GATE /EXPANDER
BAL
MASTER L/R
SAME AS MASTER L
24bit
REC OUT +4dB
MASTER L
MASTER R
AES/EBU(S/PDIF)
DIGITAL OUT
(REC OUT)
Format Converter
SORROUND MONITOR
BUS1
BUS2
MONITOR SOURE
D/A
MONO
SOLO LEVEL
SOLO CONT
AUX1,3,5
AUX2,4,6
2TRA
2TRB
MASTER L
MASTER R
SOLO / MONITOR
DIM
-25dB
MONITOR A
Phones OUT
TB
CRSEL
MONITOR B (STUDIO)
NORMAL MODE
DIRECT OUT 1 to 8
DIRECT OUT 9 to 16
AUXSEND 1 to 6
BUS 1 to 8
MASTER L/R
DIGITAL SLOT1 OUT
DIGITAL SLOT2 OUT
DIGITAL SLOT3 OUT
Cross point select
INS MODE
(Slot3 only)
AUXRTN 1 to 6
BUSINS SEND1 to 8
BUSINS RTN1 to 8
MASTER INS SEND
MASTER INS RTN
DIGITAL SLOT3 OUT
DIGITAL SLOT3 IN
Cross point select

Dimensions


549.5
7
70
180
244
698
(601)
(345)
RAMSA

Unit= mm

Scale= 1/10 aprx.

Appendix G
MIDI
Implementation Chart

This appendix is designed to provide MIDI related information.

Page G-2	**MIDI Implementation Chart**
Page G-3	**MIDI Control Change Assign Table**
Page G-4	**MIDI Program Change Assign Table**
Page G-5	**MIDI Program Change**
Page G-6	**MIDI Control Change**
Page G-7 through G-11	**NRPN (Parameter)**
Page G-12 through G-24	**NRPN (Data)**
Page G-25 through G-35	**MIDI System Exclusive**

MIDI Implementation Chart

Function		Transmitted	Recognized	Remarks
Basic	Default	1 - 16	1 - 16	Memorized
Channel	Changed	1 - 16	1 - 16	
	Default	x	OMNI ON/OFF	Memorized
Mode	Messages	x	x	
	Altered	* * * * * * * * * * * * *	x	
Note		x	x	
Number	True Voice	* * * * * * * * * * * * *	x	
Velocity	Note ON	x	x	
	Note OFF	x	x	
After	key's	x	x	
Touch	Ch's	x	x	
Pitch Bend		x	x	Assignable
Control Change	0 - 95, 102 - 119	0	0	Assignable
Program		o:0-127	o:0-127	
Change	True #	* * * * * * * * * * * * *		
System Exclusive		o	o	
	Song Pos	x	o	
Common	Song Sel	x	x	
	Tune	x	x	
System	Clock	x	o	
Real Time	Commands	x	o	
Aux	Local ON/OFF	x	x	
	All Notes OFF	x	x	
Mes-	Active Sense	x	x	
sages	Reset	x	x	
Notes		MTC quarter frame message is recognized. For MIDI remote, ALL message can be transmitted.		

Mode 1: OMNI ON, POLI   Mode 2: OMNI ON, MONO   o : Yes
Mode 3: OMNI OFF, POLI   Mode 4: OMNI OFF, MONO   x : No

MIDI Control Change Assign Table

Control No.	HEX	Parameter		
0	00	FADER	INPUT	CH1
1	01	FADER	INPUT	CH2
2	02	FADER	INPUT	CH3
3	03	FADER	INPUT	CH4
4	04	FADER	INPUT	CH5
5	05	FADER	INPUT	CH6
6	06	NRPN LSB DATA		
7	07	FADER	INPUT	CH7
8	08	FADER	INPUT	CH8
9	09	FADER	INPUT	CH9
10	0A	FADER	INPUT	CH10
11	0B	FADER	INPUT	CH11
12	0C	FADER	INPUT	CH12
13	0D	FADER	INPUT	CH13
14	0E	FADER	INPUT	CH14
15	0F	FADER	INPUT	CH15
16	10	FADER	INPUT	CH16
17	11	FADER	INPUT	CH17
18	12	FADER	INPUT	CH18
19	13	FADER	INPUT	CH19
20	14	FADER	INPUT	CH20
21	15	FADER	INPUT	CH21
22	16	FADER	INPUT	CH22
23	17	FADER	INPUT	CH23
24	18	FADER	INPUT	CH24
25	19	FADER	INPUT	CH25
26	1A	FADER	INPUT	CH26
27	1B	FADER	INPUT	CH27
28	1C	FADER	INPUT	CH28
29	1D	FADER	INPUT	CH29
30	1E	FADER	INPUT	CH30
31	1F	FADER	INPUT	CH31
32	20	FADER	INPUT	CH32
33	21	FADER	AUX RTN	CH1
34	22	FADER	AUX RTN	CH2
35	23	FADER	AUX RTN	CH3
36	24	FADER	AUX RTN	CH4
37	25	FADER	AUX RTN	CH5
38	26	NRPN MSB DATA		
39	27	FADER	AUX RTN	CH6
40	28	FADER	AUX SND	CH1
41	29	FADER	AUX SND	CH2
42	2A	FADER	AUX SND	CH3
43	2B	FADER	AUX SND	CH4
44	2C	FADER	AUX SND	CH5
45	2D	FADER	AUX SND	CH6
46	2E	FADER	BUS	CH1
47	2F	FADER	BUS	CH2
48	30	FADER	BUS	CH3
49	31	FADER	BUS	CH4
50	32	FADER	BUS	CH5
51	33	FADER	BUS	CH6
52	34	FADER	BUS	CH7
53	35	FADER	BUS	CH8
54	36	FADER	MASTER	LR
55	37	PAN	INPUT	CH1
56	38	PAN	INPUT	CH2
57	39	PAN	INPUT	CH3
58	3A	PAN	INPUT	CH4
59	3B	PAN	INPUT	CH5

Control No.	HEX	Parameter		
60	3C	PAN	INPUT	CH6
61	3D	PAN	INPUT	CH7
62	3E	PAN	INPUT	CH8
63	3F	PAN	INPUT	CH9
64	40	PAN	INPUT	CH10
65	41	PAN	INPUT	CH11
66	42	PAN	INPUT	CH12
67	43	PAN	INPUT	CH13
68	44	PAN	INPUT	CH14
69	45	PAN	INPUT	CH15
70	46	PAN	INPUT	CH16
71	47	PAN	INPUT	CH17
72	48	PAN	INPUT	CH18
73	49	PAN	INPUT	CH19
74	4A	PAN	INPUT	CH20
75	4B	PAN	INPUT	CH21
76	4C	PAN	INPUT	CH22
77	4D	PAN	INPUT	CH23
78	4E	PAN	INPUT	CH24
79	4F	PAN	INPUT	CH25
80	50	PAN	INPUT	CH26
81	51	PAN	INPUT	CH27
82	52	PAN	INPUT	CH28
83	53	PAN	INPUT	CH29
84	54	PAN	INPUT	CH30
85	55	PAN	INPUT	CH31
86	56	PAN	INPUT	CH32
87	57	ON	INPUT	CH1
88	58	ON	INPUT	CH2
89	59	ON	INPUT	CH3
90	5A	ON	INPUT	CH4
91	5B	ON	INPUT	CH5
92	5C	ON	INPUT	CH6
93	5D	ON	INPUT	CH7
94	5E	ON	INPUT	CH8
95	5F	ON	INPUT	CH9
96	60	NO ASSIGN		
97	61	NO ASSIGN		
98	62	NRPN LSB		
99	63	NRPN MSB		
100	64	NO ASSIGN		
101	65	NO ASSIGN		
102	66	ON	INPUT	CH10
103	67	ON	INPUT	CH11
104	68	ON	INPUT	CH12
105	69	ON	INPUT	CH13
106	6A	ON	INPUT	CH14
107	6B	ON	INPUT	CH15
108	6C	ON	INPUT	CH16
109	6D	ON	INPUT	CH17
110	6E	ON	INPUT	CH18
111	6F	ON	INPUT	CH19
112	70	ON	INPUT	CH20
113	71	ON	INPUT	CH21
114	72	ON	INPUT	CH22
115	73	ON	INPUT	CH23
116	74	ON	INPUT	CH24
117	75	ON	INPUT	CH25
118	76	ON	INPUT	CH26
119	77	ON	INPUT	CH27

MIDI Program Change Assign Table

Program No.	Initial Scene No.	User Scene No.	User SceneName
1	01		
2	02		
3	03		
4	04		
5	05		
6	06		
7	07		
8	08		
9	09		
10	10		
11	11		
12	12		
13	13		
14	14		
15	15		
16	16		
17	17		
18	18		
19	19		
20	20		
21	21		
22	22		
23	23		
24	24		
25	25		
26	26		
27	27		
28	28		
29	29		
30	30		
31	31		
32	32		
33	33		
34	34		
35	35		
36	36		
37	37		
38	38		
39	39		
40	40		
41	41		
42	42		
43	43		
44	44		
45	45		
46	46		
47	47		
48	48		
49	49		
50	50		
51	—		
52	—		
53	—		
54	—		
55	—		
56	—		
57	—		
58	—		
59	—		
60	—		
61	—		
62	—		
63	—		
64	—		
65	—		
66	—		
67	—		
68	—		
69	—		
70	—		
71	—		
72	—		
73	—		
74	—		
75	—		
76	—		
77	—		
78	—		
79	—		
80	—		
81	—		
82	—		
83	—		
84			
85			
86			
87			
88			
89			
90			
91	—		
92	—		
93	—		
94	—		
95	—		
96	—		
97	—		
98	—		
99	—		
100	—		
101	—		
102	—		
103	—		
104	—		
105	—		
106	—		
107	—		
108	—		
109	—		
110	—		
111	—		
112	—		
113	—		
114	—		
115	—		
116	—		
117	—		
118	—		
119	—		
120	—		
121	—		
122	—		
123	—		
124	—		
125	—		
126	—		
127	—		
128	—		

MIDI Program Change

1st Byte	2nd Byte
CnH	ccH

n : MIDI Channel Number - 1
cc : Program Change Number

Initial Assignment of Program Change

Program Change No.	Scene Memory No.	Program Change No.	Scene Memory No.	Program Change No.	Scene Memory No.	Program Change No.	Scene Memory No.
1	1	33	33	65	No Assign	97	No Assign
2	2	34	34	66	No Assign	98	No Assign
3	3	35	35	67	No Assign	99	No Assign
4	4	36	36	68	No Assign	100	No Assign
5	5	37	37	69	No Assign	101	No Assign
6	6	38	38	70	No Assign	102	No Assign
7	7	39	39	71	No Assign	103	No Assign
8	8	40	40	72	No Assign	104	No Assign
9	9	41	41	73	No Assign	105	No Assign
10	10	42	42	74	No Assign	106	No Assign
11	11	43	43	75	No Assign	107	No Assign
12	12	44	44	76	No Assign	108	No Assign
13	13	45	45	77	No Assign	109	No Assign
14	14	46	46	78	No Assign	110	No Assign
15	15	47	47	79	No Assign	111	No Assign
16	16	48	48	80	No Assign	112	No Assign
17	17	49	49	81	No Assign	113	No Assign
18	18	50	50	82	No Assign	114	No Assign
19	19	51	No Assign	83	No Assign	115	No Assign
20	20	52	No Assign	84	No Assign	116	No Assign
21	21	53	No Assign	85	No Assign	117	No Assign
22	22	54	No Assign	86	No Assign	118	No Assign
23	23	55	No Assign	87	No Assign	119	No Assign
24	24	56	No Assign	88	No Assign	120	No Assign
25	25	57	No Assign	89	No Assign	121	No Assign
26	26	58	No Assign	90	No Assign	122	No Assign
27	27	59	No Assign	91	No Assign	123	No Assign
28	28	60	No Assign	92	No Assign	124	No Assign
29	29	61	No Assign	93	No Assign	125	No Assign
30	30	62	No Assign	94	No Assign	126	No Assign
31	31	63	No Assign	95	No Assign	127	No Assign
32	32	64	No Assign	96	No Assign	128	No Assign

MIDI Control Change

1st Byte	2nd Byte	3rd Byte
BnH	ccH	vvH

n : MIDI Channel Number
cc : Control Change Number
vv : Defined as follows

NRPN

Parameter MSB (pm) when cc is 63H,Data MSB (dm) when cc is 06H, Parameter LSB (pl) when cc is 62H, and Data LSB (dl) when cc is 26H.

Mode Control

When cc is 7AH, vv data of 00H means Console Lock and vv data of 7FH means Console Unlock. For cc data, 7BH, 7CH, 7DH, 7EH, 7FH are Not Used.

Initial Assignment of Control Change

Cnt.Chg.No.		Parameter		Cnt.Chg.No.		Parameter		Cnt.Chg.No.		Parameter	
Dec	Hex	Parameter	Channel	Dec	Hex	Parameter	Channel	Dec	Hex	Parameter	Channel
0	00H	FADER	INPUT 1	40	28H	FADER	AUX SND 1	80	50H	PAN/BAL	INPUT 26
1	01H		INPUT 2	41	29H		AUX SND 2	81	51H		INPUT 27
2	02H		INPUT 3	42	2AH		AUX SND 3	82	52H		INPUT 28
3	03H		INPUT 4	43	2BH		AUX SND 4	83	53H		INPUT 29
4	04H		INPUT 5	44	2CH		AUX SND 5	84	54H		INPUT 30
5	05H		INPUT 6	45	2DH		AUX SND 6	85	55H		INPUT 31
6	06H	NRPN DATA MSB		46	2EH		BUS 1	86	56H		INPUT 32
7	07H	FADER	INPUT 7	47	2FH		BUS 2	87	57H	CH ON	INPUT 1
8	08H		INPUT 8	48	30H		BUS 3	88	58H		INPUT 2
9	09H		INPUT 9	49	31H		BUS 4	89	59H		INPUT 3
10	0AH		INPUT 10	50	32H		BUS 5	90	5AH		INPUT 4
11	0BH		INPUT 11	51	33H		BUS 6	91	5BH		INPUT 5
12	0CH		INPUT 12	52	34H		BUS 7	92	5CH		INPUT 6
13	0DH		INPUT 13	53	35H		BUS 8	93	5DH		INPUT 7
14	0EH		INPUT 14	54	36H		MASTER L/R	94	5EH		INPUT 8
15	0FH		INPUT 15	55	37H	PAN/BAL	INPUT 1	95	5FH		INPUT 9
16	10H		INPUT 16	56	38H		INPUT 2	96	60H	Not Used	
17	11H		INPUT 17	57	39H		INPUT 3	97	61H	Not Used	
18	12H		INPUT 18	58	3AH		INPUT 4	98	62H	NRPN DATA LSB	
19	13H		INPUT 19	59	3BH		INPUT 5	99	63H	NRPN DATA MSB	
20	14H		INPUT 20	60	3CH		INPUT 6	100	64H	Not Used	
21	15H		INPUT 21	61	3DH		INPUT 7	101	65H	Not Used	
22	16H		INPUT 22	62	3EH		INPUT 8	102	66H	CH ON	INPUT 10
23	17H		INPUT 23	63	3FH		INPUT 9	103	67H		INPUT 11
24	18H		INPUT 24	64	40H		INPUT 10	104	68H		INPUT 12
25	19H		INPUT 25	65	41H		INPUT 11	105	69H		INPUT 13
26	1AH		INPUT 26	66	42H		INPUT 12	106	6AH		INPUT 14
27	1BH		INPUT 27	67	43H		INPUT 13	107	6BH		INPUT 15
28	1CH		INPUT 28	68	44H		INPUT 14	108	6CH		INPUT 16
29	1DH		INPUT 29	69	45H		INPUT 15	109	6DH		INPUT 17
30	1EH		INPUT 30	70	46H		INPUT 16	110	6EH		INPUT 18
31	1FH		INPUT 31	71	47H		INPUT 17	111	6FH		INPUT 19
32	20H		INPUT 32	72	48H		INPUT 18	112	70H		INPUT 20
33	21H		AUX RTN 1	73	49H		INPUT 19	113	71H		INPUT 21
34	22H		AUX RTN 2	74	4AH		INPUT 20	114	72H		INPUT 22
35	23H		AUX RTN 3	75	4BH		INPUT 21	115	73H		INPUT 23
36	24H		AUX RTN 4	76	4CH		INPUT 22	116	74H		INPUT 24
37	25H		AUX RTN 5	77	4DH		INPUT 23	117	75H		INPUT 25
38	26H	NRPN DATA LSB		78	4EH		INPUT 24	118	76H		INPUT 26
39	27H	FADER	AUX RTN 6	79	4FH		INPUT 25	119	77H		INPUT 27

Assignable Parameter for Control Change [1/2]

Parameter	Selectable Channel					Data
	INPUT	AUX RTN	AUX SND	BUS	MASTER	
PHANTOM	1-8	–	–	–	–	OFF/ON
PHASE	1-32	–	–	–	–	NOR/INV
GAIN	1-32	1-6	–	–	–	–24..+12dB
INSERTION	–	–	–	1-8	L/R	OFF/ON
STEREO	1-32	1-6	1-6	1-8	–	OFF/LINK/STREO
FADER GROUP	1-32	1-6	–	–	–	OFF,1-4
MUTE GROUP	1-32	1-6	1-6	1-8	–	OFF.1-4
PAN/BAL ON	1-32	1-6	–	–	L/R	OFF/ON
PAN/BAL	1-32	1-6	–	1-8	L/R	L16..1,C,R1..16
PAN/BAL GANG	1-32	1-6	–	1-8	L/R	OFF/=/X
CH ON	1-32	1-6	1-6	1-8	L/R	OFF/ON
FADER	1-32	1-6	1-6	1-8	L/R	–infinity,–90..+10dB
DELAY ON	1-32	–	–	–	–	OFF/ON
DELAY TIME	1-32	–	–	–	–	0..14400samples
ROUTING BUS1	1-32	1-6	–	–	–	OFF/ON
ROUTING BUS2	1-32	1-6	–	–	–	OFF/ON
ROUTING BUS3	1-32	1-6	–	–	–	OFF/ON
ROUTING BUS4	1-32	1-6	–	–	–	OFF/ON
ROUTING BUS5	1-32	1-6	–	–	–	OFF/ON
ROUTING BUS6	1-32	1-6	–	–	–	OFF/ON
ROUTING BUS7	1-32	1-6	–	–	–	OFF/ON
ROUTING BUS8	1-32	1-6	–	–	–	OFF/ON
ROUTING L/R	1-32	1-6	1-6	1-6	–	OFF/ON
ROUTING DIRECT	1-32	1-6	1-6	1-6	1-6	OFF/ON
AUX SND PAN/BAL 1,2	1-32	–	–	–	–	OFF/L16..1,C,R1..16
AUX SND PAN/BAL 3,4	1-32	–	–	–	–	OFF/L16..1,C,R1..16
AUX SND PAN/BAL 5,6	1-32	–	–	–	–	OFF/L16..1,C,R1..16
AUX SND ON,POS 1	1-32	–	–	–	–	OFF/PST/PRE
AUX SND ON,POS 2	1-32	–	–	–	–	OFF/PST/PRE
AUX SND ON,POS 3	1-32	–	–	–	–	OFF/PST/PRE
AUX SND ON,POS 4	1-32	–	–	–	–	OFF/PST/PRE
AUX SND ON,POS 5	1-32	–	–	–	–	OFF/PST/PRE
AUX SND ON,POS 6	1-32	–	–	–	–	OFF/PST/PRE
AUX SND LEVEL 1	1-32	–	–	–	–	–infinity,–90..+10dB
AUX SND LEVEL 2	1-32	–	–	–	–	–infinity,–90..+10dB
AUX SND LEVEL 3	1-32	–	–	–	–	–infinity,–90..+10dB
AUX SND LEVEL 4	1-32	–	–	–	–	–infinity,–90..+10dB
AUX SND LEVEL 5	1-32	–	–	–	–	–infinity,–90..+10dB
AUX SND LEVEL 6	1-32	–	–	–	–	–infinity,–90..+10dB
SURR ENABLE,MODE	1-32	1-6	–	–	–	OFF/SND/J&F/PTN
SURR LR:C	1-32	1-6	–	–	–	10:0..0: 10
SURR MOVE MODE RETURN	1-32	1-6	–	–	–	OFF/ON
SURR MOVE MODE REPEAT	1-32	1-6	–	–	–	OFF/ON
SURR MOVE MODE REVERSE	1-32	1-6	–	–	–	OFF/ON
SURR AUTO MOVE TIME	1-32	1-6	–	–	–	0..10sec
SURR AUTO MOVE START	1-32	1-6	–	–	–	
SURR L	1-32	1-6	–	–	–	–infinity,–90..0dB
SURR R	1-32	1-6	–	–	–	–infinity,–90..0dB
SURR C	1-32	1-6	–	–	–	–infinity,–90..0dB
SURR SB	1-32	1-6	–	–	–	–infinity,–90..0dB
SURR SL	1-32	1-6	–	–	–	–infinity,–90..0dB
SURR SR	1-32	1-6	–	–	–	–infinity,–90..0dB
SURR LR	1-32	1-6	–	–	–	L16..1,C,R1..16
SURR FR	1-32	1-6	–	–	–	L16..1,C,R1..16

MIDI Control Change

Assignable Parameter for Control Change [2/2]

Parameter	Selectable Channel					Data
	INPUT	AUX RTN	AUX SND	BUS	MASTER	
EQ ON	1-32	1-6	–	1-8	L/R	OFF/ON
EQ LOW BAND FILTER TYPE	1-32	1-6	–	1-8	L/R	PEQ/HPF/SHL
EQ HIGH BAND FILTER TYPE	1-32	1-6	–	1-8	L/R	PEQ/LPF/SHH
EQ LOW BAND Q	1-32	1-6	–	1-8	L/R	0.5..50
EQ LOW BAND F	1-32	1-6	–	1-8	L/R	PEQ:20..20kHz HPF,SHL:20..1.6kHz
EQ LOW BAND G	1-32	–	–	1-8	L/R	PEQ,SHL:–15..15dB HPF:OFF/ON
EQ L-MID BAND Q	1-32	–	–	1-8	L/R	0.5..50
EQ L-MID BAND F	1-32	–	–	1-8	L/R	20 to 20kHz
EQ L-MID BAND G	1-32	–	–	1-8	L/R	–15..15dB
EQ H-MID BAND Q	1-32	–	–	1-8	L/R	0.5..50
EQ H-MID BAND F	1-32	–	–	1-8	L/R	500..20kHz
EQ H-MID BAND G	1-32	–	–	1-8	L/R	–15..15dB
EQ HIGH BAND Q	1-32	1-6	–	1-8	L/R	0.5..50
EQ HIGH BAND F	1-32	1-6	–	1-8	L/R	PEQ:500..20kHz LPF,SHH:1k..20kHz
EQ HIGH BAND G	1-32	1-6	–	1-8	L/R	PEQ,SHH:–15..15dB LPF:OFF/ON
DYN ON,FUNCTION	1-32	–	–	1-8	L/R	OFF/COMP+GATE/EXP
DYN STEREO LINK	1-32	–	–	1-8	L/R	OFF/LEFT/RIGHT/BOTH
DYN POSITION	1-32	–	–	1-8	L/R	POST EQ/PRE EQ
DYN GATE THL	1-32	–	–	1-8	L/R	OFF,–80..–15dB
DYN GATE ATTACK	1-32	–	–	1-8	L/R	0..250ms
DYN GATE RELEASE	1-32	–	–	1-8	L/R	5..2000ms
DYN COMP/EXP THL	1-32	–	–	1-8	L/R	COMP:–40..0dB EXP:–80..–15dB
DYN COMP/EXP RATIO	1-32	–	–	1-8	L/R	COMP: 1:1..infinity:1 EXP: 1:infinity..1:1
DYN COMP/EXP ATTACK	1-32	–	–	1-8	L/R	0..250ms
DYN COMP/EXP RELEASE	1-32	–	–	1-8	L/R	5..2000ms
DYN COMP/EXP GAIN/RANGE	1-32	–	–	1-8	L/R	COMP:0..12dB(GAIN) EXP:0..40dB(RANGE)

NRPN (Parameter)

Assignment of NRPN Parameter MSB (pm) [1/2]

pm	Parameter (pl)	Selectable Channel (pl)					Data (dm, dl)
		INPUT	AUX RTN	AUX SND	BUS	MASTER	
20H	PHANTOM	1-8	–	–	–	–	OFF/ON
21H	PHASE	1-32	–	–	–	–	NOR/INV
22H	GAIN	1-32	1-6	–	–	–	–24..+12dB
23H	INSERTION	–	–	–	1-8	L/R	OFF/ON
24H	STEREO	1-32	1-6	1-6	1-8	–	OFF/LINK/STREO
25H	FADER GROUP	1-32	1-6	–	–	–	OFF/1/2/3/4
26H	MUTE GROUP	1-32	1-6	1-6	1-8	–	OFF/1/2/3/4
27H	PAN/BAL ON	1-32	1-6	–	–	L/R	OFF/ON
28H	PAN/BAL	1-32	1-6	–	1-8	L/R	L16..1,C,R1..16
29H	PAN/BAL GANG	1-32	1-6	–	1-8	L/R	OFF/=/X
2AH	CH ON	1-32	1-6	1-6	1-8	L/R	OFF/ON
2BH	FADER	1-32	1-6	1-6	1-8	L/R	–infinity,–90..+10
2CH	DELAY ON	1-32	–	–	–	–	OFF/ON
2DH	DELAY TIME	1-32	–	–	–	–	0..14400samples
2EH	ROUTING BUS1	1-32	1-6	–	–	–	OFF/ON
2FH	ROUTING BUS2	1-32	1-6	–	–	–	OFF/ON
30H	ROUTING BUS3	1-32	1-6	–	–	–	OFF/ON
31H	ROUTING BUS4	1-32	1-6	–	–	–	OFF/ON
32H	ROUTING BUS5	1-32	1-6	–	–	–	OFF/ON
33H	ROUTING BUS6	1-32	1-6	–	–	–	OFF/ON
34H	ROUTING BUS7	1-32	1-6	–	–	–	OFF/ON
35H	ROUTING BUS8	1-32	1-6	–	–	–	OFF/ON
36H	ROUTING L/R	1-32	1-6	1-6	1-6	–	OFF/ON
37H	ROUTING DIRECT	1-32	1-6	1-6	1-6	1-6	OFF/ON
38H	AUX SND PAN/BAL 1,2	1-32	–	–	–	–	OFF/L16..1,C,R1..16
39H	AUX SND PAN/BAL 3,4	1-32	–	–	–	–	OFF/L16..1,C,R1..16
3AH	AUX SND PAN/BAL 5,6	1-32	–	–	–	–	OFF/L16..1,C,R1..16
3BH	Reserved						
3CH	AUX SND ON,POS 1	1-32	–	–	–	–	OFF/PST/PRE
3DH	AUX SND ON,POS 2	1-32	–	–	–	–	OFF/PST/PRE
3EH	AUX SND ON,POS 3	1-32	–	–	–	–	OFF/PST/PRE
3FH	AUX SND ON,POS 4	1-32	–	–	–	–	OFF/PST/PRE
40H	AUX SND ON,POS 5	1-32	–	–	–	–	OFF/PST/PRE
41H	AUX SND ON,POS 6	1-32	–	–	–	–	OFF/PST/PRE
42H	Reserved						
43H	Reserved						
44H	AUX SND LEVEL 1	1-32	–	–	–	–	–infinity,–90..+10dB
45H	AUX SND LEVEL 2	1-32	–	–	–	–	–infinity,–90..+10dB
46H	AUX SND LEVEL 3	1-32	–	–	–	–	–infinity,–90..+10dB
47H	AUX SND LEVEL 4	1-32	–	–	–	–	–infinity,–90..+10dB
48H	AUX SND LEVEL 5	1-32	–	–	–	–	–infinity,–90..+10dB
49H	AUX SND LEVEL 6	1-32	–	–	–	–	–infinity,–90..+10dB
4AH	Reserved						
4BH	Reserved						
4CH	SURR ENABLE,MODE	1-32	1-6	–	–	–	OFF/SND/J&F/PTN
4DH	SURR LR:C	1-32	1-6	–	–	–	10:0..0:10
4EH	SURR MOVE MODE RETURN	1-32	1-6	–	–	–	OFF/ON
4FH	SURR MOVE MODE REPEAT	1-32	1-6	–	–	–	OFF/ON
50H	SURR MOVE MODE REVERSE	1-32	1-6	–	–	–	OFF/ON
51H	SURR AUTO MOVE TIME	1-32	1-6	–	–	–	0..10sec
52H	SURR AUTO MOVE START	1-32	1-6	–	–	–	
53H	SURR L	1-32	1-6	–	–	–	–infinity,–90..0dB
54H	SURR R	1-32	1-6	–	–	–	–infinity,–90..0dB
55H	SURR C	1-32	1-6	–	–	–	–infinity,–90..0dB
56H	SURR SB	1-32	1-6	–	–	–	–infinity,–90..0dB
57H	SURR SL	1-32	1-6	–	–	–	–infinity,–90..0dB
58H	SURR SR	1-32	1-6	–	–	–	–infinity,–90..0dB
59H	SURR LR	1-32	1-6	–	–	–	L16..1,C,R1..16
5AH	SURR FR	1-32	1-6	–	–	–	L16..1,C,R1..16

NRPN (Parameter)

Assignment of NRPN Parameter MSB (pm) [2/2]

pm	Parameter	Selectable Channel (pl)					Data (dm, dl)
		INPUT	AUX RTN	AUX SND	BUS	MASTER	
5BH	EQ ON	1-32	1-6	–	1-8	L/R	OFF/ON
5CH	EQ LOW BAND FILTER TYPE	1-32	1-6	–	1-8	L/R	PEQ/HPF/SHL
5DH	EQ HIGH BAND FILTER TYPE	1-32	1-6	–	1-8	L/R	PEQ/LPF/SHH
5EH	EQ LOW BAND Q	1-32	1-6	–	1-8	L/R	0.5..50
5FH	EQ LOW BAND F	1-32	1-6	–	1-8	L/R	PEQ:20..20kHz HPF,SHL:20..1.6kHz
60H	EQ LOW BAND G	1-32	–	–	1-8	L/R	PEQ,SHL:–15..15dB HPF:OFF/ON
61H	EQ L-MID BAND Q	1-32	–	–	1-8	L/R	0.5..50
62H	EQ L-MID BAND F	1-32	–	–	1-8	L/R	20 to 20kHz
63H	EQ L-MID BAND G	1-32	–	–	1-8	L/R	–15..15dB
64H	EQ H-MID BAND Q	1-32	–	–	1-8	L/R	0.5..50
65H	EQ H-MID BAND F	1-32	–	–	1-8	L/R	500..20kHz
66H	EQ H-MID BAND G	1-32	–	–	1-8	L/R	–15..15dB
67H	EQ HIGH BAND Q	1-32	1-6	–	1-8	L/R	0.5..50
68H	EQ HIGH BAND F	1-32	1-6	–	1-8	L/R	PEQ:500..20kHz LPF,SHH:1k.20kHz
69H	EQ HIGH BAND G	1-32	1-6	–	1-8	L/R	PEQ,SHH:–15..15dB LPF:OFF/ON
6AH	DYN ON,FUNCTION	1-32	–	–	1-8	L/R	OFF/COMP+GATE/EXP
6BH	DYN STEREO LINK	1-32	–	–	1-8	L/R	OFF/LEFT/RIGHT/BOTH
6CH	DYN POSITION	1-32	–	–	1-8	L/R	POST EQ/PRE EQ
6DH	DYN GATE THL	1-32	–	–	1-8	L/R	OFF,–80..–15dB
6EH	DYN GATE ATTACK	1-32	–	–	1-8	L/R	0..250ms
6FH	DYN GATE RELEASE	1-32	–	–	1-8	L/R	5..2000ms
70H	DYN COMP/EXP THL	1-32	–	–	1-8	L/R	COMP:–40..0dB EXP:–80..–15dB
71H	DYN COMP/EXP RATIO	1-32	–	–	1-8	L/R	COMP:1:1..infinity:1 EXP: 1:infinity..1:1
72H	DYN COMP/EXP ATTACK	1-32	–	–	1-8	L/R	0..250ms
73H	DYN COMP/EXP RELEASE	1-32	–	–	1-8	L/R	5..2000ms
74H	DYN COMP/EXP GAIN/RANGE	1-32	–	–	1-8	L/R	COMP:0:12dB(GAIN) EXP:0..40dB(RANGE)
75H	SELECTED CH	1-32	1-6	1-6	1-8	L/R	–
76H	AUTOMATION REC CH	1-32	1-6	1-6	1-8	L/R	OFF/ON
77H	AUTOMATION MANUAL CH	1-32	1-6	1-6	1-8	L/R	OFF/ON
78H	OSCILLATOR ASSIGN CH	–	–	1-6	1-8	L/R	OFF/ON
79H	CH LIBRARY RECALL CH	1-32	1-6	1-6	1-8	L/R	–
7AH	EQ LIBRARY RECALL CH	1-32	1-6	–	1-8	L/R	–
7BH	DYN LIBRARY RECALL CH	1-32	–	–	1-8	L/R	–
7CH	SOLO MONITOR CH	1-32	1-6	1-6	1-8	–	OFF/ON
7DH	SCENE MEMORY PROTECT CH	1-32	1-6	1-6	1-8	L/R	OFF/ON
7EH	SCENE MEMORY FADE CH	1-32	1-6	1-6	1-8	L/R	OFF/ON
7FH	SYSTEM CURRENT						

Assignment of NRPN Parameter LSB (pl) for Selecting Channel

INPUT 1-32	AUX RTN 1-6	AUX SND 1-6	BUS 1-8	MASTER L/R	ALL
20H - 3FH	58H - 5DH	64H - 69H	70H - 77H	78H	7FH

Assignment of NRPN Parameter LSB (pl) for System Current [1/3]

pl	Category	Parameter			Data (dm, dl)
20H	MONITOR	TALK BACK	ON		OFF/ON
21H			ASSIGN	SLATE	OFF/ON
22H				MONITOR B	OFF/ON
23H				ALL AUX	OFF/ON
24H		MONITOR A DIMMER			OFF/ON
25H		SUR MON	ON		OFF/ON
26H			ASSIGN		OFF/ON
27H			MASTER LEVEL		–infinity,–90..+10dB
28H		SOLO MON	ON		OFF/ON
29H			POSITION		PFL/AFL/IN PLACE
2AH			MODE		SOLO/MIX
2BH			LEVEL		–infinity,–90..+10dB
2CH	OSCILLATOR	ON			OFF/ON
2DH		SOURCE			30/60/100/400/1K/4K/10K/15K/PINK
2EH		LEVEL			–infinity,–90..0dB
2FH	KEY LOCK	FADER			OFF/ON
30H		10 KEY			OFF/ON
31H		CURSOR&JOG			OFF/ON
32H		OTHERS			OFF/ON
33H	DIGITAL INPUT	WORD CLOCK SOURCE			INT44.1K/INT48K/WCK IN/VSYNC/2TR IN A/SLOT1/SLOT2/SLOT3
34H		VSYNC	Fs		44.1kHz/48kHz
35H			REF		50Hz/59.94Hz/60Hz
36H			±0.1%		DOWN/0/UP
37H		INPUT9-14			ANALOG9-14/SLOT3
38H		INPUT15-16			ANALOG15-16/2TR IN A
39H		2TR IN A –> MASTER LR			OFF/ON
3AH	TO SLOT	SLOT1	CH1		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
3BH			CH2		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
3CH			CH3		NONE/INPUT 1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
3DH			CH4		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
3EH			CH5		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
3FH			CH6		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
40H			CH7		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
41H			CH8		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
42H		SLOT2	CH1		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
43H			CH2		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
44H			CH3		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
45H			CH4		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
46H			CH5		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
47H			CH6		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
48H			CH7		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
49H			CH8		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R

NRPN (Parameter)

Assignment of NRPN Parameter LSB (pl) for System Current [2/3]

pl	Category	Parameter			Data (dm, dl)
4AH	TO SLOT	SLOT3	MODE		NORMAL/INS/TANDEM
4BH			CH1/TNDM ON		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R/OFF/ON
4CH			CH2/TNDM DELAY		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R/OFF/ON
4DH			CH3/TNDM AUTO		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R/OFF/ON
4EH			CH4/TNDM PORT		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R/OFF/ON
4FH			CH5		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
50H			CH6		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
51H			CH7		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
52H			CH8		NONE/INPUT1-32/AUXSND1-6/BUS1-8/MASTER L/MASTER R
53H	DITHER	REC OUT	ON,BIT		OFF/16..23bit
54H		AUXSND1/2	ON,BIT		OFF/16..23bit
55H		SLOT1	CH1/2	ON,BIT	OFF/16..23bit
56H			CH3/4	ON,BIT	OFF/16..23bit
57H			CH5/6	ON,BIT	OFF/16..23bit
58H			CH7/8	ON,BIT	OFF/16..23bit
59H		SLOT2	CH1/2	ON,BIT	OFF/16..23bit
5AH			CH3/4	ON,BIT	OFF/16..23bit
5BH			CH5/6	ON,BIT	OFF/16..23bit
5CH			CH7/8	ON,BIT	OFF/16..23bit
5DH		SLOT3	CH1/2	ON,BIT	OFF/16..23bit
5EH			CH3/4	ON,BIT	OFF/16..23bit
5FH			CH5/6	ON,BIT	OFF/16..23bit
60H			CH7/8	ON,BIT	OFF/16..23bit
61H	FADER GROUP	GROUP1 ON			OFF/ON
62H		GROUP2 ON			OFF/ON
63H		GROUP3 ON			OFF/ON
64H		GROUP4 ON			OFF/ON
65H	MUTE GROUP	GROUP1 ON			OFF/ON
66H		GROUP2 ON			OFF/ON
67H		GROUP3 ON			OFF/ON
68H		GROUP4 ON			OFF/ON
69H	METER	POSITION	INPUT		PRE EQ/PRE FDR/POST FDR
6AH			AUX BUS		PRE EQ/PRE FDR/POST FDR
6BH		RESPONSE			VU/PPM
6CH		PEAK HOLD			OFF/ON/infinity
6DH	Reserved				
6EH	Reserved				
6FH	Reserved				

Assignment of NRPN Parameter LSB (pl) for System Current [3/3]

pl	Category	Parameter		Data (dm, dl)
70H	SCENE MEMORY	READ PARM	FADER	OFF/ON
71H			FDR GROUP	OFF/ON
72H			MUTE GROUP	OFF/ON
73H			EQUALIZER	OFF/ON
74H			DYNAMICS	OFF/ON
75H			OTHERS	OFF/ON
76H		FADE TIME		0..3sec
77H	PANEL	MONITOR A SOURCE		OFF/MASTER LR/2TR A/2TR B /AUX1-2/AUX3-4/AUX5-6
78H		MONITOR A MONO		OFF/ON
79H		MONITOR B SOURCE		OFF/MONITOR A/MASTER LR /AUX1-2/AUX3-4/AUX5-6
7AH	MEMORY	AUTOMATION		1/2/3/4
7BH	Reserved			
7CH	Reserved			
7DH	REMOTE SW STATUS			OFF/ON
7EH	MULTI CHANNEL VIEW			OFF/ON
7FH	LCD SCREEN CHANGE			SCREEN ID

NRPN (Data)

Assignment of Data Value for Control Change 3rd Byte and NRPN Data LSB (dl) [1/2]

Data Value		Send	Receive	Applicable Parameter
OFF/ON	OFF	00H	00H	PHANTOM, CH ON, EQ ON
	ON	7FH	01..7FH	DYNAMICS ON, etc.
NOR/INV	NOR	00H	00H	PHASE
	INV	7FH	01H..7FH	
OFF/LINK/STEREO	OFF	00H	00H	STEREO
	LINK	01H	01H	
	STEREO	02H	02H..7FH	
OFF/1/2/3/4	OFF	00H	00H	FADER GROUP,
	1	01H	01H	MUTE GROUP
	2	02H	02H	
	3	03H	03H	
	4	04H	04..7FH	
OFF/=/X	OFF	00H	00H	PAN/BAL/ GNG
	=	01H	01H	
	X	02H	02..7FH	
OFF/PST/PRE	OFF	00H	00H	AUX SND ON,POS
	PST	01H	01H	
	PRE	02H	02..7FH	
OFF/SND/J&F/PTN	OFF	00H	00H	SURROUND ENABLE,MODE
	SND	01H	01H	
	J&F	02H	02H	
	PTN	03H	03..7FH	
PEQ/HPF/SHL	OFF	00H	00H	EQ LOW BAND FILTER
	HPF	01H	01H	
	SHL	02H	02..7FH	
PEQ/LPF/SHH	OFF	00H	00H	EQ HIGH BAND FILTER
	LPF	01H	01H	
	SHH	02H	02..7FH	
OFF/COMP+GATE/EXP	OFF	00H	00H	DYNAMICS FUNCTION
	COMP+GATE	01H	01H	
	EXP	02H	02..7FH	
OFF/LEFT/RIGHT/BOTH	OFF	00H	00H	DYNAMICS STEREO LINK
	LEFT	01H	01H	
	RIGHT	02H	02H	
	BOTH	03H	03..7FH	
PRE EQ/POST EQ	PRE EQ	00H	00H	DYNAMICS POSITION
	POST EQ	7FH	01..7FH	
PFL/AFL/IN PLACE	PRE	00H	00H	SOLO POSITION
	PST	01H	01H	
	IN PLACE	02H	02..7FH	
SOLO/MIX	SOLO	00H	00H	SOLO MONITOR MODE
	MIX	7FH	01..7FH	
44.1K/48K	44.1K	00H	00H	VSYNC Fs
	48K	7FH	01..7FH	
50Hz/59.94H/60Hz	50Hz	00H	00H	VSYNC REF
	59.94Hz	01H	01H	
	60Hz	02H	02..7FH	
DOWN/0/UP	UP	00H	00H	VSYNC UP-DOWN
	DOWN	01H	01H	
	0	02H	02..7FH	
ANALOG9-14/SLOT3	ANALOG9-14	00H	00H	DIO INPUT9-14
	SLOT3	01H	01..7FH	
ANALOG15-16/2TR A/SLOT3	ANALOG15-16	00H	00H	DIO INPUT15-16
	2TR A	01H	01..7FH	

÷ Data MSB (dm) is 00H fixed.

Assignment of Data Value for Control Change 3rd Byte and NRPN Data LSB (dl) [2/2]

Data Value		Send	Receive	Applicable Parameter
NONE/INPUT1-32 /AUXSND1-6/BUS1-8 /MASTER L/MASTER R	NONE	00H	00H-1FH	TO SLOT SLOT1-3 CH1-8
	INPUT1-32	20H-3FH	20H-57H	
	AUXSND1-6	64H-69H	64H-6FH	
	BUS1-8	70H-77H	70H-77H	
	MASTER L	78H	78H	
	MASTER R	79H	79H-7FH	
NORMAL/INS/TANDEM	NORMAL	00H	00H	TO SLOT SLOT3 MODE
	INS	01H	01H	
	TANDEM	02H	02..7FH	
MIDI/TO PC	MIDI	00H	00H	TANDEM PORT
	TO PC	7FH	01..7FH	
PRE EQ/PRE FDR/POST FDR	PRE EQ	00H	00H	METER POSITION
	PRE FDR	01H	01H	
	POST FDR	02H	02..7FH	
VU/PPM	VU	00H	00H	METER RESPONSE
	PPM	7FH	01..7FH	
OFF/ON/infinity	OFF	00H	00H	METER PEAK HOLD
	ON	01H	01H	
	infinity	02H	02..7FH	
OFF/MASTER LR/2TR A /2TR B/AUX1-2/AUX3-4 /AUX5-6	OFF	00H	00H	MONITOR A SOURCE
	MASTER LR	01H	01H	
	2TR A	02H	02H	
	2TR B	03H	03H	
	AUX1-2	04H	04H	
	AUX3-4	05H	05H	
	AUX5-6	06H	06..7FH	
OFF/MONITOR A /MASTER LR/AUX1-2 /AUX3-4/AUX5-6	OFF	00H	00H	MONITOR B SOURCE
	MONITOR A	01H	01H	
	MASTER LR	02H	02H	
	AUX1-2	03H	03H	
	AUX3-4	04H	04H	
	AUX5-6	05H	05..7FH	
1/2/3/4	1	00H	00H	AUTOMATION RECALL
	2	01H	01H	
	3	02H	02H	
	4	03H	03..7FH	

Data MSB (dm) is 00H fixed.

NRPN (Data)

Individual Assignment of
Data Value for Control Change 3rd Byte and NRPN Data MSB, LSB (dm, dl)

GAIN

[GAIN] of Channel (INPUT 1-32, AUX RTN 1-6)
[G] of Equalizer
[GAIN] of Dynamics Compressor
[RANGE] of Dynamics Expander

<Expression>

Value = Code $\boxed{\div}$ 0.5 - 40 Code = Value $\boxed{\div}$ 2 +80

<Table>

Code		Value [dB]	Code		Value [dB]	Code		Value [dB]	Code		Value [dB]
Dec	Hex		Dec	Hex		Dec	Hex		Dec	Hex	
0	00H	–40.0	32	20H	–24.0	64	40H	–8.0	96	60H	+8.0
1	01H	–39.5	33	21H	–23.5	65	41H	–7.5	97	61H	+8.5
2	02H	–39.0	34	22H	–23.0	66	42H	–7.0	98	62H	+9.0
3	03H	–38.5	35	23H	–22.5	67	43H	–6.5	99	63H	+9.5
4	04H	–38.0	36	24H	–22.0	68	44H	–6.0	100	64H	+10.0
5	05H	–37.5	37	25H	–21.5	69	45H	–5.5	101	65H	+10.5
6	06H	–37.0	38	26H	–21.0	70	46H	–5.0	102	66H	+11.0
7	07H	–36.5	39	27H	–20.5	71	47H	–4.5	103	67H	+11.5
8	08H	–36.0	40	28H	–20.0	72	48H	–4.0	104	68H	+12.0
9	09H	–35.5	41	29H	–19.5	73	49H	–3.5	105	69H	+12.5
10	0AH	–35.0	42	2AH	–19.0	74	4AH	–3.0	106	6AH	+13.0
11	0BH	–34.5	43	2BH	–18.5	75	4BH	–2.5	107	6BH	+13.5
12	0CH	–34.0	44	2CH	–18.0	76	4CH	–2.0	108	6CH	+14.0
13	0DH	–33.5	45	2DH	–17.5	77	4DH	–1.5	109	6DH	+14.5
14	0EH	–33.0	46	2EH	–17.0	78	4EH	–1.0	110	6EH	+15.0
15	0FH	–32.5	47	2FH	–16.5	79	4FH	–0.5	111	6FH	—
16	10H	–32.0	48	30H	–16.0	80	50H	0.0	112	70H	—
17	11H	–31.5	49	31H	–15.5	81	51H	+0.5	113	71H	—
18	12H	–31.0	50	32H	–15.0	82	52H	+1.0	114	72H	—
19	13H	–30.5	51	33H	–14.5	83	53H	+1.5	115	73H	—
20	14H	–30.0	52	34H	–14.0	84	54H	+2.0	116	74H	—
21	15H	–29.5	53	35H	–13.5	85	55H	+2.5	117	75H	—
22	16H	–29.0	54	36H	–13.0	86	56H	+3.0	118	76H	—
23	17H	–28.5	55	37H	–12.5	87	57H	+3.5	119	77H	—
24	18H	–28.0	56	38H	–12.0	88	58H	+4.0	120	78H	—
25	19H	–27.5	57	39H	–11.5	89	59H	+4.5	121	79H	—
26	1AH	–27.0	58	3AH	–11.0	90	5AH	+5.0	122	7AH	—
27	1BH	–26.5	59	3BH	–10.5	91	5BH	+5.5	123	7BH	—
28	1CH	–26.0	60	3CH	–10.0	92	5CH	+6.0	124	7CH	—
29	1DH	–25.5	61	3DH	–9.5	93	5DH	+6.5	125	7DH	—
30	1EH	–25.0	62	3EH	–9.0	94	5EH	+7.0	126	7EH	—
31	1FH	–24.0	63	3FH	–8.5	95	5FH	+7.5	127	7FH	—

$\boxed{\div}$ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

PAN/BAL

[LR] of PAN

[LR] of Balance

[LR] of Surround

[FR] of Surround

<Table>

Code		Value		Code		Value		Code		Value		Code		Value	
Dec	Hex	LR	FR	Dec	Hex	LR	FR	Dec	Hex	LR	FR	Dec	Hex	LR	FR
0	00H	L16	F16	8	08H	L8	F8	16	10H	C	C	24	18H	R8	R8
1	01H	L15	F15	9	09H	L7	F7	17	11H	R1	R1	25	19H	R9	R9
2	02H	L14	F14	10	0AH	L6	F6	18	12H	R2	R2	26	1AH	R10	R10
3	03H	L13	F13	11	0BH	L5	F5	19	13H	R3	R3	27	1BH	R11	R11
4	04H	L12	F12	12	0CH	L4	F4	20	14H	R4	R4	28	1CH	R12	R12
5	05H	L11	F11	13	0DH	L3	F3	21	15H	R5	R5	29	1DH	R13	R13
6	06H	L10	F10	14	0EH	L2	F2	22	16H	R6	R6	30	1EH	R14	R14
7	07H	L9	F9	15	0FH	L1	F1	23	17H	R7	R7	31	1FH	R15	R15

Code				Value	
Send		Receive		LR	FR
Dec	Hex	Dec	Hex		
32	20H	32-127	20H-7FH	R16	R16

NRPN (Data)

FADER

[FADER] of Channel
[L], [R], [C], [SB], [SL] and [SR] of Surround
[MASTER LEVEL] of Surround Monitor
[LEVEL] of Solo Monitor
[LEVEL] of Oscillator

<Table>

Code		Value [dB]	Code		Value [dB]	Code		Value [dB]	Code		Value [dB]
Dec	Hex		Dec	Hex		Dec	Hex		Dec	Hex	
0	00H	– ∞	32	20H	–26.0	64	40H	–14.0	96	60H	–1.3
1	01H	–90.0	33	21H	–25.6	65	41H	–13.5	97	61H	–1.0
2	02H	–80.0	34	22H	–25.3	66	42H	–13.1	98	62H	–0.7
3	03H	–70.0	35	23H	–25.0	67	43H	–12.7	99	63H	–0.3
4	04H	–60.0	36	24H	–24.7	68	44H	–12.3	100	64H	0.0
5	05H	–55.5	37	25H	–24.3	69	45H	–12.0	101	65H	+0.3
6	06H	–52.0	38	26H	–24.0	70	46H	–11.6	102	66H	+0.6
7	07H	–48.0	39	27H	–23.6	71	47H	–11.2	103	67H	+1.0
8	08H	–44.0	40	28H	–23.2	72	48H	–10.8	104	68H	+1.3
9	09H	–40.0	41	29H	–22.8	73	49H	–10.4	105	69H	+1.6
10	0AH	–39.1	42	2AH	–22.4	74	4AH	–10.0	106	6AH	+2.0
11	0BH	–38.3	43	2BH	–22.0	75	4BH	–9.6	107	6BH	+2.3
12	0CH	–37.4	44	2CH	–21.6	76	4CH	–9.2	108	6CH	+2.6
13	0DH	–36.6	45	2DH	–21.2	77	4DH	–8.8	109	6DH	+3.0
14	0EH	–35.8	46	2EH	–20.9	78	4EH	–8.4	110	6EH	+3.3
15	0FH	–35.0	47	2FH	–20.5	79	4FH	–8.0	111	6FH	+3.6
16	10H	–34.3	48	30H	–20.0	80	50H	–7.6	112	70H	+4.0
17	11H	–33.5	49	31H	–19.7	81	51H	–7.2	113	71H	+4.3
18	12H	–32.7	50	32H	–19.4	82	52H	–6.8	114	72H	+4.6
19	13H	–32.0	51	33H	–19.0	83	53H	–6.4	115	73H	+5.0
20	14H	–31.4	52	34H	–18.7	84	54H	–6.0	116	74H	+5.3
21	15H	–30.7	53	35H	–18.3	85	55H	–5.6	117	75H	+5.6
22	16H	–30.0	54	36H	–18.0	86	56H	–5.2	118	76H	+6.0
23	17H	–29.6	55	37H	–17.5	87	57H	–4.8	119	77H	+6.3
24	18H	–29.2	56	38H	–17.1	88	58H	–4.4	120	78H	+6.6
25	19H	–28.8	57	39H	–16.7	89	59H	–4.0	121	79H	+7.0
26	1AH	–28.4	58	3AH	–16.4	90	5AH	–3.6	122	7AH	+7.3
27	1BH	–28.0	59	3BH	–16.0	91	5BH	–3.2	123	7BH	+7.7
28	1CH	–27.7	60	3CH	–15.5	92	5CH	–2.8	124	7CH	+8.0
29	1DH	–27.3	61	3DH	–15.0	93	5DH	–2.4	125	7DH	+8.5
30	1EH	–26.9	62	3EH	–14.6	94	5EH	–2.0	126	7EH	+9.2
31	1FH	–26.5	63	3FH	–14.3	95	5FH	–1.7	127	7FH	+10.0

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

DELAY TIME

[DELAY TIME] of Channel

<Range>

0..14,400 [sample]

<Expression>

Control Change : Value = Code ÷ 80H, Code = INT (Value / 80H)
NRPN : Value = dm ÷ 80H + dl, dm = INT(Value / 80H), dl = Value – dm ÷ 80H

LR:C

[LRC] of Surround

<Table>

Code		Value	Code		Value
Dec	Hex		Dec	Hex	
0	00H	10:0	5	05H	5:5
1	01H	9:1	6	06H	4:5
2	02H	8:2	7	07H	3:7
3	03H	7:3	8	08H	2:8
4	04H	6:4	9	09H	1:9

Code				Value
Send		Receive		
Dec	Hex	Dec	Hex	
10	0AH	10-127	0AH-7FH	0:10

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

AUTO MOVE TIME

[AUTO MOVE TIME] of Surround

<Table>

Code		Value [sec]	Code		Value [sec]	Code		Value [sec]	Code		Value [sec]
Dec	Hex		Dec	Hex		Dec	Hex		Dec	Hex	
0	00H	0.0	16	10H	3.2	32	20H	6.4	48	30H	9.6
1	01H	0.2	17	11H	3.4	33	21H	6.6	49	31H	9.8
2	02H	0.4	18	12H	3.6	34	22H	6.8			
3	03H	0.6	19	13H	3.8	35	23H	7.0			
4	04H	0.8	20	14H	4.0	36	24H	7.2			
5	05H	1.0	21	15H	4.2	37	25H	7.4			
6	06H	1.2	22	16H	4.4	38	26H	7.6			
7	07H	1.4	23	17H	4.6	39	27H	7.8			
8	08H	1.6	24	18H	4.8	40	28H	8.0			
9	09H	1.8	25	19H	5.0	41	29H	8.2			
10	0AH	2.0	26	1AH	5.2	42	2AH	8.4			
11	0BH	2.2	27	1BH	5.4	43	2BH	8.6			
12	0CH	2.4	28	1CH	5.6	44	2CH	8.8			
13	0DH	2.6	29	1DH	5.8	45	2DH	9.0			
14	0EH	2.8	30	1EH	6.0	46	2EH	9.2			
15	0FH	3.0	31	1FH	6.2	47	2FH	9.4			

Code				Value [sec]
Send		Receive		
Dec	Hex	Dec	Hex	
50	32H	50-127	32H-7FH	10.0

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

NRPN (Data)

Q

[Q (Quality)] of Equalizer

<Table>

Code		Value	Code		Value	Code		Value
Dec	Hex		Dec	Hex		Dec	Hex	
0	00H	50.00	16	10H	8.00	32	20H	1.20
1	01H	45.00	17	11H	7.00	33	21H	1.10
2	02H	40.00	18	12H	6.30	34	22H	1.00
3	03H	35.00	19	13H	5.60	35	23H	0.90
4	04H	32.00	20	14H	5.00	36	24H	0.80
5	05H	28.00	21	15H	4.50	37	25H	0.70
6	06H	25.00	22	16H	4.00	38	26H	0.63
7	07H	22.00	23	17H	3.50	39	27H	0.56
8	08H	20.00	24	18H	3.20			
9	09H	18.00	25	19H	2.80			
10	0AH	16.00	26	1AH	2.50			
11	0BH	14.00	27	1BH	2.20			
12	0CH	12.00	28	1CH	2.00			
13	0DH	11.00	29	1DH	1.80			
14	0EH	10.00	30	1EH	1.60			
15	0FH	9.00	31	1FH	1.40			

Code				Value [sec]
Send		Receive		
Dec	Hex	Dec	Hex	
40	28H	40-127	28H-7FH	0.50

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

F

[F (Frequency)] of Equalizer

<Table>

Code		Value [Hz]	Code		Value [Hz]	Code		Value [Hz]	Code		Value [Hz]
Dec	Hex		Dec	Hex		Dec	Hex		Dec	Hex	
0	00H	20.0	32	20H	125.0	64	40H	800.0	96	60H	5.00K
1	01H	21.0	33	21H	136.0	65	41H	850.0	97	61H	5.30K
2	02H	22.4	34	22H	140.0	66	42H	900.0	98	62H	5.60K
3	03H	24.0	35	23H	152.0	67	43H	960.0	99	63H	6.00K
4	04H	25.0	36	24H	160.0	68	44H	1.00K	100	64H	6.30K
5	05H	27.0	37	25H	170.0	69	45H	1.05K	101	65H	6.80K
6	06H	28.0	38	26H	180.0	70	46H	1.12K	102	66H	7.10K
7	07H	30.0	39	27H	192.0	71	47H	1.20K	103	67H	7.60K
8	08H	31.5	40	28H	200.0	72	48H	1.25K	104	68H	8.00K
9	09H	34.0	41	29H	210.0	73	49H	1.36K	105	69H	8.50K
10	0AH	35.5	42	2AH	224.0	74	4AH	1.40K	106	6AH	9.00K
11	0BH	38.0	43	2BH	240.0	75	4BH	1.52K	107	6BH	9.60K
12	0CH	40.0	44	2CH	250.0	76	4CH	1.60K	108	6CH	10.00K
13	0DH	43.0	45	2DH	270.0	77	4DH	1.70K	109	6DH	10.50K
14	0EH	45.0	46	2EH	280.0	78	4EH	1.80K	110	6EH	11.20K
15	0FH	48.0	47	2FH	300.0	79	4FH	1.92K	111	6FH	12.00K
16	10H	50.0	48	30H	315.0	80	50H	2.00K	112	70H	12.50K
17	11H	53.0	49	31H	340.0	81	51H	2.10K	113	71H	13.60K
18	12H	56.0	50	32H	355.0	82	52H	2.24K	114	72H	14.00K
19	13H	60.0	51	33H	380.0	83	53H	2.40K	115	73H	15.20K
20	14H	63.0	52	34H	400.0	84	54H	2.50K	116	74H	16.00K
21	15H	68.0	53	35H	430.0	85	55H	2.70K	117	75H	17.00K
22	16H	71.0	54	36H	450.0	86	56H	2.80K	118	76H	18.00K
23	17H	76.0	55	37H	480.0	87	57H	3.00K	119	77H	19.20K
24	18H	80.0	56	38H	500.0	88	58H	3.15K	120	78H	20.00K
25	19H	85.0	57	39H	530.0	89	59H	3.40K			
26	1AH	90.0	58	3AH	560.0	90	5AH	3.55K			
27	1BH	96.0	59	3BH	600.0	91	5BH	3.80K			
28	1CH	100.0	60	3CH	630.0	92	5CH	4.00K			
29	1DH	105.0	61	3DH	680.0	93	5DH	4.30K			
30	1EH	112.0	62	3EH	710.0	94	5EH	4.50K			
31	1FH	120.0	63	3FH	760.0	95	5FH	4.80K			

	Code				Value Hz
	Send		Receive		
	Dec	Hex	Dec	Hex	
HPF, SHL of Low Band	76	4CH	76-127	4CH-7FH	1.60K
PEQ of H-MID, HIGH Band	56	38H	0-56	00H-38H	500.0
LPF, SHH of HIGH Band	68	44H	0-68	00H-44H	1.00K

*NRPN : Data LSB = Code, MSB (dm) is 00H fixed.

NRPN (Data)

THL

[THL] of Dynamics

<Table>

Code		Value [dB]	Code		Value [dB]	Code		Value [dB]
Dec	Hex		Dec	Hex		Dec	Hex	
0	00H	OFF	32	20H	–49.0	64	40H	–17.0
1	01H	–80.0	33	21H	–48.0	65	41H	–16.0
2	02H	–79.0	34	22H	–47.0	66	42H	–15.0
3	03H	–78.0	35	23H	–46.0	67	43H	–14.0
4	04H	–77.0	36	24H	–45.0	68	44H	–13.0
5	05H	–76.0	37	25H	–44.0	69	45H	–12.0
6	06H	–75.0	38	26H	–43.0	70	46H	–11.0
7	07H	–74.0	39	27H	–42.0	71	47H	–10.0
8	08H	–73.0	40	28H	–41.0	72	48H	–9.0
9	09H	–72.0	41	29H	–40.0	73	49H	–8.0
10	0AH	–71.0	42	2AH	–39.0	74	4AH	–7.0
11	0BH	–70.0	43	2BH	–38.0	75	4BH	–6.0
12	0CH	–69.0	44	2CH	–37.0	76	4CH	–5.0
13	0DH	–68.0	45	2DH	–36.0	77	4DH	–4.0
14	0EH	–67.0	46	2EH	–35.0	78	4EH	–3.0
15	0FH	–66.0	47	2FH	–34.0	79	4FH	–2.0
16	10H	–65.0	48	30H	–33.0	80	50H	–1.0
17	11H	–64.0	49	31H	–32.0	81	51H	0.0
18	12H	–63.0	50	32H	–31.0			
19	13H	–62.0	51	33H	–30.0			
20	14H	–61.0	52	34H	–29.0			
21	15H	–60.0	53	35H	–28.0			
22	16H	–59.0	54	36H	–27.0			
23	17H	–58.0	55	37H	–26.0			
24	18H	–57.0	56	38H	–25.0			
25	19H	–56.0	57	39H	–24.0			
26	1AH	–55.0	58	3AH	–23.0			
27	1BH	–54.0	59	3BH	–22.0			
28	1CH	–53.0	60	3CH	–21.0			
29	1DH	–52.0	61	3DH	–20.0			
30	1EH	–51.0	62	3EH	–19.0			
31	1FH	–50.0	63	3FH	–18.0			

	Code				Value [dB]
	Send		Receive		
	Dec	Hex	Dec	Hex	
EXPANDER	1	01H	0-1	00H-01H	–80.0
GATE, EXPANDER	66	42H	66-127	42H-7FH	–15.0
COMP	41	29H	0-41	00H-29H	–40.0
COMP	81	51H	81-127	51H-7FH	0.0

$\boxed{\div}$ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

ATTACK

[ATTACK] of Dynamics

<Range>

0..250 [ms]

<Expression>

Control Change : Value = Code $\boxed{\div}$ 2, Code = INT (Value / 2)

NRPN : Value = dm $\boxed{\div}$ 80H + dl, dm = INT (Value / 80H), dl = Value – dm $\boxed{\div}$ 80H

RELEASE

[RELEASE] of Dynamics

<Range>

5..2000 [ms]

<Expression>

Control Change : Value = Code $\boxed{\div}$ 4 $\boxed{\div}$ 5 + 5, Code = INT ((Value – 5) / 4 / 5)

NRPN : Value = (dm $\boxed{\div}$ 80H + dl) $\boxed{\div}$ 5 + 5,
dm = INT ((Value – 5) / 5 / 80H), dl = (Value – 5) / 5 – dm $\boxed{\div}$ 80H

RATIO

[RATIO] of Dynamics

<Table> of Compression RATIO

Code		Value	Code		Value
Dec	Hex		Dec	Hex	
0	00H	infinity	8	08H	3.0
1	01H	20.0	9	09H	2.5
2	02H	10.0	10	0AH	2.0
3	03H	8.0	11	0BH	1.7
4	04H	6.0	12	0CH	1.5
5	05H	5.0	13	0DH	1.3
6	06H	4.0	14	0EH	1.1
7	07H	3.5			

Code				Value
Send		Receive		
Dec	Hex	Dec	Hex	
15	0FH	15-127	0FH-7FH	1.0

$\boxed{\div}$ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

Code				Value
Send		Receive		
Dec	Hex	Dec	Hex	
0	00H	0	0H	1:infinity
4	04H	1-4	01H-04H	1:6
5	05H	5	05H	1:5
6	06H	6	06H	1:4
8	08H	7-8	07H-08H	1:3
10	0AH	9-10	09H-0AH	1:2
15	0FH	11-127	0BH-7FH	1:1

$\boxed{\div}$ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

NRPN (Data)

SOURCE

[SOURCE] of Oscillator

<Table>

Code				Value
Send		Receive		
Dec	Hex	Dec	Hex	
0	00H	0	00H	30Hz
1	01H	1	01H	60Hz
2	02H	2	02H	100Hz
3	03H	3	03H	300Hz
4	04H	4	04H	1kHz
5	05H	5	05H	4kHz
6	06H	6	06H	10kHz
7	07H	7	07H	15kHz
8	08H	8-127	08H-7FH	PINK

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

WORD CLOCK SOURCE

[WORD CLOCK SOURCE] of Digital Input

<Table>

Code				Value
Send		Receive		
Dec	Hex	Dec	Hex	
0	00H	0	00H	INT44.1K
1	01H	1	01H	INT48K
2	02H	2	02H	WCK IN
3	03H	3	03H	VSYNC
4	04H	4	04H	2TR IN A
5	05H	5	05H	SLOT1
6	06H	6	06H	SLOT2
7	07H	7-127	07H-7FH	SLOT3

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

TANDEM DELAY TIME

[TANDEM DELAY TIME] of Tandem Connection

<Range>
0..200 [sample]

<Expression>
Control Change : Value = Code ÷ 2, Code = INT(Value / 2)
NRPN : Value = dm ÷ 80H + dl, dm = INT(Value / 80H), dl = Value – dm ÷ 80H

BIT

[BIT] of Dither

<Table>

Code				Value
Send		Receive		
Dec	Hex	Dec	Hex	
0	00H	0	00H	OFF
1	01H	1	01H	16bit
2	02H	2	02H	17bit
3	03H	3	03H	18bit
4	04H	4	04H	19bit
5	05H	5	05H	20bit
6	06H	6	06H	21bit
7	07H	7	07H	22bit
8	08H	8-127	08H-7FH	23bit

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

FADE TIME

[FADE TIME] of Scene Memory

Code		Value [sec]	Code		Value [sec]
Dec	Hex		Dec	Hex	
0	00H	0.0	8	08H	1.6
1	01H	0.2	9	09H	1.8
2	02H	0.4	10	0AH	2.0
3	03H	0.6	11	0BH	2.2
4	04H	0.8	12	0CH	2.4
5	05H	1.0	13	0DH	2.6
6	06H	1.2	14	0EH	2.8
7	07H	1.4			

Code				Value [sec]
Send		Receive		
Dec	Hex	Dec	Hex	
15	0FH	15-127	0FH-7FH	3.0

÷ NRPN : Data LSB = Code, Data MSB (dm) is 00H fixed.

NRPN (Data)

SCREEN ID

[SCREEN ID] of LCD Screen Change

<Table>

Code		Value	Code		Value	Code		Value
Dec	Hex		Dec	Hex		Dec	Hex	
0	00H	CHANNEL	48	30H	FADER GROUP	96	60H	NAME EDIT
1	01H	CHANNEL LIBRARY	49	31H	MUTE GROUP	97	61H	
2	02H		50	32H	FADER LINK/STEREO	98	62H	
3	03H		51	33H		99	63H	
4	04H		52	34H		100	64H	
5	05H		53	35H		101	65H	
6	06H		54	36H		102	66H	
7	07H		55	37H		103	67H	
8	08H	EQUALIZER	56	38H	INPUT METER	104	68H	SOLO MONITOR SETUP
9	09H	EQUALIZER LIBRARY	57	39H	BUS/AUX METER	105	69H	
10	0AH		58	3AH	SLOT METER	106	6AH	
11	0BH		59	3BH		107	6BH	
12	0CH		60	3CH		108	6CH	
13	0DH		61	3DH		109	6DH	
14	0EH		62	3EH		110	6EH	
15	0FH		63	3FH		111	6FH	
16	10H	DYNAMICS	64	40H	AUTOMATION SETUP	112	70H	
17	11H	DYNAMICS LIBRARY	65	41H	AUTOMATION EXECUTE	113	71H	
18	12H		66	42H	AUTOMATION EVENT EDIT	114	72H	
19	13H		67	43H		115	73H	
20	14H		68	44H		116	74H	
21	15H		69	45H		117	75H	
22	16H		70	46H		118	76H	
23	17H		71	47H		119	77H	
24	18H	OSC/BATT	72	48H	AUX1 FADER CONTROL	120	78H	
25	19H	CONFIGURATION	73	49H	AUX2 FADER CONTROL	121	79H	
26	1AH	USER CUSTOM	74	4AH	AUX3 FADER CONTROL	122	7AH	
27	1BH		75	4BH	AUX4 FADER CONTROL	123	7BH	
28	1CH		76	4CH	AUX5 FADER CONTROL	124	7CH	
29	1DH		77	4DH	AUX6 FADER CONTROL	125	7DH	
30	1EH		78	4EH		126	7EH	
31	1FH		79	4FH		127	7FH	
32	20H	MIDI SETUP	80	50H	SCENE MEM READ/WRITE			
33	21H	PROGRAM CHANGE	81	51H	SCENE MEM FADE TIME			
34	22H	CONTROL CHANGE	82	52H				
35	23H	BULK	83	53H				
36	24H	MIDI REMOTE	84	54H				
37	25H		85	55H				
38	26H		86	56H				
39	27H		87	57H				
40	28H	DIGITAL INPUT SETUP	88	58H	SURROUND			
41	29H	TO SLOT	89	59H				
42	2AH	DITHER	90	5AH				
43	2BH		91	5BH				
44	2CH		92	5CH				
45	2DH		93	5DH				
46	2EH		94	5EH				
47	2FH		95	5FH				

MIDI System Exclusive

Basic Structure of System Exclusive Message

Header	SOX	F0H	Start of Exclusive
	IDC	54H	Maker ID Code = Matsushita Communication Industrial Co., Ltd.
	FMT	12H	Format = One Way
	MD	45H	Model Name Code = WR-DA7
	MDC	20H - 2FH	[MIDI Channel] – 1 + 20H
	P/S	50H/53H	Polling Message : 50H, Selecting Message : 53H
CMD			Command
Data			
Footer	ETX	03H	End of Text
	BCC	’0’ - ’F’	XOR of Code from CMD to ETX
		’0’ - ’F’	
	EOX	F7H	End of Exclusive

Structure of Multi Block Transfer (For Data Size over 256 bytes)

Start Block

Header	SOX	F0H	Start of Exclusive
	IDC	54H	Maker ID Code = Matsushita Communication Industrial Co., Ltd.
	FMT	12H	Format = One Way
	MD	45H	Model Name Code = WR-DA7
	MDC	20H - 2FH	[MIDI Channel] – 1 + 20H
	P/S	50H/53H	Polling Message : 50H, Selecting Message : 53H
CMD			Command
Data			
Footer	ETB	17H	End of Text Block
	BCC	’0’ - ’F’	XOR of Code from CMD to ETB
		’0’ - ’F’	
	EOX	F7H	End of Exclusive

Middle Block

Header	SOX	F0H	Start of Exclusive
	IDC	54H	Maker ID Code = Matsushita Communication Industrial Co., Ltd.
	FMT	12H	Format = One Way
	MD	45H	Model Name Code = WR-DA7
	MDC	20H - 2FH	[MIDI Channel] – 1 + 20H
	P/S	50H/53H	Polling Message : 50H, Selecting Message : 53H
Data			
Footer	ETB	17H	End of Text Block
	BCC	’0’ - ’F’	XOR of Code from Data to ETB
		’0’ - ’F’	
	EOX	F7H	End of Exclusive

End Block

Header	SOX	F0H	Start of Exclusive
	IDC	54H	Maker ID Code = Matsushita Communication Industrial Co., Ltd.
	FMT	12H	Format = One Way
	MD	45H	Model Name Code = WR-DA7
	MDC	20H - 2FH	[MIDI Channel] – 1 + 20H
	P/S	50H/53H	Polling Message : 50H, Selecting Message : 53H
Data			
Footer	ETX	03H	End of Text
	BCC	’0’ - ’F’	XOR of Code from Data to ETX
		’0’ - ’F’	
	EOX	F7H	End of Exclusive

MIDI System Exclusive

Command List of System Exclusive

Polling Command

CMD	Command Name	Sub CMD	
20H	STATUS REQUEST	42H	Request of System Status
		41H	Request of Automation Status
2AH	PTN TABLE REQUEST	27H	Request of Program Change Table
		26H	Request of Control Change Table
48H	MEMORY REQUEST	40H	Request of Scene Memory
		2DH	Request of Automation Memory
		2CH	Request of Channel Library
		2BH	Request of Equalizer Library
		2AH	Request of Dynamics Library
		29H	Request of MIDI Remote Library
49H	TITLE REQUEST	28H	Request of Scene Memory Title
		25H	Request of Automation Memory Title
		24H	Request of Channel Library Title
		23H	Request of Equalizer Library Title
		22H	Request of Dynamics Library Title
		21H	Request of MIDI Remote Library Title
58H	CURRENT REQUEST	20H	Request of Current Data
59H	MEMORY NO. REQUEST	32H	Request of Scene Memory Number
		31H	Request of Automation Memory Number
5AH	PARAMETER REQUEST	33H	Request of Status Parameter
		30H	Request of Control Parameter

Selecting Command

CMD	Command Name	Sub CMD	
20H	STATUS RETURN	30H	Return of System Status
		33H	Return of Automation Status
22H	PTN TABLE WRITE	31H	Write Program Change Table
		32H	Write Control Change Table
2AH	PTN TABLE RETURN	31H	Return of Program Change Table
		32H	Return of Control Change Table
30H	MEMORY RECALL	20H	Recall of Scene Memory
		21H	Recall of Automation Memory
		22H	Recall of channel Library
		23H	Recall of Equalizer Library
		24H	Recall of Dynamics Library
		25H	Recall of MIDI Remote Library
38H	MEMORY STORE	20H	Store Scene Memory
		21H	Store Automation Memory
		22H	Store Channel Library
		23H	Store Equalizer Library
		24H	Store Dynamics Library
		25H	Store MIDI Remote Library
40H	MEMORY WRITE	20H	Write Scene Memory
		21H	Write Automation Memory
		22H	Write Channel Library
		23H	Write Equalizer Library
		24H	Write Dynamics Library
		25H	Write MIDI Remote Library
41H	TITLE WRITE	28H	Write Scene Memory Title
		29H	Write Automation Memory Title
		2AH	Write Channel Library Title
		2BH	Write Equalizer Library Title
		2CH	Write Dynamics Library Title
		2DH	Write MIDI Remote Library Title
48H	MEMORY RETURN	20H	Return of Scene Memory
		21H	Return of Automation Memory
		22H	Return of Channel Library
		23H	Return of Equalizer Library
		24H	Return of Dynamics Library
		25H	Return of MIDI Remote Library
49H	TITLE RETURN	28H	Return of Scene Memory Title
		29H	Return of Automation Memory Title
		2AH	Return of Channel Library Title
		2BH	Return of Equalizer Library Title
		2CH	Return of Dynamics Library Title
		2DH	Return of MIDI Remote Library Title
50H	CURRENT SET	40H	Set Current Data
52H	PARAMETER SET	41H	Set Status Parameter
		42H	Set Control Parameter
58H	CURRENT RETURN	40H	Return of Current Data
59H	MEMORY NO. RETURN	26H	Return of Scene Memory Number
		27H	Return of Automation Memory Number
5AH	PARAMETER RETURN	41H	Return of Status Parameter
		42H	Return of Control Parameter

Contents of Each Command

STATUS REQUEST, PTN TABLE REQUEST, CURRENT REQUEST, MEMORY NO. REQUEST (Polling Commands)

Header		
CMD		20H/2AH/58H/59H
Data	Sub CMD	26H/27H/30H/31H/32H/33H/40H
Footer		

MIDI System Exclusive

MEMORY REQUEST, TITLE REQUEST (Polling Commands)

Header				
CMD			48H/49H	
Data	Sub CMD		20H/21H/22H/23H/24H/25H/28H/29H/2AH/2BH/2CH/2DH	
	Top Memory No.	MSB	’0’ - ’F’	ASCII Code Number of Two Figures
		LSB	’0’ - ’F’	
	Bottom Memory No.	MSB	’0’ - ’F’	ASCII Code Number of Two Figures
		LSB	’0’ - ’F’	
Footer				

PARAMETER REQUEST - Request of Status Parameter (Polling Command)

Header				
CMD			5AH	
Data	Sub CMD		41H/42H	
	Parameter No.	MSB	20H - 7FH	Apply NRPN Parameter MSB
		LSB	20H - 7FH	Apply NRPN Parameter LSB
Footer				

PARAMETER REQUEST - Request of Control Parameter (Polling Command)

Header				
CMD			5AH	
Data	Sub CMD		41H/42H	
	Parameter No.	MSB	20H - 7FH	Apply Control Parameter List
		LSB	20H - 7FH	
Footer				

STATUS RETURN - Return of System Status (Selecting Command)

Header			
CMD		20H	
Data	Sub CMD	30H	
	System Status	’0’/’1’	’0’: Last Operation was Remote. ’1’: Last Operation was Local.
Footer			

STATUS RETURN - Return of Automation Status (Selecting Command)

When INT, MTC or SMPTE is Selected

Header				
CMD			20H	
Data	Sub CMD		33H	
	Automation Status		’0’/’1’	’0’: Stop, ’1’: Playing or Recording
	Hour	MSB	’0’ - ’F’	ASCII Code of Hour
		LSB	’0’ - ’F’	
	Minute	MSB	’0’ - ’F’	ASCII Code of Minute
		LSB	’0’ - ’F’	
	Second	MSB	’0’ - ’F’	ASCII Code of Second
		LSB	’0’ - ’F’	
	Frame	MSB	’0’ - ’F’	ASCII Code of Frame Number
		LSB	’0’ - ’F’	
	Time Base		’0’ - ’3’	’0’: 24frame/sec ’1’: 25frame/sec ’2’: 30frame/sec, Drop Frame ’3’: 30frame/sec, Non Drop Frame ’4’: MIDI Clock
Footer				

When MIDI Clock is Selected

Header				
CMD			20H	
Data	Sub CMD		33H	
	Automation Status		’0’/’1’	’0’: Stop, ’1’: Playing or Recording
	Meas	MSB	’0’ - ’F’	ASCII Code of Meas
			’0’ - ’F’	
			’0’ - ’F’	
		LSB	’0’ - ’F’	
	Beat	MSB	’0’ - ’F’	ASCII Code of Beat
		LSB	’0’ - ’F’	
	Clock	MSB	’0’ - ’F’	ASCII Code of Clock Number
		LSB	’0’ - ’F’	
	Time Base		’4’	’0’: 24frame/sec ’1’: 25frame/sec ’2’: 30frame/sec, Drop Frame ’3’: 30frame/sec, Non Drop Frame ’4’: MIDI Clock
Footer				

PTN TABLE WRITE, PTN TABLE RETURN (Selecting Command)
Write Program Change Table, Return of Program Change Table
÷ Need to Send 2 Blocks

1st Block

Header				
CMD			22H/2AH	
Data	Sub CMD		31H	
	As Program Change No.1	MSB	’0’ - ’F’	ASCII Code of Scene Memory Number
		LSB	’0’ - ’F’	
	As Program Change No.2	MSB	’0’ - ’F’	
		LSB	’0’ - ’F’	
	:	:	:	:
	:	:	:	:
	As Program Change No.N	MSB	’0’ - ’F’	ASCII Code of Scene Memory Number
		LSB	’0’ - ’F’	
Footer				

2nd (Last) Block

Header				
Data	As Program Change No.N+1	MSB	’0’ - ’F’	ASCII Code of Scene Memory Number
		LSB	’0’ - ’F’	
	As Program Change No.N+2	MSB	’0’ - ’F’	
		LSB	’0’ - ’F’	
	:	:	:	:
	:	:	:	:
	As Program Change No.128	MSB	’0’ - ’F’	ASCII Code of Scene Memory Number
		LSB	’0’ - ’F’	
Footer				

MIDI System Exclusive

Write Control Change Table, Return of Control Change Table

÷ Need to Send 2 Blocks

1st Block

Header				
CMD			22H/2AH	
Data	Sub CMD		32H	
	As Control Change No.0	MSB	’0’ - ’F’	ASCII Code of Parameter Number
		LSB	’0’ - ’F’	
		MSB	’0’ - ’F’	ASCII Code of Channel (Same as NRPN Parameter LSB for Sel. Ch.)
		LSB	’0’ - ’F’	
	As Control Change No.1	MSB	’0’ - ’F’	ASCII Code of Parameter Number
		LSB	’0’ - ’F’	
		MSB	’0’ - ’F’	ASCII Code of Channel (Same as NRPN Parameter LSB for Sel. Ch.)
		LSB	’0’ - ’F’	
	: :	: :	: :	: :
	As Control Change No.N	MSB	’0’ - ’F’	ASCII Code of Parameter Number
		LSB	’0’ - ’F’	
		MSB	’0’ - ’F’	ASCII Code of Channel (Same as NRPN Parameter LSB for Sel. Ch.)
		LSB	’0’ - ’F’	
Footer				

2nd (Last) Block

Header				
Data	As Control Change No.N+1	MSB	’0’ - ’F’	ASCII Code of Parameter Number
		LSB	’0’ - ’F’	
		MSB	’0’ - ’F’	ASCII Code of Channel (Same as NRPN Parameter LSB for Sel. Ch.)
		LSB	’0’ - ’F’	
	As Control Change No.N+2	MSB	’0’ - ’F’	ASCII Code of Parameter Number
		LSB	’0’ - ’F’	
		MSB	’0’ - ’F’	ASCII Code of Channel (Same as NRPN Parameter LSB for Sel. Ch.)
		LSB	’0’ - ’F’	
	: :	: :	: :	: :
	As Control Change No.119	MSB	’0’ - ’F’	ASCII Code of Parameter Number
		LSB	’0’ - ’F’	
		MSB	’0’ - ’F’	ASCII Code of Channel (Same as NRPN Parameter LSB for Sel. Ch.)
		LSB	’0’ - ’F’	
Footer				

MEMORY RECALL, MEMORY STORE, MEMORY NO. RETURN (Selecting Command)

Header				
CMD			30/38/59H	
Data	Sub CMD		20H - 27H	
	Memory (Library) No.	MSB	’0’ - ’F’	ASCII Code of Memory (Library) No.
		LSB	’0’ - ’F’	
Footer				

MEMORY WRITE, MEMORY RETURN (Selecting Command)

÷ Need to Send Several Blocks

Header				
CMD			40H	
Data	Sub CMD		20H - 25H	
	Memory (Library) No.	MSB	’0’ - ’F’	ASCII Code of Memory (Library) No.
		LSB	’0’ - ’F’	
	Data to be Written to Memory (Library)			
Footer				

Intermediate and Last Blocks

Header	
Data	Data to be Written to Memory (Library)
Footer	

TITLE WRITE, TITLE RETURN (Selecting Command)

1st Block

Header				
CMD			41H/49H	
Data	Sub CMD		28H - 2DH	
	Start Memory (Library) No.	MSB	’0’ - ’F’	ASCII Code of Memory (Library) No.
		LSB	’0’ - ’F’	
	End Memory (Library) No.	MSB	’0’ - ’F’	ASCII Code of Memory (Library) No.
		LSB	’0’ - ’F’	
	Title of 1st Memory(Library)	1st	20H - 7FH	ASCII Code of 1st Character of Title
		2nd	20H - 7FH	ASCII Code of 2nd Character of Title
		3rd	20H - 7FH	ASCII Code of 3rd Character of Title
		4th	20H - 7FH	ASCII Code of 4th Character of Title
		5th	20H - 7FH	ASCII Code of 5th Character of Title
		6th	20H - 7FH	ASCII Code of 6th Character of Title
		7th	20H - 7FH	ASCII Code of 7th Character of Title
		8th	20H - 7FH	ASCII Code of 8th Character of Title
		9th	20H - 7FH	ASCII Code of 9th Character of Title
		10th	20H - 7FH	ASCII Code of 10th Character of Title
	Title of 2nd Memory(Library)	1st	20H - 7FH	ASCII Code of 1st Character of Title
		2nd	20H - 7FH	ASCII Code of 2nd Character of Title
		3rd	20H - 7FH	ASCII Code of 3rd Character of Title
		4th	20H - 7FH	ASCII Code of 4th Character of Title
		5th	20H - 7FH	ASCII Code of 5th Character of Title
		6th	20H - 7FH	ASCII Code of 6th Character of Title
		7th	20H - 7FH	ASCII Code of 7th Character of Title
		8th	20H - 7FH	ASCII Code of 8th Character of Title
		9th	20H - 7FH	ASCII Code of 9th Character of Title
		10th	20H - 7FH	ASCII Code of 10th Character of Title
	:	:	:	:
	:	:	:	:
Footer				

MIDI System Exclusive

International and Last Blocks

Header				
Data	Title of Memory(Library)	1st	20H - 7FH	ASCII Code of 1st Character of Title
		2nd	20H - 7FH	ASCII Code of 2nd Character of Title
		3rd	20H - 7FH	ASCII Code of 3rd Character of Title
		4th	20H - 7FH	ASCII Code of 4th Character of Title
		5th	20H - 7FH	ASCII Code of 5th Character of Title
		6th	20H - 7FH	ASCII Code of 6th Character of Title
		7th	20H - 7FH	ASCII Code of 7th Character of Title
		8th	20H - 7FH	ASCII Code of 8th Character of Title
		9th	20H - 7FH	ASCII Code of 9th Character of Title
		10th	20H - 7FH	ASCII Code of 10th Character of Title
	:	:	:	:
	:	:	:	:
Footer				

CURRENT SET, CURRENT RETURN (Selecting Command)

1st Block

Header			
CMD		50H	
Data	Sub CMD	40H	
	Data to be Set to Current Memory		
Footer			

Intermediate and Last Blocks

Header	
Data	Data to be Set to Current Memory
Footer	

PARAMETER SET, PARAMETER RETURN (Selecting Command)

Set Status Parameter, Return of Status Parameter

Header				
CMD			52H/59H	
Data	Sub CMD		41H	
	Parameter No.	MSB	20H - 7FH	Apply NRPN Parameter MSB
		LSB	20H - 7FH	Apply NRPN Parameter LSB
	Data	MSB	’0’ - ’F’	Apply NRPN DATA MSB and LSB (ASCII Code)
			’0’ - ’F’	
		LSB	’0’ - ’F’	
			’0’ - ’F’	
Footer				

Set Control Parameter, Return of Control Parameter

Header				
CMD			52H/59H	
Data	Sub CMD		42H	
	Parameter No.	MSB	20H - 7FH	Apply Control Parameter List
		LSB	20H - 7FH	
	Data	MSB	’0’ - ’F’	
			’0’ - ’F’	
		LSB	’0’ - ’F’	
			’0’ - ’F’	
Footer				

Control Parameter List

Param. MSB	PARAMETER			DATA	
				MSB	LSB
20H	AUTOMATION	DISABLE/ENABLE			DISABLE/ENABLE
21H		REC OFF/ON			OFF/ON
22H		SCENE ENTER			
23H		START TIME			
24H		TIME BASE		INT/MTC/SMPTE/MIDI CLK	ND/DF/24/25
25H		OFFSET High		Hour/MEAS-H	Minute/MEAS-L
26H		OFFSET Low		Second/BEAT	Frame/CLK
27H		EDIT PARAMETER	FADER		OFF/ON
28H			CH		OFF/ON
29H			EQ/DYN		OFF/ON
2AH			PAN/SURR		OFF/ON
2BH			AUX SND		OFF/ON
2CH			LIB		OFF/ON
2DH			SCENE		OFF/ON
2EH			OTHERS		OFF/ON
2FH		FADER EDIT MODE			ABSOLUTE/RELATIVE
30H		FADE			OFF/ON
31H		FADE TIME			0-30msec
32H		AUTO PUNCH IN			OFF/ON
33H		UNDO	STATUS		DISABLE/ENABLE
34H			BUFF CLR		
40H	PANEL	UNDO			
41H		FADER LAYER			1/2/3/4

Glossary

A/D converter. An electronic device that converts analog signals into digital signals. D/A is the opposite, converting digital signals to analog.

AES/EBU. A specification using time division multiplex to send two channels of digital audio data via twisted pair and using XLR connectors.

analog. A continuously varying electrical signal. Direct transformation of sound or picture signal data into another form of electrical signal.

assign. To route or switch a signal to a particular or combination of signal paths.

attenuator. An electronic device used to reduce the value of an electronic signal. No attenuation results in maximum signal level. See fader and level.

audio. What people listen to; pertaining to audible sound, the broadcasting of sound, the reproduction of sound, and the sound portion of a production.

automation. Computerized methods replacing manual operations. Based on timecode, the ***DA7*** automation system will memorize fader positions, switch individual channels off and on, adjust equalization or pan positions and change the auxiliary sends. The ***DA7*** also allows you to record an entire mixing session and then edit the individual channel settings in multiple passes.

auxiliary send/auxiliary return/aux. The auxiliary send is used to feed signals from the output channels to external devices such as effects processors, amplifiers, or multi-track recording equipments. The auxiliary return is used to receive output channels from external devices. The ***DA7*** has six input sends and six output sends. Aux sends and returns are usually only used with peripheral processors.

balance/balanced. Adjusting of various sound levels on an audio mixing board to give a pleasant consistent result.

Balanced line. A cable that uses a twisted pair for the signal and is wrapped with grounded shield. Balanced lines have superior noise immunity.

Baud rate. A measure of the number of bits per second transfered by a MIDI, a modem or a serial port. Two devices must be at the same baud rate to transfer data.

Bandpass filter. See filter.

bit. The smallest unit of computer data, represented by a zero or a one. Eight bits form a byte.

BNC. Bayonet Nut Connector or a coaxial cable that has BNCs attached to the ends.

buffer. A temporary storage area in a computer's memory that holds information. In the ***DA7*** the buffer holds the current mix settings. When a scene memory is recalled, the mix setting of the selected scene memory is written to the buffer. When a scene is stored, the mix settings in the buffer are written to the selected scene memory.

bulk dump. The MIDI function that allows the transfer of system specific data between MIDI capable devices, i.e. sample files and mixer settings. The data is transmitted as MIDI System Exclusive messages.

bus. A point in an electronic circuit where many connections are brought together. In the ***DA7***, a bus carries signals from a number of inputs or return signals to a mixing amplifier and/or output connectors. See mixing bus and data bus.

byte. A unit of information, consisting of eight bits, that is used in computer processing.

channel library. An area in the ***DA7*** memory used to access and store channel settings, stored as programs. The ***DA7*** has user programs to store your channel settings.

channel strip. The a vertical strip of controls depicting an audio channel on the front panel of the ***DA7***.

clipping. An audio circuit overloaded with a signal that is too large causing the unwanted effect of distortion. Excessive gain caused by severe audio distortion where the peaks of the audio signal will rise above the capabilities of the amplifier circuit. When viewed on an oscilloscope, audio peaks will appear clipped off.

clock. In digital equipment, clock refers to the timing pulses used internally for timing and externally to synchronize the other equipment on the system. In audio, low frequency clock pulses are used for gates and triggers and for MIDI control.

Compressor. An automatic level control device which boosts low-level signals and cuts high-level signals, streamlining level settings by reducing the effective dynamic range. A device for reducing the dynamic range of an audio signal without imparting distortion.

console. A large, desk-like audio mixer.

Control Change. A MIDI message that provides real-time control such as Modulation, Volume and Pan.

D/A converter. An electronic device that converts digital signals into analog signals.

data. Electronic information that is used by a computer when running a program. Electronic data refers to files and databases, text documents, images, and digitally-encoded audio and video.

data bus. A bundle of wires that is used for parallel transmission of digital data. Also see bus and mixing bus.

dBu. A unit of measurement of an audio signal level in an electrical circuit. This term is commonly used to describe signal levels in modern audio systems.

decibel/Db. A unit used to measure sound intensity or volume level. 0 dBu A reference voltage equal to 0.775 Vrms. 0 dBV A voltage reference equal to 1.0 Vrms. 0 dBFS A reference level equal to “full scale” or maximum voltage level before digital cliping in A/D and D/A audio converters.

delay. An electrical or mechanical means of delaying the audio signal a short period of time. Most often used as the basis for special effects. Echo, reverb, phasing, flanging, doubling, slap back and chorusing are some effects that use time delay. Also see Dynamic Processor.

digital. Information that can be quantified and measured in discrete, exact values. The binary representation of audio information that can be stored, processed and copied.

dither. A process that allows high quality transfers between systems that have different digital word sizes. The use of dither greatly reduces distortion. Dither is a built in function of the ***DA7***.

drop frame timecode. The method of timecode computation that accounts for the reality of there being only 29.97 frames of video per second. The .03 frame is visually insignificant, but mathematically very significant. A one hour video program will have 107,892 frames of video (29.97 frames per second x 60 seconds x 60 minutes). The drop frame time code method of accommodating reality was developed, where 2 frames are dropped from the numerical count for every minute in an hour, except for every 10th minute when no frames are dropped. See also non-drop frame timecode and timecode.

dry. A term used to describe unaltered audio with no processing. The opposite of wet. See Wet.

dynamic range. The ratio of the minimum signal to the maximum signal an audio system can handle without loss or distortion. It is expressed in decibels.

dynamic processor. A device used to correct or modify an audio signal. The ***DA7*** allows the use of pre and post fader dynamic processors to be inserted in the audio path.

D/A converter. An electronic device that converts digital signals into analog signals. A/D is the opposite, converting analog signals to digital.

Edit. To change or modify. The ***DA7*** has several editors to edit, store and recall setting, scenes, parameters, lists and names.

EMI Electrical Magnetic Interference. An unwanted signal caused by strong magnetic fields. Hum and buzz are the most common forms of this type of interference when audio signal cables are near power transformers or other high power equipment such as stage lights. Good quality, properly wired cables will reduce or eliminate EMI.

Equalizer or EQ. A device that is used to control or modify audio signals' frequency response. The ***DA7*** has separate 4 band parametric equalizers for each input. The gain, center frequency and Q are fully adjustable.

Equalizer library. Predefined commonly used equalizer settings that can be recalled. The ***DA7*** allows the creation of custom settings that can be saved and recalled.

equalization. The adjustment of the frequency response of an audio signal. See Equalizer.

EPROM Electrically Progamable Read Only Memory. A intergrated circuit memory chip that can store the instructions or programs needed to operate digital equipment. The ***DA7*** has two EPROM's which store the operating system for the mixer. The information stored on EPROM's is also known as firmware and eliminates the need for software stored on floppy or hard disks.

expander. A process that expands the dynamic range of an audio signal. The ***DA7*** has a fully controllable internal expander on each input as part of the dynamics processor.

fader. The slide control for adjusting audio signal levels.

filter. A device to remove certain bands of frequencies. The three types of common filters are: a low pass filter -passes only low frequency signals, high pass -passes only high frequncy signals, band pass filters -passes only a certain band frequncy signals. See Equalizer.

frequency. The characteristic of sound or an audio signal that determines pitch, measured in Hertz (Hz). The ***DA7***'s equalizer has controls that vary the center frequency of four separate filters.

gain. An increase in the level of audio signal, measured in decibels (Db) or volume units (vu). Gain controls on the ***DA7*** are used to adjust signal levels for optimal performance.

gate. A method of suppressing audio signals below a predetermined level. Gates are used to suppress unwanted low level noise. The ***DA7*** has a gate for every fader that allows signal processing.

ground. Also known as earth ground, is the electrical connections of equipment to the earth. By convention, earth ground is considered the 0 (zero) volt reference for electrical power. Equipment that does not have an earth ground is a potential source of dangerous electrical shock.

Ground loop. A type of interference in audio equipment that is grounded in more then one location, often through cables or connections, that can be the source of hum interference due to small currents that exists between the two pieces of equipment. Ground loop eliminator devices can prevent this type hum. All equipment should be grounded for safe operation.

Hertz (Hz). The unit of measure of frequency. 1 hertz equals one cycle per second. 1KHz equals 1000 cycles per second. (K in the metric system is short for Kilo or 1000.)

Highpass filter. See filter.

I/O. An abbreviation for Input/Output.

initialize. To reset or bring to to some predetermined condition.

K. The abbreviation of kilo in the metric system meanining 1000. See Hertz.

LED Light Emitting Diode. The ***DA7*** uses various color LED's as visual indicators in the buttons and the signal level meters for ease of use, long life and reliability.

level. A general term used to describe the audio signals strength, voltage, power or volume.

line level signal. The level of signal used by most audio equipment. Line level is -20db to +20db. In audio, it is known as a high-level signal.

loop. A sound that is played repeatedly. On the ***DA7,*** a software command that instructs a process to repeat.

Lowpass filter. See filter.

Low level signal. A signal that is less then -20dB is considered a low level signal. The output of microphones are generally low level. Generally, low level signals are more suceptable to hum and noise.

master. A device that controls all other devices. A master gain control controls the overall level of all the other contols under it.

metering. The ***DA7*** metering is precise and easy to read. LED signal indicators for inputs, outputs, bus and special effects monitoring.

MIDI. Musical Instrument Digital Interface. The musical instrument standard that allows MIDI capable devices to communicate with each other. The ***DA7*** can communicate with and control other MIDI devices.

MIDI Timecode. An addition to the MIDI Standard to allow the synchronization of audio equipment, such as the ***DA7***, to MIDI equipped devices.

Mix. The combination of various audio signals. The ***DA7*** provides an almost limitless number of ways to combine audio signals. Complex settings can be saved as "scenes" and recalled later.

mixing bus. An audio mixer where signals from different microphones and/or preamps are connected and where mixing is actually done. Also see bus and data bus.

Mix scene. The various settings of the mixer for different requirements during a production. The ***DA7*** allows the saving and recalling of these settings in memory.

modulation. A method of varying the frequency or volume of an audio signal by applying a low frequency signal. Modulation can also be applied to controls, such as Pan, to create stereo or surround sound effects.

Mono or monophonic. A single source or channel of sound.

MTC. See MIDI Time Code.

Noise Gate. see Gate.

non-drop frame timecode. The method of timecode computation where there are 30 numerical frames per second of video. "There are 30 frames of video per second," you say. Wrong. There are only 29.97 frames of video per second. In a mathematical hour there would be 108,000 frames (30 frames per second x 60 seconds x 60 minutes). So, a mathematical hour of video is 108 frames longer than an hour of reality video. See also drop frame timecode and timecode.

ohm. A unit of electrical resistance for direct curent or impedance for alternating current.

output. Signal connections that can be sent or connected to another device.

oscillator. A device that produces a continuous electrical wave or tone.

pan/panning. A method of positioning the sound in a stereo signal from any point between left and right. The ***DA7*** allows pan control positioning for each input signal.

PPM/Peak Program Meter A peak oriented type of volt meter system designed to detect signal overloads easily. A PPM responds to input signals very quickly, several times faster than a Volt Unit meter.

peaking. A broad band equalizer process used to increase or decrease a wide band of frequencies. The ***DA7*** equalizer has 4 Q controls per input fader to adjust the frequencies affected from broad to narrow.

Phase. Signal connections. In-phase is a properly wired connections; signals can be mixed (added) to other signals. Out-of-phase is a connection that is reversed and causes cancelation of the signal to occur when mixed with other signals.

Phantom power. A method of sending power to certain microphones over standard balanced lines.

Phone Jack. A 1/4" connector used in audio. The ***DA7*** uses two types. The Tip Sleeve (TS) for single signal connections and the Tip Ring Sleeve (TRS) for dual signal connections. The Tip Ring Sleeve connectors are normally used for stereo pairs, or balanced signals where there is a plus, minus, and ground.

Phono Jack. A connector used on consumer and semi-professional audio and video equipment originally known as the RCA jack. Also used for digital signals (S/PDIF).

Pink Noise. A specific type of random noise with an equal amount of energy per octave. White Noise is random noise with an equal amount of energy per frequncy band.

Post Fader. A point in the signal path after a fader. The ***DA7*** allows for both pre and post fader insertion. See Pre Fader.

Pre Fader. A point in the signal path before the fader. The ***DA7*** allows for both pre and post fader insertion. See Post Fader.

Program Change. MIDI command sent to MIDI devices to change the patch or settings.

Punch In/Out. The ***DA7***'s automation controls allow Punch In/Out recording.

Q. The "quality" of a filter. A low Q affects a broad band of frequencies, while a high Q affects a narrow band of frequencies. On the ***DA7***, Q is one of the parameters that can be controlled with the 4 band parametric equalizer. See equalizer.

Routing. The designation of inputs, faders, buses, outputs and processes' of the signal. See Signal Path.

RS-422. A protocol for communication that specifies which pins in a 9-pin cable connector are supposed to do what.

Scene Memory. The part of the ***DA7***'s memory used to store scene settings.

Serial port or interface. See RS-422.

Shelving. An Equalization process usually used to cut or boost either high or low frequencies.The name comes from the response curve, which looks like a shelf.

Signal. An electrical representation of sound in audio equipment.

Signal Path or Route. The course a signal travels through audio equipment.

Signal to Noise S/N. A ratio of the threahshold level of noise to the normal signal level. Digital systems gennerally have a higher Signal to Noise ratio.

Snapshot. See Mix scene.

save. The action necessary to save a copy of your current file on the Hard Disk for storage. Until you save, any work you do is liable to disappear without notice.

serial port. Data is transmitted through a serial port one bit at a time. Transmission can be in both directions, but not simultaneously.

SMPTE. Society of Motion Picture and Television Engineers. SMPTE also refers to the timecode recorded on audio or videotape for synchronization purposes.

solo. Monitoring a single channel.

Surround sound. A multichannel audio format.

sync, synchronization. The coordination of a soundtrack with its corresponding picture.

System exclusive. A midi data format specification used to send information between digital devices.

Talk Back. A ***DA7*** feature that allows the person operating the mixer to talk to the studio from the control room.

TDIF/Teac Digital Interface Format. An 8-channel digital audio interface for use with DA-88 type digital multitrack recorders (DTRS).

timecode. An eight-digit number that identifies a specific frame in a tape. It is also an electronic timing signal, based on the 24-hour clock, that is recorded along the length of the tape and provides markers for locating specific program material. There are two types of timecode, non-drop frame and drop frame. Non-drop frame timecode is based on 30 fames of video per second. Drop frame timecode is based on 29.97 frames of video per second. For short amounts of time, this discrepancy is inconsequential. For longer periods of time, however, it is important. One hour of non-drop frame timecode will be 108 frames longer than one hour of real time. See also non-drop frame timecode and drop frame timecode.

undo. Cancels the last operation. You cannot undo a save.

VU meter Volume Units. A special type of volt meter designed and calibrated to follow perceived audio volume. 0 VU equals +4 dBu.

window. A rectangle frame of data on the display. It lets you “see” and work with programs, applications, or functions. Several windows can be open at one time.

write. To record data on a medium.

Wordclock. A reference syncronization pulse used in digital audio equipment to eliminate timing errors. The use of a dedicated wordclock line is more reliable. It is often used in more complex systems and multitrack recording to ensure proper syncronization.

XLR. A three pin audio connector.

zoom. Enlarging or reducing the size of an image or a display.

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Panasonic
Broadcast & Television Systems Company
Professional Audio Division

WESTERN REGIONAL OFFICE(Headquarters):
3330 Cahuenga Boulevard West. Los Angeles, CA 90068 (323) 436-3500

CENTRAL REGIONAL OFFICE:
1707 North Randall Road #E1-C1, Elgin, IL 60123 (847) 468-5130

EASTERN REGIONAL OFFICE:
One Panasonic Way #2E-2, Secaucus, NJ 07094 (201) 348-7394

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